DRAFT

North Montclair Downtown Specific Plan Amendment Project
Supplemental EIR

Prepared for:

City of Montclair
5111 Benito Street
Montclair, California 91763
Contact: Michael Diaz, City Planner/Planning Manager

Prepared by:

DUDEK
38 North Marengo Avenue
Pasadena, California 91101
Contact: Ruta K. Thomas, REPA

JANUARY 2017

Printed on 30% post-consumer recycled material.

TABLE OF CONTENTS

Section **Page No.**

EXECUTIVE SUMMARY ES-1
ES.1 Introduction ES-1
ES.2 Proposed Amendment Location and Setting ES-1
ES.3 Proposed Amendment background and Description ES-2
ES.4 Proposed Amendment Objectives ES-5
ES.5 Areas of Controversy/Issues to Be Resolved ES-6
ES.6 Summary of Environmental Impacts ES-7
ES.7 Alternatives to the Proposed Amendment ES-7

1 INTRODUCTION 1-1
1.1 Summary and Scope of the Proposed Amendment 1-1
1.2 CEQA Requirements 1-3
1.2.1 CEQA Compliance 1-3
1.2.2 Environmental Procedures 1-4
1.2.3 EIR Organization 1-7

2 PROJECT DESCRIPTION 2-1
2.1 California Environmental Quality Act 2-1
2.1.1 Planning Background 2-1
2.1.2 Proposed NMDSP Amendment 2-2
2.2 Project Location 2-3
2.3 Surrounding Land Uses 2-4
2.4 Existing Setting 2-4
2.5 Need for the Project 2-5
2.6 Objectives 2-6
2.7 Project Components 2-7
2.7.1 California Environmental Quality Act Baseline 2-7
2.7.2 Proposed Amendment 2-13
2.8 Required Permits and Approvals 2-23
2.9 References 2-23

3 ENVIRONMENTAL ANALYSIS 3-1
3.1 Aesthetics 3.1-1
3.1.1 Existing Conditions 3.1-2
3.1.2 Regulatory Setting 3.1-3
3.1.3 Thresholds of Significance 3.1-4
3.1.4 Impacts Analysis 3.1-5
3.1.5 Cumulative Impacts 3.1-9

3.1.6 Mitigation Measures 3.1-10
3.1.7 Significance After Mitigation 3.1-11
3.1.8 References 3.1-11
3.2 Air Quality 3.2-1
3.2.1 Existing Conditions 3.2-1
3.2.2 Regulatory Setting 3.2-8
3.2.3 Thresholds of Significance 3.2-19
3.2.4 Impacts Analysis 3.2-23
3.2.5 Cumulative Impacts 3.2-42
3.2.6 Mitigation Measures 3.2-42
3.2.7 Significance After Mitigation 3.2-45
3.2.8 References 3.2-45
3.3 Biological Resources 3.3-1
3.3.1 Existing Conditions 3.3-1
3.3.2 Regulatory Setting 3.3-4
3.3.3 Thresholds of Significance 3.3-7
3.3.4 Impacts Analysis 3.3-8
3.3.5 Cumulative Impacts 3.3-11
3.3.6 Mitigation Measures 3.3-12
3.3.7 Significance After Mitigation 3.3-15
3.3.8 References 3.3-16
3.4 Cultural Resources 3.4-1
3.4.1 Existing Conditions 3.4-1
3.4.2 Regulatory Setting 3.4-12
3.4.3 Thresholds of Significance 3.4-21
3.4.4 Impacts Analysis 3.4-21
3.4.5 Cumulative Impacts 3.4-25
3.4.6 Mitigation Measures 3.4-26
3.4.7 Significance After Mitigation 3.4-27
3.4.8 References 3.4-28
3.5 Greenhouse Gas Emissions 3.5-1
3.5.1 Existing Conditions 3.5-1
3.5.2 Regulatory Setting 3.5-10
3.5.3 Thresholds of Significance 3.5-28
3.5.4 Impacts Analysis 3.5-33
3.5.5 Cumulative Impacts 3.5-46
3.5.6 Mitigation Measures 3.5-47
3.5.7 Significance After Mitigation 3.5-48
3.5.8 References 3.5-48

3.6 Hydrology and Water Quality 3.6-1
3.6.1 Existing Conditions 3.6-1
3.6.2 Regulatory Setting 3.6-3
3.6.3 Thresholds of Significance 3.6-5
3.6.4 Impacts Analysis 3.6-7
3.6.5 Cumulative Impacts 3.6-8
3.6.6 Mitigation Measures 3.6-9
3.6.7 Significance After Mitigation 3.6-11
3.6.8 References 3.6-11
3.7 Noise 3.7-1
3.7.1 Existing Conditions 3.7-1
3.7.2 Regulatory Setting 3.7-6
3.7.3 Thresholds of Significance 3.7-11
3.7.4 Impacts Analysis 3.7-12
3.7.5 Cumulative Impacts 3.7-22
3.7.6 Mitigation Measures 3.7-24
3.7.7 Significance after Mitigation 3.7-26
3.7.8 References 3.7-27
3.8 Population and Housing 3.8-1
3.8.1 Existing Conditions 3.8-1
3.8.2 Regulatory Setting 3.8-2
3.8.3 Thresholds of Significance 3.8-4
3.8.4 Impacts Analysis 3.8-4
3.8.5 Cumulative Impacts 3.8-7
3.8.6 Mitigation Measures 3.8-8
3.8.7 Significance After Mitigation 3.8-9
3.8.8 References 3.8-9
3.9 Public Services 3.9-1
3.9.1 Existing Conditions 3.9-1
3.9.2 Regulatory Setting 3.9-4
3.9.3 Thresholds of Significance 3.9-9
3.9.4 Impacts Analysis 3.9-10
3.9.5 Cumulative Impacts 3.9-15
3.9.6 Mitigation Measures 3.9-15
3.9.7 Significance after Mitigation 3.9-16
3.9.8 References 3.9-16
3.10 Recreation 3.10-1
3.10.1 Existing Conditions 3.10-1
3.10.2 Regulatory Setting 3.10-4

3.10.3 Thresholds of Significance 3.10-6
3.10.4 Impacts Analysis 3.10-6
3.10.5 Cumulative Impacts 3.10-7
3.10.6 Mitigation Measures 3.10-8
3.10.7 Significance After Mitigation 3.10-8
3.10.8 References 3.10-8
3.11 Transportation/Traffic 3.11-1
3.11.1 Existing Conditions 3.11-2
3.11.2 Regulatory Setting 3.11-6
3.11.3 Thresholds of Significance 3.11-9
3.11.4 Methodology 3.11-10
3.11.5 Impacts Analysis 3.11-14
3.11.6 Cumulative Impacts 3.11-28
3.11.7 Mitigation Measures 3.11-28
3.11.8 Significance After Mitigation 3.11-29
3.11.9 References 3.11-31
3.12 Utilities and Service Systems 3.12-1
3.12.1 Existing Conditions 3.12-1
3.12.2 Regulatory Setting 3.12-3
3.12.3 Thresholds of Significance 3.12-7
3.12.4 Impacts Analysis 3.12-8
3.12.5 Cumulative Impacts 3.12-15
3.12.6 Mitigation Measures 3.12-17
3.12.7 Significance After Mitigation 3.12-19
3.12.8 References 3.12-20
3.13 Energy Consumption 3.13-1
3.13.1 Existing Conditions 3.13-1
3.13.2 Regulatory Setting 3.13-4
3.13.3 Thresholds of Significance 3.13-19
3.13.4 Impacts Analysis 3.13-20
3.13.5 Cumulative Impacts 3.13-29
3.13.6 Mitigation Measures 3.13-29
3.13.7 Significance after Mitigation 3.13-30
3.13.8 References 3.13-30

4 ALTERNATIVES 4-1
4.1 Selection of Alternatives 4-1
4.1.1 Proposed Amendment 4-1
4.1.2 Alternative Considered But Rejected 4-4

4.2 Alternatives Carried Forward for Consideration 4-5
4.2.1 Alternative 1 – No Project (No Build) Alternative 4-6
4.2.2 Alternative 2 – No Project/Existing Specific Plan Alternative 4-10
4.2.3 Alternative 3 – Reduced Density Alternative 4-15
4.3 Environmentally Superior Alternative 4-21

5 OTHER CEQA REQUIREMENTS 5-1
5.1 Significant Unavoidable Environmental Impacts 5-1
5.2 Effects Not Found to be Significant 5-2
5.3 Significant Irreversible Environmental Changes 5-5
5.4 Growth-Inducing Impacts 5-6
5.5 References 5-8

6 LIST OF PREPARERS 6-1

APPENDICES

A Initial Study-NOP, Agency Distribution List, and Initial Study-NOP Comments
B Air Quality-Greenhouse Gas Modeling Data
C CNDDB Occurrence Report
D Noise Modeling Data
E Traffic Study

FIGURES

2-1 Regional Map 2-25
2-2 City of Montclair 2-27
2-3 North Montclair Downtown Specific Plan 2-29
2-4a North Montclair Downtown Specific Plan Existing Regulating Plan 2-31
2-4b Proposed North Montclair Downtown Specific Plan Regulating Plan 2-33
2-5 Existing Property Lines, Buildings and Features 2-35
2-6 Existing vs. Proposed North Montclair Downtown Specific Plan Westerly Boundary 2-37
2-7 Existing vs. Proposed North Montclair Downtown Specific Plan Easterly Boundary 2-39
2-8 Existing vs. Proposed Street Alignment at Arrow Highway and Fremont Avenue. 2-41
2-9 Existing vs. Proposed Street Alignment at Fremont Avenue and Moreno Street.... 2-43
2-10 Existing vs. Proposed Street Alignment on the Northeast Corner of Arrow Highway and Monte Vista Avenue 2-45
2-11 Existing vs. Proposed Street Alignment on the Northeast Corner of Monte Vista Avenue and Moreno Street 2-47

2-12 Existing vs. Proposed Parking Areas 2-49
3.4-1 Potential Historical Resource Areas 3.4-37
3.7-1 Noise Measurement Locations 3.7-29
3.11-1 Study Area 3.11-33
3.11-2 Transit Service 3.11-35
3.11-3 Existing Average Daily Traffic 3.11-37
3.11-4 Existing AM Peak Hour Traffic Volumes 3.11-39
3.11-5 Existing PM Peak Hour Traffic Volumes 3.11-41
3.11-6 Existing with Project Average Daily Traffic 3.11-43
3.11-7 Existing with Project AM Peak Hour Volumes 3.11-45
3.11-8 Existing with Project PM Peak Hour Volumes 3.11-47
3.11-9 General Plan without Project Average Daily Traffic 3.11-49
3.11-10 General Plan without Project AM Peak Hour Volumes 3.11-51
3.11-11 General Plan without Project PM Peak Hour Volumes 3.11-53
3.11-12 General Plan with Project Average Daily Traffic 3.11-55
3.11-13 General Plan with Project AM Peak Hour Volumes 3.11-57
3.11-14 General Plan with Project PM Peak Hour Volumes 3.11-59
3.11-15 Site Circulation 3.11-61

TABLES

ES-1 Summary of Environmental Impacts and Mitigation Measures ES-9
2-1 North Montclair Downtown Specific Plan Information 2-4
2-2 2016 Downtown Plan Residential Buildout 2-17
2-3 2016 Downtown Plan Non-Residential Buildout 2-17
2-4 Minimum Intensity Per Land Use Zone 2-18
2-5 Minimum Lot Size and Maximum Building Size Allowed Per Land Use Zone 2-20
3.2-1 Ambient Air Quality Standards 3.2-9
3.2-2 South Coast Air Basin Attainment Classification 3.2-16
3.2-3 Local Ambient Air Quality Data 3.2-18
3.2-4 SCAQMD Air Quality Significance Thresholds 3.2-20
3.2-5 Localized Significance Thresholds for Source Receptor Area 32 (Northwest San Bernardino Valley) 3.2-23
3.2-6 Estimated Maximum Daily Unmitigated Construction Emissions 3.2-28
3.2-7 Estimated Maximum Daily Mitigated Construction Emissions 3.2-29
3.2-8 Estimated Maximum Daily Operational Emissions 3.2-32
3.2-9 Localized Significance Thresholds Analysis for Project Construction 3.2-35
3.2-10 CALINE4 Predicted Carbon Monoxide Concentrations 3.2-38
3.4-1 Previous Cultural Resource Studies within One-Quarter Mile of the Proposed Amendment Area 3.4-1

3.4-2 Previously Recorded Cultural Resources within One-Quarter Mile of the Proposed Amendment Area 3.4-2
3.5-1 GHG Emissions Sources in California 3.5-5
3.5-2 City of Montclair Baseline (Year 2008) Community-Wide GHG Emissions Inventory 3.5-5
3.5-3 Estimated Annual Construction Greenhouse Gas Emissions 3.5-33
3.5-4 Operational Year 2035 Buildout Estimated Annual Operational Plus Construction Proposed Amendment Greenhouse Gas Emissions 3.5-38
3.5-5 Proposed Amendment Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies 3.5-41
3.7-1 Typical Sound Levels in the Environment and Industry 3.7-2
3.7-2 Ambient Noise Level Measurements 3.7-6
3.7-3 Land Use Compatibility for Community Noise Environments 3.7-7
3.7-4 Construction Equipment Maximum Noise Levels 3.7-13
3.7-5 Future Traffic Noise Levels Along Future Project Roadways 3.7-16
3.7-6 Traffic Noise (Existing Plus Project) Along Future Project Roadways 3.7-18
3.8-1 Square Feet Associated with Non-residential Land Uses 3.8-5
3.8-2 Employment Generation for Proposed Amendment 3.8-6
3.8-3 SCAG's Population, Housing and Employment Growth Projections for the City of Montclair 3.8-7
3.9-1 Recreational and Open Space Facilities 3.9-2
3.10-1 Recreational and Open Space Facilities 3.10-2
3.11-1 Existing Conditions Level of Service 3.11-6
3.11-2 Signalized Intersection Level of Service Definitions - HCM Methodology 3.11-11
3.11-3 Signalized Intersection Level of Service Definitions - ICU Methodology 3.11-12
3.11-4 Study Area Intersections 3.11-12
3.11-5 RTP/SCS Consistency Analysis 3.11-14
3.11-6 LOS Significance Criteria 3.11-16
3.11-7 Project Trip Generation 3.11-18
3.11-8 Existing Conditions 3.11-19
3.11-9 Long Range Conditions 3.11-21
3.11-10 Freeway Mainline Segment Average Daily Traffic 3.11-24
3.11-11 Freeway Intersection Analysis 3.11-24
3.11-12 Summary of Impacts with and without Mitigation 3.11-30
3.12-1 Supply and Demand Comparisons (AFY), Monte Vista Water District 3.12-13
4-1 Comparison of Impacts 4-22

INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

This section provides a summary of the Supplemental Environmental Impact Report (EIR) for the proposed North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment). This section provides a summary of the Proposed Amendment, areas of known controversy and issues to be resolved, a summary of Proposed Amendment alternatives, and a summary of all Proposed Amendment impacts, associated mitigation measures, and ultimate level of significance after mitigation is applied.

ES.1 INTRODUCTION

This Supplemental EIR has been prepared by the City of Montclair (City) to evaluate potential environmental effects that would result from development of future projects under the Proposed Amendment. This Supplemental EIR has been prepared in conformance with the California Environmental Quality Act of 1970 (CEQA) statutes (Cal. Pub. Resources Code, Section 21000 et. seq., as amended) and implementing guidelines (Cal. Code Regs., Title 14, Section 15000 et. seq.). The City is the lead agency under CEQA.

ES.2 PROPOSED AMENDMENT LOCATION AND SETTING

The Proposed Amendment area is located in the City of Montclair, within the western end of San Bernardino County, and approximately 36 miles east of downtown Los Angeles. The topographical area encompassing Montclair is known as the Chino Basin. The City lies in the northwest corner of the Basin. Montclair is bordered by the cities of Pomona and Claremont to the west (in Los Angeles County), Upland to the north, Upland and Ontario to the east, and Chino to the south. The San Gabriel Mountains are located to the north, the Jurupa Mountains are located to the southeast, the Chino Hills and Santa Ana Mountains are located to the southwest, and the San Jose Hills are located to the west. Direct regional access to Montclair is provided by the Interstate 10 (I-10) freeway. The City extends both north and south of the I-10 freeway.

The Proposed Amendment would amend the Montclair Downtown area that was defined in the North Montclair Downtown Specific Plan (NMDSP) prepared in 2006. Montclair's Downtown is an approximately 150-acre subset of the 640-acre North Montclair area that was defined by the North Montclair Specific Plan, prepared and adopted in 1998. The NMDSP planning area corresponds generally to the area bound by Huntington Drive on the north, Monte Vista Avenue on the west, Moreno Street on the south, and Central Avenue on the east. The existing boundary extends past these general boundaries in a number of locations and retreats from these general boundaries in one location along Moreno Street where the City has adopted a Specific Plan for Development No. 81-2. The Montclair Downtown area is located within 10 minutes of the Claremont Colleges and Cable Airport, and is adjacent to, but does not include Montclair Place (formerly known as Montclair Plaza).

The NMDSP area is surrounded by both developed properties, and number of underutilized or vacant sites on all sides. To the west of the NMDSP boundary, across Monte Vista Avenue and south of Arrow Highway, is a mix of residential, industrial, conservation and business park uses. To the north of the NMDSP boundary across Huntington Drive, land uses include public utility, commercial and residential properties located in the City of Upland. To the east of the NMDSP boundary, across Central Avenue, land uses include commercial and business/residential mixed-use properties. To the south of the NMDSP area boundary, across Moreno Street, land uses include commercial uses in the Montclair Place, a major regional mall. The City has adopted a Specific Plan of Development No. 81-2 for the northwest corner of Moreno Street and Fremont Avenue. This area is developed as a single-family residential neighborhood.

ES.3 PROPOSED AMENDMENT BACKGROUND AND DESCRIPTION

Planning Background

1998 North Montclair Specific Plan

In 1998, the City of Montclair adopted the North Montclair Specific Plan in order to provide more detailed planning for the part of the City north of the Interstate 10 (I-10) freeway. The North Montclair Specific Plan addressed issues associated with economic vitality, design, redevelopment, compatibility, transportation, and pedestrian access in approximately 640 acres south of the northern city limit. Although the North Montclair Specific Plan provided new design concepts for the area, including pedestrian-oriented design, the City had mixed success implementing the Specific Plan.

2006 North Montclair Downtown Specific Plan

In 2003, changes in the regional commercial market, continued underutilization of land in the North Montclair area, and the selection of the City as the eastern terminus of the Foothill Gold Line Extension light rail line, led the City to embark on a new planning effort for the North Montclair Downtown area. The Downtown area was an approximately 150-acre subset of the 640-acre North Montclair area. The City hoped to revitalize the area consistent with the goals and objectives of the City's General Plan. This planning effort eventually became the NMDSP.

The NMDSP was designed to function like a land use ordinance for the area by providing land use regulations, development standards and design guidelines for new transit oriented development. The NMDSP introduced mixed-use as a land use and development concept and provided a more cohesive plan and vision for the downtown area, with an aim for more unified linkages in terms of both circulation and design. The NMDSP contained estimates of future population, housing, and employment that has served as the basis for infrastructure and service planning.

In May 2006, the City of Montclair City Council certified the NMDSP Final EIR (City of Montclair 2006) and adopted the NMDSP. The 2006 EIR evaluated the potential impacts that may result from the adoption and implementation of the proposed NMDSP. The EIR was prepared as a Program EIR, which, according to Section 15168 of the State CEQA Guidelines, is appropriate when a project consists of:

> …a series of actions that can be characterized as one large project and are related in one or more of the following ways:
>
> 1. Geographically,
> 2. As logical parts in the chain of contemplated actions,
> 3. In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
> 4. As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

Program EIRs are intended to provide analysis that is more general and anticipates future project refinement and review. The 2006 EIR allows for specific projects within the NMDSP area to "tier" future environmental assessment off the 2006 NMDSP EIR.

CEQA Review

In 2016, the City decided to amend the NMDSP. Based on the Initial Study (IS) Checklist/Environmental Evaluation prepared for the Proposed Amendment on behalf of the City, the City prepared a Supplemental EIR to the 2006 NMDSP EIR for the Proposed Amendment. The purpose of the IS Checklist is to identify any potentially significant impacts associated with the Proposed Amendment and to document the forthcoming intended analysis in the Supplemental EIR to the 2006 MNDSP EIR. The IS was prepared in conformance with Section 15063 and 15064 of the State CEQA Guidelines. The IS was used to determine whether the Proposed Amendment would have new effects that were not examined in the 2006 NMDSP EIR or would cause more severe environmental impacts that would require new or additional mitigation. In accordance with California Public Resources Code Section 21002.1, and based upon the information contained in the IS, the City prepared a Supplemental EIR. An EIR was prepared as a Supplement to the 2006 NMDSP EIR pursuant to Section 15163 of the State CEQA Guidelines. As stated in the State CEQA Guidelines, a Supplement to an EIR is appropriate for a project when:

> "Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation."

The Supplemental EIR is intended to serve as an informational document for the public and City decision-makers. The City Council will consider whether to certify the Supplemental EIR and whether to approve the Proposed Amendment.

As required by CEQA, this Supplemental EIR serves to (1) assess the expected direct, indirect, and cumulative impacts of the proposed project's physical development; (2) identify means of avoiding or minimizing potential adverse environmental impacts; and (3) evaluate a reasonable range of alternatives to the proposed project, including the No Project Alternative. As an informational document, an EIR does not make recommendations for or against approving a project. The main purpose of an EIR is to inform public agency decision makers and the public about potential environmental impacts of the project (State CEQA Guidelines Section 15121). The Supplemental EIR will be used by the City, as the lead agency under CEQA, in making decisions with regard to the adoption of the Proposed Amendment and the related approvals.

Proposed NMDSP Amendment Description

The NMDSP area is currently characterized as a mix of industrial, commercial, residential and vacant land uses. All properties have undergone disturbance previously resulting from development of the existing commercial and residential uses that make up the planning area. Based on estimates from aerial photographs approximately 10 percent of the planning area is vacant, 30 percent is developed as surface parking and 20 percent is developed with residences, with the remainder (approximately 40 percent) in low- to high-density commercial uses and transit facilities.

Vegetation in the NMDSP area is limited to ornamental landscaping associated with existing development and several ornamental trees that line the streets. Planters with ornamental trees, shrubs, and grasses are scattered sparsely throughout the numerous surface parking lots. Vacant lots are highly disturbed, graded to varying degrees, and support only minimal amounts of low-growing vegetation (mostly annual weeds).

The planning area is served by all basic infrastructures. There are no natural riparian or other surface water features in or proximate to the planning area. The concrete lined San Antonio Flood Control Channel runs through a portion of the planning area. Two water storage basins associated with the San Antonio Wash are located west and north of the NMDSP area. One water storage basin is located approximately 100 feet north of the northern edge of the NMDSP area and is separated from the area by a portion of Huntington Drive near the City of Claremont and the Pacific Electric Inland Empire Trail. The other water storage basin is located immediately adjacent to the western edge of the area at the southwest corner of Arrow Highway and Monte Vista Avenue that is proposed to be incorporated into new NMDSP boundary area. These basins are mapped as freshwater ponds by the U.S. Fish and Wildlife Service National Wetland Inventory. They are also mapped as being diked/impounded or excavated, indicating that the ponds are substantially modified and/or created by

artificial means. These basins are surrounded by urban development, and the Proposed Amendment site is separated from the northern basin Huntington Drive easement, which accommodates the Pacific Electric Inland Empire Trail. The western basin is located immediately adjacent to the western edge of the planning area.

Typical residential development in the planning area ranges from one to three stories in height. Most of the surrounding commercial structures are one story in height. Most existing buildings or structures in the NMDSP area range in height between approximately 30 and 75 feet. Because of the relatively low height of most development within the Proposed Amendment area, long-range viewsheds are relatively unobstructed; however, the proximity of the surrounding development generally obstructs long-range views.

ES.4 PROPOSED AMENDMENT OBJECTIVES

As discussed in the 2006 NMDSP, the main vision or intent of the NMDSP is to create:

> "A walkable, vibrant Town Center that includes multiple uses and activities that take advantage of the major transit amenities to be found in the plan area. This vision, together with the current and projected level of demand for different types of retail and the competitive supply of existing and planned retail in the western Inland Empire, defines what development is appropriate and feasible in North Montclair."

Specific objectives were defined in the 2006 NMDSP EIR to achieve the main intent of the NMDSP. For the Proposed Amendment, the primary objectives include the following:

- Amend the NMDSP to expand the area of the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 40 acres of land that currently comprise the Turner Specific Plan on the west side of Central Avenue at Richton Street between Central Avenue and Monte Vista Avenue, and determine appropriate land use zones, density levels and street patterns for these areas.
- Amend the NMDSP to determine appropriate land use zones, density levels and future street patterns for properties in the specific plan area that are located along the west side of Central Avenue and portions of Arrow Highway and Fremont Street. In addition to the current Neighborhood Residential (NR), Corridor Residential (CR) and Town Center (TC) land use zones and standards that are identified in the existing NMDSP, two new land uses would be introduced including a Station District land use zone, and a "transition" zone.

- Update all NMDSP maps and exhibits to reflect projects approved under the current plan, including The Paseos and Arrow Station residential developments. The updated plans would add the location of the Pacific Electric Inland Empire Trail, and conceptually plan for the anticipated arrival of the Foothill Gold Line light rail extension.
- Amend the NMDSP to account for an increase in the maximum number of dwelling units and additional commercial square footage allowable by the plan and expanded boundaries. The maximum number of dwelling units envisioned by the Proposed Amendment is 5,888 dwelling units (+ 2,688 dwelling units) and the total additional commercial square footage envisioned by the plan is 1,681,285 square feet (+ 782,285 square feet).
- Update architectural and development standards as necessary to successfully implement the NMDSP including, but not limited to, the provision of new minimum lot sizes for development in each respective land use zone, including parking, setbacks, and building heights.
- Modify the NMDSP to provide for additional transit oriented development along the new Foothill Gold Line extension alignment within the project area.
- Clarify and amend Table 5.1 Allowed Land Uses and Permit Requirements to add or delete specific land uses for each zoning district of the updated NMDSP.

ES.5 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

Section 15123(b)(2) of the CEQA Guidelines requires that areas of controversy known to the lead agency must be stated in the EIR summary. Issues of interest to the public and public agencies were identified during the 30-day public comment period for the Initial Study and Notice of Preparation (October 3, 2016 through November 1, 2016). The City received eight (8) comment letters in response to the Notice of Preparation and Initial Study. Comments received during this scoping period were considered during the preparation of this Supplemental EIR. Copies of these comment letters are provided in Appendix A of this Supplemental EIR.

Comment letters received during the scoping period expressed concern about air quality, cultural resources, land use and planning (zoning), and traffic/transportation. Additionally, a scoping meeting was held on October 18, 2016 at the council chambers at city hall and concern was expressed regarding biological resources, land use and planning (density and zoning), public services (schools), and traffic/transportation including parking. These concerns have been identified as areas of known controversy and are analyzed in Chapter 3 of this Supplemental EIR. The Initial Study, Notice of Preparation, distribution list, and comments received during the scoping period are included in Appendix A of this Supplemental EIR.

ES.6 SUMMARY OF ENVIRONMENTAL IMPACTS

This Supplemental EIR has been prepared to assess the potentially significant effects on the environment that could result from implementation of the Proposed Amendment. For a detailed discussion regarding potential significant impacts, please see Chapter 3.0, Environmental Analysis, of this Supplemental EIR.

As required by CEQA, a summary of the Proposed Amendment's impacts identified in this Supplemental EIR is provided in Table ES-1, Summary of Project Impacts, below. Also provided in Table ES-1 is a list of the proposed mitigation measures that are recommended in response to the potentially significant impacts identified in the Supplemental EIR, as well as a determination of the level of significance of the impacts after implementation of the recommended mitigation measures. Additional mitigation measures were identified in the Initial Study (Appendix A) and will be included along with the mitigation measures identified in the Supplemental EIR as part of the mitigation monitoring and reporting program for the Proposed Amendment.

ES.7 ALTERNATIVES TO THE PROPOSED AMENDMENT

CEQA Guidelines Section 15126.6 requires consideration and discussion of alternatives to the proposed project in an EIR. Three alternatives are reviewed in Chapter 4.0 of this Supplemental EIR and are summarized below.

Alternative 1 – No Project (No Build) Alternative

The No Project/No Build Alternative is included pursuant to the requirements of CEQA and the CEQA Guidelines. Under this alternative, it is assumed that the Proposed Amendment would not be approved and future increased density would not occur in the NMDSP area. Rather, there would be no further development under the current NMDSP (beyond what is currently occurring), and the existing conditions in the planning area would remain unchanged indefinitely. Thus, the NMDSP area would remain minimally vacant with existing surface parking, residences, and low- to high-density commercial uses and transit facilities. Retaining the NMDSP area in its existing condition would result in the elimination of short-term construction and new long-term development impacts. If the Proposed Amendment is not approved and no further changes in land uses prescribed by the 2006 NMDSP occur, it can be assumed that existing environmental conditions would remain consistent with that described in this Supplemental EIR. No new environmental impacts, not already stated in the 2006 NMDSP EIR, would occur in the planning area or be generated under this alternative.

Alternative 2 – No Project/Existing Specific Plan Alternative

The No Project/Existing Specific Plan Alternative assumes that increased development under the Proposed Amendment would not occur, and that the NMDSP area would instead remain subject

to the provisions contained within the 2006 NMDSP. Full buildout under the 2006 NMDSP would allow for a maximum of 3,200 dwelling units and approximately 899,000 square feet of non-residential (i.e., commercial) uses; this is compared to a maximum of 5,888 dwelling units and 1,681,285 square feet of non-residential uses under the Proposed Amendment. The additional 32 acres of land proposed to be incorporated into the NMDSP under the Proposed Amendment would retain its existing land use and zoning designations and not become a part of the NMDSP area. Overall development within the planning area would continue as per the land uses, zoning, densities and street patterns currently identified in the 2006 NMDSP.

Alternative 3 – Reduced Density Alternative

The purpose of the Reduced Density Alternative is to reduce the potential impacts from development under the Proposed Amendment related to the number of residential units and the intensity of non-residential (i.e., commercial) uses. Under this alternative, the total number of residential dwelling units allowed under an amendment to the NMDSP would be reduced from 5,888 to 5,747, representing a net reduction of 141 units. In addition, non-residential square footage would be reduced by 696,512 square feet, from 1,681,285 square feet under the Proposed Amendment to 984,773 square feet under the Reduced Density Alternative. The NMDSP would still be amended to expand the area of the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 40 acres of land that currently comprise the Turner Specific Plan on the west side of Central Avenue at Richton Street between Central Avenue and Monte Vista Avenue. Additionally, appropriate land use zones, density levels and street patterns would be determined for these areas.

Environmentally Superior Alternative

State CEQA Guidelines Section 15126.6(e)(2) indicates that an analysis of alternatives to a project shall identify an Environmentally Superior Alternative among the alternatives evaluated in an EIR. The State CEQA Guidelines also state that, should it be determined that the No Project Alternative is the Environmentally Superior Alternative, the EIR shall identify another Environmentally Superior Alternative among the remaining alternatives. As such, the Reduced Density Alternative (Alternative 3) would be the environmentally superior alternative to the Proposed Amendment. This alternative would reduce some of the Proposed Amendment's impacts and would also meet the basic Proposed Amendment objectives, although to a lesser degree when compared with the Proposed Amendment.

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
Aesthetics			
a. Would the project have a substantial adverse effect on a scenic vista?	New Potentially Significant Impact	None required	No New Impact/No Impact
b. Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No New Impact/No Impact	None required	No New Impact/No Impact
c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?	No New Impact/No Impact	None required	No New Impact/No Impact
d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less Than Significant Impact with New Mitigation Required	**New Mitigation:** **MM-AES-1** Prior to building permits being issued, project applicants shall prepare lighting and signage plans for specific future development allowed under the Proposed Amendment. All lighting and signage plans shall depict the proposed locations and heights of light poles and signs and must be approved by the City of Montclair. Concurrent with the building permit submittal, project applicants shall incorporate lighting design specifications to meet the City's minimum safety and security standards, as outlined in the City's Building Security Requirements. The following measures shall be included in all lighting plans: • Luminaires shall be designed with cutoff-type fixtures or features that cast low-angle illumination to minimize incidental spillover of light onto adjacent properties. Fixtures that shine light upward or horizontally shall not spill any light onto adjacent properties.	Construction: No New Impact/No Impact Operation: Less Than Significant Impact with New Mitigation Required

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		• Luminaires shall provide accurate color rendering and natural light qualities. Low-pressure sodium and high-pressure sodium fixtures that are not color-corrected shall not be used, except as part of an approved sign or landscape plan. • Luminaire mountings shall be downcast and pole heights minimized to reduce the potential for back scatter into the nighttime sky and incidental spillover light onto adjacent properties. The height of light poles shall be reviewed and approved by the City to ensure consistency with the City's Municipal Code requirements. Luminaire mountings shall be treated with non-glare finishes.	
Would the project have a cumulative aesthetic and/or lighting impact?	New Potentially Significant Impact	**New Mitigation: MM-AES-1**	Less Than Significant Impact with New Mitigation Required
Air Quality			
a. Would the project conflict with or obstruct implementation of the applicable air quality plan?	New Potentially Significant Impact	**New Mitigation:** **MM-AIR-1** **Construction.** The City shall require developers of projects within the boundary of the NMDSP to comply with the following air pollution control measures: • Maintain equipment and vehicle engines in good condition and in proper tune as per manufacturers' specifications and per SCAQMD rules, to minimize exhaust emissions. • Suspend use of all construction equipment operations during second stage smog alerts. Contact the SCAQMD daily for daily forecasts. • Use electricity from power poles rather than temporary diesel- or gasoline-powered generators. • Use methanol- or natural gas-powered mobile equipment and pile drivers instead of diesel, if readily available at competitive prices. • Use propane- or butane-powered on-site mobile equipment instead of gasoline, if readily available at competitive prices.	New Significant and Unavoidable Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		• Store all volatile liquids, including fuels or solvents, in closed containers. • No open burning of debris, lumber or other scrap shall be permitted. The City shall evaluate, prior to final construction approval, a project's risk of releasing significant quantities of diesel particulate emissions, using applicable SCAQMD Guidelines. Projects which may exceed acceptable thresholds (generally an increase in risk of 10/million or more), shall be required to install one or more pieces of filtering equipment (diesel particulate filter or diesel oxidation catalyst) and/or use emulsified fuels on their highest emitting piece or pieces of equipment on-site. The project proponent shall consult with the City and/or SCAQMD and comply with the recommendations made by both entities. If there is a conflict between what the City recommends and what SCAQMD recommends, the SCAQMD's recommendation shall control. **Dust Control** • All areas with vehicle traffic shall be watered periodically; at a minimum, this requires twice daily applications (once in late morning and once at end of workday). • Streets adjacent to the project site shall be swept as needed to remove silt that may have accumulated from construction activities in order to prevent excessive amounts of dust. • Exposed areas, new driveways and sidewalks shall be seeded, treated with soil binders, or paved as soon as possible. • Stockpiles of soil, sand and other loose materials shall be covered. • Trucks hauling soil, debris, sand or other loose materials shall be covered. • Project area streets shall be swept at least once daily. • A dust control monitor shall be appointed to oversee and implement all dust control measures. • The Contractor shall maintain continuous control of dust resulting from construction operations. • Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour.	

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		• During construction, the amount of disturbed area shall be minimized. • On-site vehicle speeds shall be reduced to 15 miles per hour or less. • The City reserves the right to require additional measures depending on the nature and location of the particular project proposal. **MM-AIR-2** **Construction Equipment.** For off-road equipment with engines rated at 75 horsepower or greater, no construction equipment shall be used that is less than Tier 3 at the commencement of construction (2017). An exemption from these requirements may be granted by the City of Montclair in the event that the applicant documents that (1) equipment with the required tier is not reasonably available (e.g., reasonability factors to be considered include those available within City of Montclair within the scheduled construction period), and (2) corresponding reductions in criteria air pollutant emissions are achieved from other construction equipment.	
b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?	New Potentially Significant Impact	**New Mitigation: MM-AIR-1** and **MM-AIR-2**	New Significant and Unavoidable Impact
c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	New Potentially Significant Impact	**New Mitigation: MM-AIR-1** and **MM-AIR-2**	New Significant and Unavoidable Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
d. Would the project expose sensitive receptors to substantial pollutant concentrations?	New Potentially Significant Impact	**New Mitigation: MM-AIR-1** **New Mitigation:** **MM-AIR-3 Health Risk and Land Use Compatibility.** All developments under the Proposed Amendment that include sensitive receptors, such as residential units, that would be located within 500 feet of the rail line shall undergo, prior to project approval, a screening-level health risk analysis to determine if cancer risk would exceed the applicable SCAQMD threshold. The latest OEHHA guidelines shall be used for at the time of analysis. If the threshold would be exceeded at the site of the subsequent project, appropriate mitigation shall be implemented to reduce exposure and health risk to less than significant levels. This may include, but would not be limited to, requiring an engineer certified by the American Society of Heating, Refrigeration and Air-Conditioning Engineers to design the ventilation systems of sensitive receptors to incorporate a Minimum Efficiency Reporting Value (MERV) filter with a rating high enough to minimize indoor diesel exposure by creating positive static pressure. Additionally, the project sponsor shall provide a plan to the City that would ensure ongoing maintenance of ventilation and filtration systems and shall ensure the disclosure to buyers and/or renters regarding the findings of the analysis and inform occupants as to proper use of any installed air filtration system.	New Significant and Unavoidable Impact
e. Would the project create objectionable odors affecting a substantial number of people?	No New Impact/No Impact	**From 2006 NMDSP EIR:** **MM-AQ-5** During discretionary review of mixed-use projects involving bars, taverns and nightclubs or personal services such as nail salons, hair salons, and dry cleaners, City reviewers shall ensure odors are reduced or eliminated pursuant to AQMD Rule 402.	No New Impact/No Impact
Would the project have a cumulative air quality impact?	New Potentially Significant Impact	**From 2006 NMDSP EIR: MM-AQ-5** **New Mitigation: MM-AIR-1, MM-AIR-2 and MM-AIR-3**	New Significant and Unavoidable Impact
Biological Resources			
a. Would the project have a substantial adverse effect,	Less Than Significant Impact with New Mitigation Required	**New Mitigation:** **MM-BIO-1** Prior to initiating construction activities in any areas of the North Montclair	Less Than Significant Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		Downton Specific Plan Amendment area with suitable nesting habitat for burrowing owl and, if grading or construction occurs during the breeding season for burrowing owl (January 15 through July 31), the project developer(s) within the City's jurisdiction, as appropriate, shall retain a qualified biologist, who shall be approved by the City, to conduct a pre-construction survey within all suitable habitat prior to any grading activities. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the City for review and approval. If an active nest is detected during the breeding season of January 15 to July 31, construction setbacks of 300 feet from occupied nests or burrows shall be implemented until the young are completely independent of the nest. If an active burrow or nest is found outside of the breeding season, or after an active nest is determined to no longer be active by a qualified biologist, the burrowing owl would be passively relocated according to the guidelines provided by California Department of Fish and Game (CDFG) (1995) and in coordination with CDFG. A bio-monitor shall be present on-site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City detailing observations made during field inspections. The bio-monitor shall also notify the City immediately if clearing is done outside of the permitted project footprint. **MM-BIO-2** If grading or construction occurs in any areas of the North Montclair Downton Specific Plan Amendment area during the breeding season for migratory birds (January 15 through August 31), the project developer(s) shall retain a qualified biologist, who shall be approved by the City, to conduct a pre-construction survey for nesting migratory bird. The pre-	with New Mitigation Required

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the City for review and approval. If active nests are present, the City will consult with United States Fish and Wildlife Service (USFWS) and CDFG to determine the appropriate construction setback distance. Construction setbacks of 300 feet shall be implemented until the young are completely independent of the nest or relocated with the approval of the USFWS and CDFG. The bio-monitor shall be present on-site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City detailing observations made during field inspections. The bio-monitor shall also notify the City immediately if clearing is done outside of the permitted project footprint.	
b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	No New Impact/No Impact	None required	No New Impact/No Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
c. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Less Than Significant Impact with New Mitigation Required	**New Mitigation:** **MM-BIO-3** Prior to construction in any areas of the North Montclair Downton Specific Plan Amendment area with the potential for federally protected wetlands, the project developer(s) within the City's jurisdiction, as appropriate, shall retain a qualified biologist, who shall be approved by the City, to conduct a jurisdictional delineation of the project area prior to any grading activities. The jurisdictional delineation must be conducted prior to the start of construction, the results of which must be submitted to the City for review and approval. If any federally protected wetlands are detected on or near the project site and the project design will impact these wetlands, the project applicant shall mitigate for permanent or temporary impacts to jurisdictional waters at the following ratios: 1:1 for all permanent impacts to non-wetland waters of the U.S.; 4:1 for impacts to wetlands; and 1:1 for all temporary impacts. Prior to the commencement of grading activities for any projects that impact USACE, CDFG or jurisdictional water, the developer(s) shall prepare and initiate implementation of a restoration plan detailing the measures needed to achieve the necessary mitigation. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, and monitoring and maintenance practices; and shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when	Less Than Significant Impact with New Mitigation Required

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or the start of the growing season. The City shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the City in consultation with the regulatory agencies.	
d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	No New Impact/No Impact	None required	No New Impact/No Impact
e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No New Impact/No Impact	None required	No New Impact/No Impact
f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	No New Impact/No Impact	None required	No New Impact/No Impact
Would the project have a cumulative biological	New Potentially Significant Impact	**New Mitigation: MM-BIO-1**, **MM-BIO-2**, and **MM-BIO-3**.	Less Than Significant Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
resources impact?			with New Mitigation Required
Cultural Resources			
a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?	New Potentially Significant Impact	**New Mitigation:** **MM-CUL-1** In accordance with the requirements of CEQA, prior to undertaking any specific projects within the Proposed Amendment area that proposes impacts to buildings, structures, and objects constructed at least 45 years ago, the resources shall be recorded and evaluated on the appropriate State of California Department of Parks and Recreation Series 523 Forms (DPR forms). The evaluation must include consideration of the City of Montclair's historic landmark designation criteria and the California Register of Historical Resources designation criteria and integrity requirements. All documentation must conform to the standards of the California Office of Historic Preservation. Evaluations shall be completed by a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards for architectural history (36 CFR Part 61). Upon completion of the evaluation(s), a project-specific impacts assessment must be prepared to determine if the project will result in significant impacts to historical resources. If historical resources are identified within a project area, all feasible mitigation must be considered to avoid, minimize, or substantially reduce project-related impacts.	New Significant and Unavoidable Impact
b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines?	Less Than Significant Impact with New Mitigation Required	**New Mitigation:** **MM-CUL-2** A qualified archaeologist and Native American monitor from a tribe that is traditionally and culturally affiliated with the geographic location of the project site shall be present for all initial ground disturbing activities associated with future development under the Proposed Amendment. The archaeologist shall be responsible for the identification of cultural resources that may be impacted by project activities. The archaeological monitor should work under the direction of a qualified principal investigator (i.e., an	Less Than Significant Impact with New Mitigation Required

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		archaeologist who meets the Secretary of the Interior's Professional Qualification Standards). The monitor(s) may stop ground disturbing activities in order to assess any discoveries in the field. Monitoring may be discontinued when the depth of grading and soil conditions no longer retain the potential to contain cultural deposits. The project archaeologist shall be responsible for determining the duration and frequency of monitoring. **MM-CUL-3** In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Proposed Amendment, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find as determined by the archaeologist, the archaeologist may decide to record the find and allow work to continue. If the discovery proves significant under CEQA, additional work such as preparation of an archaeological treatment plan, additional testing, or data recovery may be warranted. Preservation in place shall be the preferred means of mitigation, if determined to be feasible by the archaeologist and the City.	
c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less Than Significant Impact with New Mitigation Required	**New Mitigation:** **MM-CUL-4** In the event that paleontological resources (fossil materials) are exposed during construction activities for the Proposed Amendment, all construction work occurring within 50 feet of the find shall immediately stop until a qualified paleontologist, as defined by the Society of Vertebrate Paleontology, can assess the nature and importance of the find. Depending upon the significance of the find, the paleontologist may record the find and allow work to continue, or may recommend salvage and recovery of the resource. All recommendations shall be made in accordance with the Society of Vertebrate Paleontology's 1995 guidelines and shall be subject to review and approval by the City. Work in the area of the find may only resume upon approval of a qualified paleontologist.	Less Than Significant Impact with New Mitigation Required

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
d. Would the project cause a substantial adverse change in significance of a tribal cultural resource as defined in Public Resources Code Section 21074?	Less Than Significant Impact with New Mitigation Required	**New Mitigation:** **MM-CUL-5** In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be notified within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are or are believed to be Native American, s/he shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.	Less Than Significant Impact with New Mitigation Required
e. Would the project disturb any human remains, including those interred outside of formal cemeteries?	Less Than Significant Impact with New Mitigation Required	**New Mitigation: MM-CUL-2** and **MM-CUL-5**	Less than Significant Impact with New Mitigation Required
Would the project have a cumulative cultural resources impact?	New Potentially Significant Impact	**New Mitigation: MM-CUL-1**, **MM-CUL-2**, **MM-CUL-3**, **MM-CUL-4** and **MM-CUL-5**.	New Significant and Unavoidable Impact
Greenhouse Gas Emissions			
a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	New Potentially Significant Impact	**New Mitigation:** **MM-GHG-1 Greenhouse Gas Emissions Reduction Measures.** The following GHG emissions reduction measures shall be implemented for future projects under the Proposed Amendment: • Provide preferential parking for carpool, shared, electric, and hydrogen	New Significant and Unavoidable Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		vehicles. • Require builders to install broadband infrastructure or other communication technologies that encourage telecommuting and working from home. • Integrate traffic calming measures into the circulation network to promote reduced speeds and encourage pedestrian and bicycle trips. • Provide sidewalks and crosswalks at all streets (along with general pedestrian connectivity throughout the proposed project) to encourage pedestrian traffic and offer an alternative to vehicle trips. • Implement energy-efficient design practices such as high-performance glazing, Energy Star compliant systems and appliances, radiant heat roof barriers, insulation on all pipes, programmable thermostats, solar access, and sealed ducts. • Prohibit use of chlorofluorocarbon refrigerants in commercial buildings. • Ensure recycling of construction debris and waste through administration by an on-site recycling coordinator and presence of recycling/separation areas. • Use native species and drought tolerant species for a minimum of 75% of the ornamental plant palette in non-turf areas for all commercial, common and public area landscaping to minimize water demand. • Minimize turf areas and encourage alternative ground covers. • Design irrigation systems to conform to the hydrozones of the landscape design plan and optimize water efficiency by matching plant type, utilizing drip or subsurface irrigation wherever possible, and applying water at agronomic rates. • Require “smart” controllers, such as weather-based irrigation controllers or other self-adjusting irrigation controllers, for all irrigation systems that will accommodate all aspects of the landscape and irrigation design plans.	

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
b. Would the project conflict with a plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	New Potentially Significant Impact	**New Mitigation: MM-GHG-1**	New Significant and Unavoidable Impact
Would the project have a cumulative impact on greenhouse gas emissions?	New Potentially Significant Impact	**New Mitigation: MM-GHG-1**	New Significant and Unavoidable Impact
Hydrology and Water Quality			
a. Would the project violate any water quality standards or waste discharge requirements?	No New Impact/No Impact	**From 2006 NMDSP EIR:** **MM-HYD-1 Project Level Water Quality Management Plans.** All projects developed under the Proposed Amendment shall submit a WQMP to be implemented during the project planning, design, approval, permitting, construction, acceptance, and occupancy phases. These WQMPs may include, but are not limited to, the following BMPs: **Site Design BMPs** (To be included during the site planning and approval process) • Maximize permeable area by using alternative materials or surfaces with a lower Coefficient of Runoff, or "C-factor." • Construct walkways, trails, patios, parking areas, alleys, driveways, low traffic streets, and other low-traffic areas with open-jointed paving materials or permeable surfaces, such as pervious concrete, porous asphalt, and granular materials. Also, incorporate landscape areas into the drainage design of these areas. • Minimize use of impervious surfaces, such as decorative concrete in landscape design. • Where soils conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration. • Use natural drainage systems and increase the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales.	No New Impact/No Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		Source Control BMPs • Education for Property Owners, Tenants, and Occupants on good housekeeping practices to protect stormwater quality. • Street Sweeping Private Streets and Parking Lots • Roof Runoff Controls and Efficient Irrigation **Treatment Control BMPs** • Design landscape drainage features so that they promote infiltration of runoff, but do not inject runoff so that it bypasses the natural processes of filtering and transformation that occur in the soil. • Pretreat runoff to reduce risk of contamination of groundwater. • Project WQMPs shall follow the outline established by the San Bernardino County Stormwater Program's Model Water Quality Management Plan Guidance document. **Construction Activity** NPDES permits are required for all projects in excess of one acre. Erosion control measures are required when run-off could impact area drainages. Potential measures include the use of straw bales, siltation fences, berms, and basins. Mitigation measures shall be addressed on a project by project basis, depending on size and level of disturbance. No specific measures are recommended at this level.	
b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g.,	No New Impact/No Impact	**From 2006 NMDSP EIR: MM-HYD-1**	No New Impact/No Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			
c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	No New Impact/No Impact	**From 2006 NMDSP EIR: MM-HYD-1**	No New Impact/No Impact
d. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	No New Impact/No Impact	**From 2006 NMDSP EIR:** **MM-HYD-2 Stormwater Infrastructure**. Prior to grading permit approval, project proponents, if applicable, shall be required to document sufficient stormwater capacity. If sufficient capacity is not available at the time of the project proposal, the proponent, in cooperation with the City and/or other affected agencies, shall document necessary improvements. Improvements shall be made prior to, or concurrent with, new development.	No New Impact/No Impact
e. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	No New Impact/No Impact	**From 2006 NMDSP EIR: MM-HYD-2**	No New Impact/No Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
f. Would the project otherwise substantially degrade water quality?	No New Impact/No Impact	**From 2006 NMDSP EIR: MM-HYD-1**	No New Impact/No Impact
g. Would the project place housing within a 100-year flood hazard area	No New Impact/No Impact	None required	No New Impact/No Impact
h. Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	No New Impact/No Impact	None required	No New Impact/No Impact
i. Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	New Potentially Significant Impact	**New Mitigation:** **MM-HYDRO-1** Prior to initiating construction activities in any areas of the North Montclair Downton Specific Plan Amendment area, the City of Montclair Public Works Department shall establish communication with the California Department of Water Resources Division of Safety and Dams, to verify that the San Antonio Dam is being adequately monitored for structural safety, in accordance with Division 3 of the California State Water Code. Such communication shall include a review of dam maintenance records, with respect to structural safety, and shall continue on a biannual basis, indefinitely. **MM-HYDRO-2** Prior to initiating construction activities in any areas of the North Montclair Downton Specific Plan Amendment area, the City of Montclair Public Works Department shall establish an emergency response plan that pertains specifically to potential failure of the San Antonio Dam. The plan shall include public notification and evacuation plans, to address potential dam related flooding in the area.	Less Than Significant Impact with New Mitigation Required

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
j. Would the project expose people or structures to a significant risk of seiche, tsunami, or mudflow?	No New Impact/No Impact	None required	No New Impact/No Impact
Would the project have a cumulative hydrology or water quality impact?	New Potentially Significant Impact	**From 2006 NMDSP EIR: MM-HYD-1** and **MM-HYD-2** **New Mitigation: MM-HYDRO-1** and **MM-HYDRO-2**	Less Than Significant Impact with New Mitigation Required.
Noise			
a. Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	New Potentially Significant Impact	**From 2006 NMDSP EIR:** **MM-N-2** The following mitigation measures are recommended to reduce potential long-term noise impacts: Sound attenuation walls, tree-lines, and/or setbacks shall be incorporated into future development plans for the Specific Plan area and installed by the City and/or future developers between proposed noise sensitive uses, such as residential units and noise sources including roads, rail tracks and noise generating land uses, such as commercial buildings to reduce the noise levels at proposed sensitive uses to City standards (65 dBA CNEL or below). **MM-N-3** Commercial facilities adjacent to noise sensitive uses such as residential units shall be designed so that noise-generating activities, including outdoor sales or activities, truck-loading areas, garbage dumpsters, and loud-speaker systems are not adjacent to or directed toward these uses. **New Mitigation:** ***Construction*** **MM-NOI-1** Construction activities shall take place during the permitted time and day per the Montclair Noise Element Implementing Policy NE-1.2.8. Construction shall be limited to the hours of 7 a.m. to 8 p.m. Monday through Saturday, and not at all during other hours or on Sundays or public holidays. **MM-NOI-2** The City of Montclair shall enforce adherence to the following measures for	Less Than Significant Impact with New Mitigation Required

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		all future construction projects implemented under the Proposed Amendment, as a pre-requisite to approving the grading permit: • The project contractor shall, to the extent feasible, schedule construction activities to avoid the simultaneous operation of construction equipment so as to minimize noise levels resulting from operating several pieces equipment with emissions levels greater than 80 dBA (measured at 50 feet). • All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. Enforcement shall be accomplished by random field inspections by applicant personnel during construction activities, to the satisfaction of the City Engineering Department. • Construction noise reduction methods such as shutting off idling equipment, construction of a temporary noise barrier, maximizing the distance between construction equipment staging areas and adjacent residences, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible. • During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors. • Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event the City receives a complaint, appropriate corrective actions shall be implemented and a report of the action provided to the reporting party. Appropriate corrective actions could include stricter enforcement of construction schedule, re-location of stationary equipment further from adjacent noise-sensitive receptors, reduction in the number of equipment working simultaneously in proximity to the sensitive receptor, erection of temporary noise barriers, or a combination of the above.	

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		• If equipment is being used that can cause hearing damage at adjacent noise receptor locations (distance attenuation shall be taken into account), portable noise barriers shall be installed that are demonstrated to be adequate to reduce noise levels at receptor locations below hearing damage thresholds (i.e., generally over 90 dBA, assuming this exposure for an 8-hour construction day). This may include erection of temporary berms or plywood barriers to create a break in the line-of-sight, or erection of a heavy fabric tent around the noise source. ***Operation*** **MM-NOI-3** Future residential units located within the identified 65 dBA CNEL contour of Project road segments shall have site-specific acoustical analyses prepared to identify appropriate measures for achieving noise exposure levels not to exceed 65 dBA CNEL for proposed exterior living areas. The site plan for any such future proposed residential development is necessary in order to accurately evaluate the exterior noise exposure level in each of the proposed exterior living spaces (i.e., rear yards for single family residences, porches and patios for multi-family residences). It is not possible to conduct such evaluations at the planning stage, because detailed site plans are not available. However, setbacks, noise barriers, or location of exterior living areas behind proposed residences are each potentially effective means to satisfy this requirement. The specified exterior noise analysis demonstrating compliance with the 65 dBA CNEL criterion shall be approved by the City prior to granting land use approval. An interior noise analysis will also be required for such dwelling units prior to issuance of building permits. The evaluation of interior noise levels for a structure is dependent upon the design of the building shell, including exterior walls, windows, doors, and ventilation openings. None of these design details exist at the current time for future buildings; it is therefore not possible to complete the specified interior noise analysis at this planning stage. There are	

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		industry standards for such an interior noise analysis, which evaluate each component of the building shell for attenuation performance (based on sound transmission class, or STC, of the materials). Building permit approval shall be contingent upon an interior noise evaluation demonstrating that interior noise exposure meets the 45 dBA CNEL criterion. **MM-NOI-4** Because heating, ventilation, and air conditioning (HVAC) equipment and other mechanical equipment can generate noise that could affect surrounding sensitive receptors and because the details, specifications, and locations of this equipment is not yet known, the City shall require that future project applicants for commercial and mixed use developments retain an acoustical specialist to review project construction-level plans. The acoustical specialist shall have the responsibility to ensure that the equipment specifications and plans for HVAC and other outdoor mechanical equipment incorporate measures, such as the specification of quieter equipment or provision of acoustical enclosures, that will avoid exceeding relevant noise standards at nearby noise-sensitive land uses (e.g., residential). Prior to the commencement of construction for future commercial and mixed use developments, the acoustical specialist shall certify in writing to the City that the equipment specifications and plans incorporate measures that will achieve the relevant noise limits.	
b. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	New Potentially Significant Impact	**New Mitigation: MM-NOI-2**	Less Than Significant Impact with New Mitigation Required
c. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	New Potentially Significant Impact	**New Mitigation: MM-NOI-3** and **MM-NOI-4**	Less Than Significant Impact with New Mitigation Required

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
d. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	New Potentially Significant Impact	**New Mitigation: MM-NOI-1** and **MM-NOI-2**	Less Than Significant Impact with New Mitigation Required
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No New Impact/No Impact	None required	No New Impact/No Impact
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	No New Impact/No Impact	None required	No New Impact/No Impact
Would the project have a cumulative noise impact?	New Potentially Significant Impact	**From 2006 NMDSP EIR: MM-N-2** and **MM-N-3** **New Mitigation: MM-NOI-1**, **MM-NOI-2**, **MM-NOI-3**, and **MM-NOI-4**	Less Than Significant Impact with New Mitigation Required
Population and Housing			
a. Would the project induce substantial population growth in an area, either directly (for	New Potentially Significant Impact	**From 2006 NMDSP EIR: MM-PUB-1** **New Mitigation: MM-TRA-1**, **MM-TRA-2**, **MM-TRA-3**, **MM-TRA-4**, and **MM-TRA-5**.	New Significant and Unavoidable Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
example, by proposing new homes and businesses) or indirectly (for example, through extension of roads of other infrastructure)?			
b. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	No New Impact/No Impact	None required	No New Impact/No Impact
c. Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	No New Impact/No Impact	None required	No New Impact/No Impact
Would the project have a cumulative impact on population and housing?	New Potentially Significant Impact	**From 2006 NMDSP EIR: MM-PUB-1** **New Mitigation: MM-TRA-1**, **MM-TRA-2**, **MM-TRA-3**, **MM-TRA-4**, and **MM-TRA-5**.	New Significant and Unavoidable Impact
Public Services			
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable			

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
service ratios, response times, or other performance objectives for any of the public services:			
Fire protection?	New Potentially Significant Impact	**From 2006 NMDSP EIR:** **MM-PUB-1** Projects under the NMDSP shall ensure that infrastructure is in place that provides adequate fire flow. This includes performing any engineering surveys required by the City or the Water District to assess ability of existing infrastructure to accommodate the project proponent to coordinate with the appropriate agencies to ensure fire flows shall be based on the size of the buildings, their relationship to other structures, property lines, and types of construction used.	No New Impact/No Impact
Police protection?	New Potentially Significant Impact	None available	New Significant and Unavoidable Impact
Schools?	New Potentially Significant Impact	None required	No New Impact/No Impact
Parks?	New Potentially Significant Impact	None available	New Significant and Unavoidable Impact
Other public facilities?	New Potentially Significant Impact	None required	No New Impact/No Impact
Would the project have cumulative public services impacts?	New Potentially Significant Impact	**From 2006 NMDSP EIR: MM-PUB-1**	New Significant and Unavoidable Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		Recreation	
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	New Potentially Significant Impact	None available	New Significant and Unavoidable Impact
b. Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	New Potentially Significant Impact	None available	New Significant and Unavoidable Impact
Would the project have a cumulative impact on recreation?	New Potentially Significant Impact	None available	New Significant and Unavoidable Impact
		Transportation and Traffic	
a. Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant	New Potentially Significant Impact	**New Mitigation:** **Existing with Project Conditions** **MM-TRA-1: Monte Vista Avenue / Arrow Highway (#1):** Modify the traffic signal to include westbound right-turn and southbound right-turn overlap phasing. **MM-TRA-2: Monte Vista Avenue / I-10 Eastbound off-Ramp/Palo Verde Street (#5):** New proposed interchange currently in design coordinated by SANBAG, Caltrans, and the City of Montclair. **MM-TRA-3: Central Avenue / Arrow Highway (#7):** Modify the traffic signal to include eastbound right-turn and westbound right-turn overlap phasing. **MM-TRA-4: Central Avenue / Mission Boulevard (#18):** Implement the following	RTP/SCS Consistency Analysis: No New Impact/No Impact Construction: No New Impact/No Impact Operation: New

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?		intersection improvements: • Traffic signal modification to include westbound right-turn overlap phasing. • Increase cycle length to 140 seconds. • **Long Range with Project Conditions** **MM-TRA-5: Indian Hill Boulevard / Arrow Highway (#11):** Implement the following intersection improvements: • Restripe to convert existing northbound (2nd) shared thru/right-turn lane to (2nd) dedicated through lane and a dedicated right turn lane. (Requires 10 foot lanes.) • Traffic signal modification to include eastbound right-turn overlap phasing. **MM-TRA-6: Central Avenue / Arrow Route (#15):** Implement the following intersection improvements: • Traffic signal modification to include northbound right-turn overlap phasing. • Increase cycle length to 100 seconds. • Restripe to convert existing shared westbound thru/right-turn lane to one dedicated westbound thru lane and shared westbound thru/right-turn lane. **MM-TRA-7: Central Avenue / Holt Boulevard (#17):** Implement the following intersection improvements: • Traffic signal modification to include eastbound right-turn, westbound right-turn and southbound right-turn overlap phasing. • Increase cycle length to 110 seconds.	Significant and Unavoidable Impact
b. Would the project conflict with an applicable congestion management program,	New Potentially Significant Impact	**New Mitigation:** **MM-TRA-3**, **MM-TRA-4**, and **MM-TRA-5**	New Significant and Unavoidable Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			
c. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	New Potentially Significant Impact	None required	No New Impact/No Impact
d. Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	No New Impact/No Impact	None required	No New Impact/No Impact
e. Would the project result in inadequate emergency access?	No New Impact/No Impact	None required	No New Impact/No Impact
f. Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	No New Impact/No Impact	**From 2006 NMDSP EIR:** **MM-T-7** Project proponents shall designate a haul route and staging plan for review by the City that avoids sensitive noise receptors, such as schools, hospitals and elderly housing. The haul route must also have the purpose of avoiding conflicts between equipment and pedestrians and vehicles.	No New Impact/No Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
Would the project have cumulative impacts on transportation and traffic?	New Potentially Significant Impact	**From 2006 NMDSP EIR: MM-T-7** **New Mitigation: MM-TRA-1** through **MM-TRA-7**	New Significant and Unavoidable Impact
Utilities and Service Systems			
a. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	No New Impact/No Impact	None required	No New Impact/No Impact
b. Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	New Potentially Significant Impact	**New Mitigation:** **MM-UTIL-1** Prior to permit approval for any specific project, the developer shall obtain verification from the City and MVWD that adequate potable water supply infrastructure will be constructed and determine the appropriate level of development impact fees, if any. Fees, if exacted, will pay for the development's fair share of infrastructure improvements necessary to serve that new development and will help ensure that potential shortfalls are addressed prior to, or concurrent with, new development.	Less Than Significant Impact with New Mitigation Required
c. Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	New Potentially Significant Impact	**From 2006 NMDSP EIR: MM-HYD-1** and **MM-HYD-2** **New Mitigation:** **MM-UTIL-2** Surface water detention basins shall be designed such that off-site (i.e., downstream of the Proposed Amendment area) post-construction runoff (both volume and rate) is less than or equal to pre-construction runoff, for 5-year through 100-year storm events. In addition, basin specifications and outflow rates shall be consistent with County Flood Control District standard conditions.	Less Than Significant Impact with New Mitigation Required
d. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or	New Potentially Significant Impact	None required	No New Impact/No Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
expanded entitlements needed?			
e. Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	No New Impact/No Impact	None required	No New Impact/No Impact
f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	No New Impact/No Impact	None required	No New Impact/No Impact
g. Would the project comply with federal, state, and local statutes and regulations related to solid waste?	No New Impact/No Impact	None required	No New Impact/No Impact
Would the project have cumulative public services and/or utilities impacts?	New Potentially Significant Impact	**From 2006 NMDSP EIR: MM-HYD-1** and **MM-HYD-2** **New Mitigation: MM-UTIL-1** and **MM-UTIL-2**	Less Than Significant Impact with New Mitigation Required
Energy Consumption			
a. Would the project result in wasteful, inefficient, or unnecessary consumption of energy?	New Potentially Significant Impact	None required	Less Than Significant Impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
b. Would the project conflict with existing energy standards and regulations?	New Potentially Significant Impact	None required	Less Than Significant Impact
c. Would the project place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity?	New Potentially Significant Impact	None required	Less Than Significant Impact
Would the project have cumulative energy consumption impacts?	New Potentially Significant Impact	None required	Less Than Significant Impact

CHAPTER 1
INTRODUCTION

1.1 SUMMARY AND SCOPE OF THE PROPOSED AMENDMENT

This Supplemental Environmental Impact Report (EIR) has been prepared by the City of Montclair (City) to evaluate the potential environmental effects that could result from development of the proposed North Montclair Specific Plan Amendment Project (Proposed Amendment). This EIR has been prepared in conformance with the California Environmental Quality Act of 1970 (CEQA) statutes (Cal. Pub. Resources Code, Section 21000 et. seq., as amended) and implementing guidelines (Cal. Code Regs., Title 14, Section 15000 et. seq.). The City is the lead agency under CEQA.

The Proposed Amendment area is located in the City of Montclair, within the western end of San Bernardino County, and approximately 36 miles east of downtown Los Angeles. The topographical area encompassing Montclair is known as the Chino Basin. The City lies in the northwest corner of the Basin. Montclair is bordered by the cities of Pomona and Claremont to the west (in Los Angeles County), Upland to the north, Upland and Ontario to the east, and Chino to the south. The San Gabriel Mountains are located to the north, the Jurupa Mountains are located to the southeast, the Chino Hills and Santa Ana Mountains are located to the southwest, and the San Jose Hills are located to the west. Direct regional access to Montclair is provided by the Interstate 10 (I-10) freeway. The City extends both north and south of the I-10 freeway.

In 1998, the City of Montclair adopted the North Montclair Specific Plan in order to provide more detailed planning for the part of the City north of the Interstate 10 (I-10) freeway. The North Montclair Specific Plan addressed issues associated with economic vitality, design, redevelopment, compatibility, transportation, and pedestrian access in approximately 640 acres south of the northern city limit. Although the North Montclair Specific Plan provided new design concepts for the area, including pedestrian-oriented design, the City had mixed success implementing the Specific Plan.

In 2003, changes in the regional commercial market, continued underutilization of land in the North Montclair area, and the selection of the City as the eastern terminus of the Foothill Gold Line Extension light rail line, led the City to embark on a new planning effort for the North Montclair Downtown area. The Downtown area was an approximately 150-acre subset of the 640-acre North Montclair area. The City hoped to revitalize the area consistent with the goals and objectives of the General Plan. This planning effort eventually became the North Montclair Downtown Specific Plan (NMDSP).

The NMDSP was designed to function like a land use ordinance for the area by providing land use regulations, development standards and design guidelines for new development. The

NMDSP introduced mixed-use as a land use and development concept and provided a more cohesive plan and vision for the downtown area, with an aim for more unified linkages in terms of both circulation and design. The NMDSP contained estimates of future population, housing, and employment that has served as the basis for infrastructure and service planning.

In May 2006, the City of Montclair City Council certified the NMDSP Final EIR (City of Montclair 2006) and adopted the NMDSP. The 2006 EIR evaluated the potential impacts that may result from the adoption and implementation of the proposed NMDSP. The EIR was prepared as a Program EIR. Program EIRs are intended to provide analysis that is more general and anticipates future project refinement and review. The 2006 EIR allows for specific projects within the NMDSP area to "tier" future environmental assessment off the NMDSP EIR.

The City has now decided to amend the NMDSP. The Proposed Amendment would involve amending the 2006 NMDSP to allow for the future development of projects that are tied to the Montclair Transcenter, and the anticipated extension of the Foothill Gold Line that will extend light rail line to the City. The Proposed Amendment would shift or reallocate a portion of the density planned in the northern area of the NMDSP to allow for additional mixed-use transit oriented development (TOD) projects along the new Foothill Gold Line Extension. The Proposed Amendment would also expand the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 40 acres of land that currently comprise the Turner Specific Plan on the west side of Central Avenue at Richton Street between Central Avenue and Monte Vista Avenue. In both of these areas, appropriate land use zones, density levels, and street patterns would be determined and incorporated into the NMDSP. The Proposed Amendment would amend the NMDSP to allow for a maximum number of 5,888 dwelling units, which is 2,688 more dwelling units than allowed under the current NMDSP. The Proposed Amendment would also amend the NMDSP to allow for a total of 1,681,285 square feet of non-residential uses, which is 782,285 square feet more than what is allowed in the current NMDSP. The Proposed Amendment would also assign land use designations to properties within the NMDSP where there currently are none or where a new land use mix is more appropriate.

The required city-initiated discretionary approvals are:

1. A General Plan Amendment (GPA) to allow for the revision of the official NMDSP site plan and other map-based exhibits to include the expansion area at the southwest corner of Arrow Highway and Monte Vista Avenue. This area would be re-designated in the General Plan from Business Park to Planned Development.
2. A zone change in the official City of Montclair Zoning Map and other exhibits to reflect the new zoning for the southwest corner of Arrow Highway and Monte Vista Avenue from M1 Limited Manufacturing to Specific Plan and the corresponding land use designations of

Town Center (along Arrow Highway) and Corridor Residential (on the remainder of the property) pursuant to the updated North Montclair Downtown Specific Plan.

3. An Amendment to the North Montclair Downtown Specific Plan (SPA) to incorporate all of the components of the Proposed Amendment as described below.
4. Replace and incorporate the Turner Montclair Specific Plan into the expanded boundaries of the NMDSP. The current boundaries of the area within the Turner Montclair Specific Plan are Monte Vista Avenue on the west, the boundary line between the cities of Montclair and Upland on the north, Central Avenue on the east, and the Metrolink rail line on the south.

EIRs are informational documents "which will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project" (14 CCR 15121). The purpose of this Supplemental EIR is to present the evaluation of the anticipated environmental effects of the Proposed Amendment.

1.2 CEQA REQUIREMENTS

1.2.1 CEQA Compliance

CEQA (California Public Resources Code, Section 21000 et seq.) requires the preparation of an EIR for any project that a lead agency determines may have a significant impact on the environment. According to Section 21002.1(a) of CEQA, "The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." However, CEQA discourages duplicative environmental reviews and encourages streamlining prior documents and analyses, where appropriate. Specifically, Public Resources Code, Section 21166 states:

> When an environmental impact report has been prepared for a project pursuant to [CEQA], no subsequent or supplemental environmental impact report shall be required . . ., unless one or more of the following events occur:
>
> (a) Substantial changes are proposed in the project which will require major revisions of the environmental impact report.
>
> (b) Substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report.

(c) New information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available.

CEQA also establishes mechanisms whereby the public and decision makers can be informed about the nature of the project being proposed, and the extent and types of impacts that the project and its alternatives would have on the environment if they were to be implemented.

1.2.2 Environmental Procedures

The basic purposes of CEQA are to:

1. Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities;
2. Identify the ways that environmental damage can be avoided or significantly reduced;
3. Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved (14 CCR 15002).

The EIR process typically consists of three parts: (1) the Initial Study (IS) and Notice of Preparation (NOP), (2) the Draft EIR, and (3) the Final EIR. The IS/NOP is intended to encourage interagency communication concerning the proposed action and provide sufficient background information about the proposed action so that agencies, organizations, and members of the public could respond with specific comments and questions on the scope and content of the EIR. Here, the City prepared a Subsequent Environmental Review IS in order to determine whether the Proposed Amendments would result in any of the conditions outlined in Public Resources Code, Section 21166 and State CEQA Guidelines, Section 15162. Based upon the information contained within the IS/NOP, the City concluded that a Supplemental EIR should be prepared.

The IS/NOP were distributed to the State Clearinghouse, interested agencies, and groups on October 3, 2016. Pursuant to Section 15082 of the CEQA Guidelines, recipients of the IS/NOP were requested to provide responses within 30 days after their receipt of the IS/NOP. The 30-day IS/NOP public review period ended November 1, 2016. A scoping meeting was held on October 18, 2016 at City Hall. Comments received during the IS/NOP public review period were considered during the preparation of this Supplemental EIR. The IS/NOP and IS/NOP comments are included in Appendix A of this Supplemental EIR. Based on the scope of analysis for this

Supplemental EIR, the following issues were determined to be potentially significant, and are therefore, addressed in Chapter 3, Environmental Analysis, of this document:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation and Traffic
- Utilities and Service Systems

Eight (8) comment letters/emails were received during the IS/NOP public review period expressing concern about air quality, cultural resources, land use and planning (zoning), and traffic/transportation. Additionally, a scoping meeting was held on October 18, 2016 at the council chambers at City Hall and comments were expressed regarding biological resources, land use and planning (density and zoning), public services (schools), and traffic/transportation including parking. These comments were considered as part of the analyses prepared and presented in Chapter 3 of this Supplemental EIR.

The Supplemental EIR will be made available for review to the public and public agencies for 45 days to enable them to provide comments on the "sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated" (14 CCR 15204). Copies of the Draft Supplemental EIR, amended Specific Plan and Appendices are available from **January 23, 2017 through March 8, 2017** at the City of Montclair Community Development Department located at 5111 Benito Street, Montclair, CA 91763. During this period, comments from the general public, organizations, and agencies regarding environmental issues analyzed in the Draft Supplemental EIR and the Draft Supplemental EIR's accuracy and completeness may be submitted to the lead agency at the following address:

Michael Diaz, City Planner
City of Montclair
Community Development Department
5111 Benito Street
Montclair, California 91763
Email: mdiaz@cityofmontclair.org

As the lead agency for the project, the City has assumed responsibility for preparing this document. The City's Planning Commission will act in an advisory role and the City Council has

final decision-making authority over the Proposed Amendment and associated discretionary actions. The City will use the information included in this Supplemental EIR to consider potential impacts to the physical environment associated with the proposed project when considering approval of the project. As set forth in Section 15021 of the CEQA Guidelines, the City, as lead agency, has the duty to avoid or minimize environmental damage where feasible. Furthermore, 14 CCR 15021(d) states that:

> CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors and in particular the goal of providing a decent home and satisfying living environment for every Californian. An agency shall prepare a statement of overriding considerations as described in Section 15093 to reflect the ultimate balancing of competing public objectives when the agency decides to approve a project that will cause one or more significant effects on the environment.

Prior to approval of the proposed project, the City, as the lead agency and decision-making entity, is required to certify that this Supplemental EIR has been completed in accordance with CEQA, that the proposed project has been reviewed and the information in this Supplemental EIR has been considered, and that this Supplemental EIR reflects the independent judgment of the City. CEQA also requires the City to adopt "findings" with respect to each significant environmental effect identified in the EIR (Pub. Resources Code Section 21081; Cal. Code Regs., Title 14, Section 15091). For each significant effect, CEQA requires the approving agency to make one or more of the following findings:

- The proposed project has been altered to avoid or substantially lessen significant impacts identified in the Final EIR.
- The responsibility to carry out such changes or alterations is under the jurisdiction of another agency.
- Specific economic, legal, social, technological, or other considerations, which make infeasible the mitigation measures or alternatives identified in the Final EIR.

If the City concludes that the proposed project will result in significant effects that cannot be substantially lessened or avoided by feasible mitigation measures and alternatives, the City must adopt a "statement of overriding considerations" prior to approval of the proposed project (Pub. Resources Code Section 21081 (b)). Such statements are intended under CEQA to provide a written means by which the lead agency balances in writing the benefits of the proposed project and the significant and unavoidable environmental impacts. Where the lead agency concludes that the economic, legal, social, technological, or other benefits outweigh the

unavoidable environmental impacts, the lead agency may find such impacts "acceptable" and approve the proposed project.

In accordance with CEQA, if the City Council decides to approve the project, it will be required to make findings for each environmental impact of the project that cannot be mitigated to a less than significant level. If the City determines that the benefits of the project outweigh unmitigated, significant environmental effects, the City will be required to adopt a statement of overriding considerations stating the reasons supporting its action notwithstanding the project's significant environmental effects. In addition, public agencies, when approving a project, must also adopt a Mitigation Monitoring and Reporting Program describing the changes that were incorporated into the proposed project or made a condition of project approval in order to mitigate or avoid significant effects on the environment (Pub. Resources Code Section 21081.6). The Mitigation Monitoring and Reporting Program is adopted at the time of project approval and is designed to ensure compliance during project implementation. Upon approval of the proposed project, the City will be responsible for implementation of the proposed project's Mitigation Monitoring and Reporting Program. This document will be attached to the Final Supplemental EIR.

1.2.3 EIR Organization

This Supplemental EIR is organized as follows:

An **Executive Summary** of the Supplemental EIR is provided at the beginning of this document. This summary outlines the conclusions of the environmental analysis and provides a summary of the proposed project and the project alternatives analyzed in the Supplemental EIR. This section also includes a table summarizing all environmental impacts identified in this Supplemental EIR along with the associated mitigation measures proposed to reduce or avoid each impact.

Chapter 1.0, Introduction, serves as a forward to this Supplemental EIR, introducing the project, the applicable environmental procedures, and the organization of the Supplemental EIR.

Chapter 2.0, Project Description, provides a thorough description of the proposed project elements, the purpose and need for the project, project objectives, and required discretionary approvals This chapter also includes a description of the intended uses of the Supplemental EIR and public agency actions.

Chapter 3.0, Environmental Analysis, describes the potential environmental effects of the proposed project, as well as proposed mitigation measures to reduce or avoid any potentially significant impacts. The discussion in Chapter 3.0 is organized by twelve environmental issue areas as follows:

- Aesthetics

- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation and Traffic
- Utilities and Service Systems

Environmental issue areas that are listed in Appendix G of the State CEQA Guidelines but not included in this Chapter 3.0 have been scoped out of the Supplemental EIR through the Initial Study process. A discussion of those environmental issues areas and the justification for not carrying those environmental issue areas forward to this Supplemental EIR can be found in the Initial Study.

For each environmental issue area, the analysis and discussion are organized into seven subsections as described below:

- **Existing Conditions -** This subsection describes the physical environmental conditions in the vicinity of the proposed project at the time of publication of the Notice of Preparation. The environmental setting establishes the baseline conditions by which the City will determine whether specific Project-related impacts are significant.
- **Regulatory Setting –**This subsection describes the regulatory setting applicable to the environmental issue area and the proposed project at the time of publication of the Notice of Preparation.
- **Thresholds of Significance –** This subsection identifies a set of thresholds by which the level of impact is determined. Thresholds that were eliminated from further review in the Supplemental EIR as part of the Initial Study analysis will be identified here.
- **Impacts Analysis –** This subsection provides a detailed analysis regarding the environmental effects of the proposed project, and whether the impacts of the proposed project would meet or exceed the established significance criteria.
- **Cumulative Impacts –** This subsection discusses the cumulative effects of the project in combination with the effects of other projects in the vicinity.

- **Mitigation Measures** – This subsection identifies potentially feasible mitigation measures that would avoid or substantially reduce significant adverse project impacts.
- **Significance After Mitigation** – This subsection discusses whether project-related impacts would be reduced to below a level of significance with implementation of the mitigation measures identified in the Supplemental EIR. If applicable, this subsection also identifies any residual significant and unavoidable adverse effects of the proposed project that would result even with implementation of mitigation measures.

In addition to the seven subsections listed above, full citations for all documents referred to in each environmental issue area discussion are included at the end of each section or chapter (*References*).

Chapter 4.0, Alternatives, discusses alternatives to the proposed project, including a No Project Alternative. This subsection describes the rationale for selecting the range of alternatives discussed in the Supplemental EIR and identifies the alternatives considered by the City that were rejected from further discussion as infeasible during the scoping process. Lastly, Chapter 4.0 includes a discussion of the environmental effects of the alternatives that were carried forward for analysis and identifies the environmentally superior alternative.

Chapter 5.0, Other CEQA Requirements, addresses if there are any significant environmental effects that cannot be avoided, any significant irreversible environmental changes that would result from implementation of the proposed project, and any growth-inducing impacts associated with the proposed project.

Chapter 6.0, List of Preparers, gives names and contact information of those responsible for writing this Supplemental EIR.

Appendices include various technical studies prepared for the proposed project, as listed in the Table of Contents.

The City, as the designated lead agency for the proposed project, is responsible for enforcing and verifying that each mitigation measure is implemented as required; however, the project applicants shall be responsible for implementing the mitigation measures as required by the proposed project. As part of the Final Supplemental EIR process, a mitigation monitoring and reporting program will be prepared.

INTENTIONALLY LEFT BLANK

CHAPTER 2
PROJECT DESCRIPTION

This chapter describes the objectives of the North Montclair Downtown Specific Plan (NMDSP) Amendment (Proposed Amendment) and provides a description of the project characteristics of the Proposed Amendment. Pursuant to CEQA Guidelines Section 15124, this chapter also discusses the planning background; location; objectives; setting; a brief history of the NMDSP; and characteristics of the Proposed Amendment.

2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The City of Montclair (City), as the lead agency for the Proposed Amendment, is responsible for preparing environmental documentation in accordance with the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.; "CEQA") to determine if approval of the discretionary actions requested and subsequent development in the NMDSP area could have a significant impact on the environment.

2.1.1 Planning Background

1998 North Montclair Specific Plan

In 1998, the City of Montclair adopted the North Montclair Specific Plan in order to provide more detailed planning for the part of the City adjacent to and north of the Interstate 10 (I-10) freeway. The North Montclair Specific Plan addressed issues associated with economic vitality, design, redevelopment, compatibility, transportation, and pedestrian access in approximately 640 acres south of the northern city limit. Although the North Montclair Specific Plan provided new design concepts for the area, including pedestrian-oriented design, the City had mixed success implementing the Plan.

2006 North Montclair Downtown Specific Plan

In 2003, changes in the regional commercial market, continued underutilization of land in the North Montclair area, and the selection of the City as the eastern terminus of the Foothill Gold Line Extension light rail line, led the City to embark on a new planning effort for the North Montclair Downtown area. The Downtown area was an approximately 150-acre subset of the 640-acre North Montclair area. The City hoped to revitalize the area consistent with the goals and objectives of the City's General Plan. This planning effort eventually became the North Montclair Downtown Specific Plan (NMDSP).

The NMDSP was designed to function like a land use ordinance for the area by providing land use regulations, development standards and design guidelines for new development. The NMDSP introduced mixed-use as a land use and development concept and provided a more cohesive plan and vision for the downtown area, with an aim for more unified linkages in terms

of both circulation and design. The NMDSP contained estimates of future population, housing, and employment that has served as the basis for infrastructure and service planning.

In May 2006, the City of Montclair City Council certified the NMDSP Final EIR (City of Montclair 2006) and adopted the NMDSP. The 2006 EIR evaluated the potential impacts that may result from the adoption and implementation of the proposed NMDSP. The EIR was prepared as a Program EIR, which, according to Section 15168 of the State CEQA Guidelines, is appropriate when a project consists of:

> …a series of actions that can be characterized as one large project and are related in one or more of the following ways:
>
> 1. Geographically,
> 2. As logical parts in the chain of contemplated actions,
> 3. In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
> 4. As individual activities carried out under the same authorizing, statutory, or regulatory authority and having generally similar ways.

Program EIRs are intended to provide analysis that is more general and anticipates future project refinement and review. The 2006 EIR allows for specific projects within the NMDSP area to "tier" future environmental assessment off the NMDSP EIR.

2.1.2 Proposed NMDSP Amendment

The City has decided to amend the NMDSP. Based on the Initial Study (IS) Checklist/ Environmental Evaluation prepared for the Proposed Project on behalf of the City, the City has determined it appropriate to prepare this Supplemental EIR to the 2006 NMDSP EIR for the Proposed Amendment. The purpose of the IS Checklist is to identify any potentially significant impacts associated with the Proposed Amendment and to document the forthcoming intended analysis in the Supplemental EIR to the 2006 MNDSP EIR. The IS was prepared in conformance with Sections 15063 and 15064 of the CEQA Guidelines (14 CCR 15000 et seq.). The IS was used to determine whether the Proposed Amendment would have new effects that were not examined in the 2006 NMDSP EIR or would cause more severe environmental impacts that would require new or additional mitigation. In accordance with Public Resources Code Section 21002.1, and based upon the information contained in the IS, the City has prepared this Supplemental EIR for the following purposes:

- To inform the general public, the local community, responsible and interested public agencies, the decision making bodies, and other organizations, entities, and interested

persons of the scope of the Proposed Amendment, its potential environmental effects, possible measures to reduce potentially significant environmental impacts, and alternatives that could reduce or avoid the significant effects of the Proposed Amendment

- To enable the City to consider environmental consequences when deciding whether to approve the Proposed Amendment
- To satisfy the substantive and procedural requirements of CEQA

An EIR will be prepared as a Supplement to the 2006 NMDSP EIR pursuant to Section 15163 of the State CEQA Guidelines. As stated in Section 15163(a)(2) of the State CEQA Guidelines, a Supplement to an EIR is appropriate for a project when:

> "Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation."

The Supplemental EIR will be intended to serve as an informational document for the public and City decision-makers. The City Council will consider whether to certify the Supplemental EIR and whether to approve the Proposed Amendment.

As required by CEQA, this Supplemental EIR serves to (1) assess the expected direct, indirect, and cumulative impacts of the proposed project's physical development; (2) identify means of avoiding or minimizing potential adverse environmental impacts; and (3) evaluate a reasonable range of alternatives to the proposed project, including the No Project Alternative. As an informational document, an EIR does not make recommendations for or against approving a project. The main purpose of an EIR is to inform public agency decision makers and the public about potential environmental impacts of the project (State CEQA Guidelines Section 15121). The EIR will be used by the City, as the lead agency under CEQA, in making decisions with regard to the adoption of the proposed project and the related approvals.

2.2 PROJECT LOCATION

The Proposed Amendment area is located in the City of Montclair, within the western end of San Bernardino County (Figure 2-1, Regional Map), and approximately 36 miles east of downtown Los Angeles. The topographical area encompassing Montclair is known as the Chino Basin. The City lies in the northwest corner of the Basin. Montclair is bordered by the cities of Pomona and Claremont to the west (in Los Angeles County), Upland to the north, Upland and Ontario to the east, and Chino to the south. The San Gabriel Mountains are located to the north, the Jurupa Mountains are located to the southeast, the Chino Hills and Santa Ana Mountains are located to the southwest, and the San Jose Hills are located to the west. Direct regional access to Montclair is provided by the Interstate 10 (I-10) freeway. The City extends both north and south of the I-10 freeway. The City limits are shown in Figure 2-2, City of Montclair.

The Proposed Amendment would amend the Montclair Downtown area that was defined in the NMDSP prepared in 2006 (see Figure 2-3, North Montclair Downtown Specific Plan). Montclair's Downtown is an approximately 150-acre subset of the 640-acre North Montclair area that was defined by the North Montclair Specific Plan, prepared and adopted in 1998. The NMDSP planning area corresponds generally to the area bound by Huntington Drive and the Pacific Electric Inland Empire Trail on the north, Monte Vista Avenue on the west, Moreno Street on the south, and Central Avenue on the east. The existing boundary extends past these general boundaries in a number of locations and retreats from these general boundaries in one location along Moreno Street where the City has adopted a Specific Plan of Development No. 81-2, as shown in Figure 2-3 (North Montclair Downtown Specific Plan). The Montclair Downtown area is located within 10 minutes of the Claremont Colleges and Cable Airport, and is adjacent to, but does not include Montclair Place (formerly known as Montclair Plaza) (see Figure 2-2, City of Montclair).

2.3 SURROUNDING LAND USES

The NMDSP area is surrounded by both developed properties, and number of underutilized or vacant sites on all sides. To the west of the NMDSP boundary, across Monte Vista Avenue and south of Arrow Highway, is a mix of residential, industrial, conservation and business park uses. To the north of the NMDSP boundary across Huntington Drive and the Pacific Electric Inland Empire Trail, land uses include public utility, commercial and residential properties located in the City of Upland. To the east of the NMDSP boundary, across Central Avenue, land uses include a mix of commercial, industrial and residential developments. To the south of the NMDSP area boundary, across Moreno Street, land uses include commercial uses in the Montclair Place (formerly known as Montclair Plaza), a major regional mall. The City has adopted a Specific Plan of Development No. 81-2 for the northwest corner of Moreno Street and Fremont Avenue. This area is developed as a single-family residential neighborhood.

2.4 EXISTING SETTING

The characteristics of the NMDSP area, its surroundings, and its existing conditions are summarized in Table 2-1, NMDSP Information.

Table 2-1
North Montclair Downtown Specific Plan Information

General Plan Designation	Planned Development
Zoning	Specific Plan – North Montclair Downtown Specific Plan - Commercial and Residential Uses • Corridor Residential - North Montclair Downtown Specific Plan • Neighborhood Residential – North Montclair Downtown Specific Plan • Town Center – North Montclair Downtown Specific Plan

Table 2-1
North Montclair Downtown Specific Plan Information

Site Size	150 acres
Assessor's Parcel Number(s)	Numerous
Present Use	Mix of residential, commercial, and industrial uses
Surrounding Land Uses Zoning	North: Public Utility, Commercial and Residential Uses • PU Public Utilities – Water Storage Basin – City of Upland General Plan Land Use Map • MFR-L Multifamily Residential Low – Upland General Plan Land Use Map • C/R-MU Commercial/Residential Mixed-Use – Upland General Plan Land Use Map South: Commercial Uses • C-3 General Commercial- North Montclair Specific Plan (NMSP) – Regional Mall with mix of retail and, restaurant uses West: Industrial Uses and Residential Uses • MIP Industrial Park Manufacturing – North Montclair Specific Plan (NMSP) • R-1 Single Family Residential East: Commercial, Office Professional Uses • C-3 General Commercial – North Montclair Specific Plan (NMSP) • RC Regional Commercial – Upland General Plan Land Use Map • B/R-MU – Business/Residential Mixed-Use per the Upland General Plan Land Use Map • Institutional
Access	Major streets with in the Downtown include Central Avenue, Arrow Highway, Moreno Street, Fremont Avenue, Richton Street, and Monte Vista Avenue. Interstate-10 and Metrolink's San Bernardino commuter rail line provide direct regional access to the NMDSP planning area.
Public Services	Water Supply: Monte Vista Water District Sewer Service: City of Montclair Solid Waste: Burrtec Waste Industries Fire Protection: Montclair Fire Department Police Protection: Montclair Police Department School District: Ontario-Montclair School District (K-8) and Chaffey Joint Union High School District (9-12)
Utilities	Gas Supply: The Gas Company Electric Supply: Southern California Edison Telephone: Frontier Communications Cable TV: Time Warner

2.5 NEED FOR THE PROJECT

The NMDSP, adopted in 2006, mitigates the City's sprawl by establishing a framework and development strategy for a pedestrian-oriented retail and residential District surrounding the Montclair Transcenter. Prior to adoption of the NMDSP, the City was dominated by tract houses and apartments from the 1950s to the 1970s, with a commercial district of auto-oriented retail businesses clustered around a regional shopping mall.

The 2006 NMDSP planning effort focused on the 150 acres of vacant lots, strip malls and other marginal land uses that were located between Montclair Place and the Montclair Transcenter, which is currently served by local buses, and the regional Metrolink rail and the anticipated extension of the Foothill Gold Line light rail. The planning process explored the viability of housing at various densities, supporting commercial office and retail uses, structured parking, and creation of a strong visual and pedestrian connection with the north side of the existing mall.

The Proposed Amendment would amend the 2006 NMDSP to allow for the future development of projects tied to the Montclair Transcenter and the anticipated extension of the Foothill Gold Line that would extend light rail line service to the City. The Proposed Amendment would assign and create appropriate Specific Plan land use designations and densities for the proposed expansion areas and the previously undesignated properties along the west side of Central Avenue within the current specific plan boundaries. The Proposed Amendment would also amend other portions of NMDSP to clarify, refine, or modify certain development standards and architectural guidelines that will guide development in the NMDSP area through 2035.

2.6 OBJECTIVES

The primary objectives of the Proposed Amendment include the following:

- Amend the NMDSP to expand the area of the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 40 acres of land that currently comprise the Turner Specific Plan on the west side of Central Avenue at Richton Street between Central Avenue and Monte Vista Avenue, and determine appropriate land use zones, density levels and street patterns for these areas.
- Amend the NMDSP to determine appropriate land use zones, density levels and future street patterns for properties in the specific plan area that are located along the west side of Central Avenue and portions of Arrow Highway and Fremont Street. In addition to the current Neighborhood Residential (NR), Corridor Residential (CR) and Town Center (TC) land use zones and standards that are identified in the existing NMDSP, two new land uses would be introduced including a Station District land use zone, and a “transition” zone.
- Update all NMDSP maps and exhibits to reflect projects approved under the current plan, including The Paseos and Arrow Station residential developments. The updated plans would add the location of the Pacific Electric Inland Empire Trail, and conceptually plan for the anticipated arrival of the Foothill Gold Line light rail extension.
- Amend the NMDSP to account for an increase in the maximum number of dwelling units and additional commercial square footage allowable by the plan and expanded boundaries. The maximum number of dwelling units envisioned by the Proposed Amendment is 5,888

dwelling units (+ 2,688 dwelling units) and the total additional commercial square footage envisioned by the plan is 1,681,285 square feet (+ 782,285 square feet).

- Update architectural and development standards as necessary to successfully implement the Specific Plan including, but not limited to, the provision of new minimum lot sizes for development in each respective land use zone, including parking, setbacks, building heights, etc.
- Modify the NMDSP to provide for additional transit oriented development along the new Foothill Gold Line extension alignment within the project area.
- Clarify and amend Table 5.1 Allowed Land Uses and Permit Requirements to add or delete specific land uses for each zoning district of the updated NMDSP.

2.7 PROJECT COMPONENTS

2.7.1 California Environmental Quality Act Baseline

The baseline for a project is normally the physical condition that exists when the Notice of Preparation (NOP) is published. The following discussion details the conditions existing in and around the NMDSP area at the time the NOP was published. The NOP for the Proposed Amendment was published on October 3, 2016. The intent of this section is to establish the baseline conditions against which the various impacts of the Proposed Amendment will be assessed. The project as reviewed in the prior 2006 EIR, as well as the project's identified impacts, are considered a part of the baseline for this subsequent environmental review of the Proposed Amendment. The analysis of the Proposed Amendment's impacts is limited to new impacts not previously evaluated in the 2006 EIR. As such, the environmental review of the Proposed Amendment will examine the difference between the impacts of the project as described in the 2006 EIR and the impacts of the Proposed Amendment (revised project).

General Description

The NMDSP area is currently characterized as a mix of industrial, commercial, residential and vacant land uses. All properties have undergone disturbance previously resulting from development of the existing commercial and residential uses that make up the project area. Based on estimates from aerial photographs approximately 10 percent of the planning area is vacant, 30 percent is developed as surface parking and 20 percent is developed with residences, with the remainder (approximately 40 percent) in low- to high-density commercial uses and transit facilities.

Vegetation in the NMDSP area is limited to ornamental landscaping associated with existing development and several ornamental trees that line the streets. Planters with ornamental trees, shrubs, and grasses are scattered sparsely throughout the numerous surface parking lots. Vacant

lots are highly disturbed, graded to varying degrees, and support only minimal amounts of low-growing vegetation (mostly annual weeds).

The planning area is served by all basic infrastructure. There are no natural riparian or other surface water features in or proximate to the planning area. However, the concrete lined San Antonio Flood Control Channel runs through a portion of the planning area. Two water storage basins associated with the San Antonio Wash are located west and north of the NMDSP area. One water storage basin is located approximately 100 feet north of the northern edge of the NMDSP area and is separated from the area by Huntington Drive and the Pacific Electric Inland Empire Trail. The other water storage basin is located immediately adjacent to the western edge of the area at the southwest corner of Arrow Highway and Monte Vista Avenue that is proposed to be incorporated into new NMDSP boundary area. These basins are mapped as freshwater ponds by the U.S. Fish and Wildlife Service National Wetland Inventory. They are also mapped as being diked/impounded or excavated, indicating that the ponds are substantially modified and/or created by artificial means (USFWS 2014). These basins are surrounded by urban development, and the Proposed Amendment site is separated from the northern basin Huntington Drive easement, which accommodates the Pacific Electric Inland Empire Trail. The western basin is located immediately adjacent to the western edge of the planning area.

Typical residential development in the planning area ranges from one to three stories in height. Most of the surrounding commercial structures are one story in height. Most existing buildings or structures in the NMDSP area range in height between approximately 30 and 75 feet. Because of the relatively low height of most development within the Proposed Amendment area, long-range viewsheds are relatively unobstructed; however, the proximity of the surrounding development generally obstructs long-range views.

Population and Housing Trends

The estimated population for the City as of January 1, 2013, according to the Department of Finance, was 37,311 residents (City of Montclair Planning, 2016). According to the U.S. Census, the City experienced a 10.9 percent population increase between 2000 and 2010; and a 1.8 percent increase between 2010 and 2013. Forecasts show a gradual population growth rate over the next 20 years with an estimated population of 43,900 in 2035 (City of Montclair Planning, 2016).

The current population in the NMDSP area is a relatively small percentage of the City's population. There are approximately 9 existing single-family residences within the NMDSP area, located along Huntington Drive, east of Claremont Boulevard. An additional 40 single-family residences are located at the northwest corner of Fremont Avenue and Moreno Street, which are in close proximity to, but not within, the NMDSP project area.

Multi-family residential in the NMDSP area includes a 385-unit residential complex, known as The Paseos at Montclair North, completed in 2015 at the northeast corner of Monte Vista Avenue and Moreno Street. An additional 129-unit residential development known as Arrow Station is under construction on the north side of Arrow Highway approximately 200 feet east of Monte Vista Avenue. A third 23-unit project known as Vista Court was recently approved at 8949 Monte Vista Avenue. Using the household occupancy rate of 3.6, as reported by the City in the updated housing element, the existing resident population of the NMDSP area is estimated to be 2,023 persons, which is approximately 5 percent of the City total (City of Montclair Housing Element 2010).

The implementation of the two multi-family attached residential projects, and approval of a third multi-family project marks an uptick in population growth in the NMDSP area and is in line with the residential zoning and development envisioned for the NMDSP area. These residential projects are located in the immediate vicinity of the Proposed Amendment but have independent utility because they have already been constructed, are currently being constructed, or have been approved for construction. These projects have previously undergone environmental review by the City of Montclair, and were found to be consistent with the environmental impacts analyzed in the EIR prepared for the NMDSP that was approved on May 15, 2006. For this reason, the direct environmental impacts of these projects are not be analyzed in this Supplemental EIR but will be considered as part of the cumulative impact analysis, if appropriate.

Commercial Development

Although residential uses are on the rise in the NMDSP area, commercial land uses continue to dominate. The existing commercial mix in the planning area ranges from a Target store and Best Buy store on the east/southeast, vacant parcels towards the center of the planning area, and limited smaller-scale commercial buildings toward the eastern boundaries, including restaurants such as John's Incredible Pizza. Montclair Place (formerly known as Montclair Plaza), a major regional mall, is located south of the planning area boundary. Based on reviews of aerial photographs, the current pattern of commercial development in the NMDSP area consists predominately of standalone large structures surrounded wholly or in part by paved surface parking.

Transportation and Transit

Major streets within the planning area include Central Avenue (west side), Arrow Highway, Moreno Street, Fremont Avenue, Richton Street, and Monte Vista Avenue. The NMDSP area is within ten miles of various regional destinations and transportation links, such as Ontario Airport, Cable Airport and the Interstate 15 (I-15) and Interstate 210 (I-210) freeways. The I-10 freeway and Metrolink's San Bernardino commuter rail line provide direct regional access to the City. The I-10 freeway is an eight-lane grade-separated facility that is the most significant regional transportation facility serving the City.

The City is planned as the eastern terminus of the Foothill Gold Line Extension (although there has been some discussion of extending further east to Ontario International Airport), which will link Montclair with the foothill communities of the San Gabriel Valley and the City of Los Angeles. The construction of the Foothill Gold Line Extension is subject to the jurisdiction of the Metro Gold Line Foothill Extension Construction Authority. Upon completion, the lines will be operated by, and will be under the jurisdiction of, the Los Angeles Metropolitan Transportation Authority. Pending funding for the Azusa to Montclair phase, the Foothill Gold Line Extension could begin construction as early as 2017 (Metro Gold Line Foothill Extension 2016).

The Montclair Transcenter is an intermodal transit center located between Central and Monte Vista Avenues on Richton Street. The majority of the land composing the Montclair Transcenter is owned by the State of California. The San Bernardino Associated Governments and the City share ownership of approximately one acre of land in the interior of the Transcenter. Omnitrans, Foothill Transit and the Riverside Transit Agency (RTA) all provide bus service from the Transcenter, with Foothill Transit and RTA providing express service and Foothill Transit and Omnitrans providing local service. Commuters also use the Montclair Transcenter as a park and ride facility.

The Montclair Transcenter is also a station on the Metrolink San Bernardino Line. The station serves as the dividing line between Foothill Transit's service area and Omnitrans' service area. Omnitrans buses run to the east, while Foothill Transit buses run to the west. The Montclair Transcenter is the largest such facility between Union Station in the City of Los Angeles and San Bernardino Station in the City of San Bernardino. The Montclair Transcenter currently has 1,600 surface parking spaces.

Parking

As mentioned earlier, approximately 30 percent of the planning area in NMDSP is currently devoted to surface parking.

Utilities

The NMDSP area is currently served with all necessary utilities. Utilities may not be extended to each parcel, but utilities are available in developed road right-of-ways. The following provides specific information about each type of utility:

- **Stormwater Conveyance and Detention**. Stormwater in the NMDSP area is conveyed through city-owned infrastructure to the Chino Basin Water Conservation District and San Bernardino County Flood Control District storm drains. Stormwater in the planning area is conveyed to the San Antonio Channel through a network of drains and pipes in north-south streets, which connect to larger east-west laterals. The infrastructure maintains a very good level of water-carrying capacity.

- **Electrical Power**. Power is provided by Southern California Edison.
- **Water Supply.** Two water purveyors currently serve the NMDSP area. The majority of properties are served by Monte Vista Water District, while some properties are served by Golden State Water Company.
- **Sanitary Sewer Service.** The City's domestic wastewater is conveyed via City-owned and maintained infrastructure to treatment facilities owned and maintained by the Inland Empire Utilities Agency (IEUA). The wastewater is disposed of at one of two locations. Most of the sewage flows to the Carbon Canyon Wastewater Reclamation Facility in Chino, while a small amount flows to the Regional Plant No. 1 in south Ontario.

Government Services

The NMDSP area is currently served with all the standard government services such as fire, police, school, and the public library operated by the San Bernardino County Library System at 9955 Fremont Avenue.

- **Fire Services.** Fire Station No. 1 is currently situated within the NMDSP area at the southeast corner of Monte Vista Avenue and Arrow Highway. A second fire station (Fire Station No. 2) is located in the southern portion of the City near the intersection of Monte Vista Avenue and Mission Boulevard. Fire Station No. 1 is currently outfitted with a three-person engine and a two-person paramedic squad, has one triple combination pumper, and one quint (engine) with a 55-foot ladder. On a 24-hour basis, the NMDSP area is served by 16 firefighters, one chief officer, and one fire investigator.
- **Police Services.** Police protection services in the City are provided by the Montclair Police Department, located at 4870 Arrow Highway, on the northwest corner of Arrow Highway and Monte Vista Avenue. The Montclair Police Department employs approximately 53 sworn officers. Typically, the station is staffed with at least four patrol officers per shift.
- **Schools.** Currently no schools are located in the NMDSP area. However, the NMDSP area is served by Moreno Elementary School and Serrano Middle School. Moreno Elementary School is located on Moreno Street, and Serrano Middle School is located on San Jose Street, both of which are to the southwest of the Downtown area. Montclair High School serves the entire City and is located on Benito Street, approximately 1.1 miles south of the NMDSP area.
- **Library.** The Montclair Branch of the San Bernardino County Library system is located at 9955 Fremont Avenue in the Montclair Civic Center, approximately 1.5 miles south of the NMDSP area. The Montclair Library is one of the largest facilities in the regional library system, encompassing 20,200 square feet and 59,100 volumes. The library serves approximately 14,000 patrons per month.

Airports

The City is located within the Airport Influence Area (AIA) of the Ontario International Airport Land Use Compatibility Plan (ONT ALUCP). The ONT ALUCP establishes a set of procedural and compatibility policies that set limits on future land uses and development within the Ontario International Airport AIA in order to address noise, safety, airspace protection, and overflight impacts of current and future airport activity within the AIA (City of Ontario 2011).

The City is also located within the AIA of the Cable ALUCP. The Cable ALUCP establishes a set of procedural and compatibility policies that set limits on future land uses and development within the Cable Airport AIA in order to address noise, safety, airspace protection, and overflight impacts of current and future airport activity within the AIA (City of Upland 2015).

General Plan and Zoning

The City's General Plan (General Plan) is a formal expression of community goals and desires and fulfills California Government Code §65302, which requires the preparation and adoption of a General Plan.

The General Plan was adopted in 1999, though the General Plan Housing Element has been subsequently updated (2014). The General Plan sets forth the land use designations, policies, programs, standards, and goals for development, or buildout, of the City of Montclair and its sphere of influence through the year 2020.

The Proposed Amendment is located in Sub-area 1 of the General Plan (shown as Figure II-1, City of Montclair General Plan) This area is designated as Planned Development and zoned as Specific Plan in the City's Zoning Map.

The City of Montclair adopted the North Montclair Specific Plan (NMSP) in 1998 in order to provide more detailed planning for 640-acre portion of the City along both sides of the I-10 freeway and Central Avenue. The NMSP addressed issues associated with economic vitality, design, redevelopment, compatibility, transportation, and pedestrian access. The relationship of the NMSP boundary to that of the NMDSP is depicted in Figure 2-3, City of Montclair.

In 2004, changes in the regional commercial market, and continued underutilization of land in the North Montclair area, led the City to embark on a new planning effort for a 150-acre subset of the overall 640-acre NMSP area between the Montclair Place and the Montclair Transcenter. In 2006, the City adopted the NMDSP, which establishes land use designations, regulations, development standards and design guidelines for new development within the NMDSP area. The NMDSP also sets forth the foundation for a formed based code and development of transit-oriented district in proximity to the Montclair Transcenter. All entitlements within the

Downtown planning area must be consistent with the NMDSP as the development standards specified in the plan supersede the language set forth in the NMSP and the existing Zoning Code.

2.7.2 Proposed Amendment

The key project components of the Proposed Amendment include the following:

New Regulating Plan

Figure 2-4a (North Montclair Downtown Specific Plan Existing Regulating Plan) shows the existing NMDSP's Regulating Plan and Zones (page 5:4 of the NMDSP). Figure 2-4b (North Montclair Downtown Specific Plan Proposed Regulating Plan) shows the proposed changes to the existing NMDSP's Regulating Plan and Zones, which defines the zones within the NMDSP area that differentiate standards for building placement, design, and use, and also identifies parcels included within each zone.

The proposed new Regulating Plan continues to divide the specific plan area into separate zones that are based on density and types of development appropriate for a transit-oriented development (TOD) plan. The Proposed Amendment would continue to utilize the Neighborhood Residential (NR), Corridor Residential (CR) and Town Center (TC) land use zones and standards that are identified in the existing NMDSP. With the Proposed Amendment, a new Station District (SD) land use zone would be introduced (See Figure 2-4b, North Montclair Downtown Specific Plan Proposed Regulating Plan).

In addition, the zoning per the 2006 Adopted Plan would be adjusted as follows:

1. The zoning of the parcels located between Huntington Drive and the railroad right-of-way just east of Claremont Boulevard would be changed from Corridor Residential (CR) to Neighborhood Residential (NR).
2. In response to the Paseos project, which was built since the 2006 adoption of the NMDSP, the zoning of the interior parcels would be changed from Neighborhood Residential (NR) to Corridor Residential (CR).
3. New Specific Plan zoning – Town Center (TC) and Corridor Residential (CR) zoning would be applied to the large parcels located along the west side of Central Avenue (e.g., John's Incredible Pizza, Best Buy, and Target parcels). In addition to the commercial zoning that is currently permitted, the new zones would permit residential and office uses to be introduced, provided:
    - A walkable, interconnected street network conforming to the requirements of NMDSP §5.4.030 (Subdivision Standards) is introduced.

- New buildings are located according to the NMDSP Building Placement standards (5.2.030.B and 5.2.040.B), face the street with allowed frontage types, and are consistent with the rest of the standards of the NMDSP.
- Displaced parking is provided in shared parking lots or garages per NMDSP parking standards.

The above requirements would not preclude infill development of the existing parking lots with mixed-use buildings, accommodating the displaced parking in shared parking lots or structures, and retaining the existing buildings or portions of these existing buildings. The goal would be to redevelop these parcels over time – and when market conditions are favorable – according to the urban, mixed-use, walkable vision of the NMDSP. In addition, the new Regulating Plan requires that a portion of this area be devoted to open space. It also requires that open space be provided north of the Transcenter bus bays and just west of Central Avenue.

The Proposed Amendment would also amend Table 5-1 of the NMDSP, which identifies the land use types allowed within the zone to include the new Station District land use zone, and would include Figure 2-5 (Existing Property Lines, Buildings and Features) which shows all existing property lines, buildings, and features and how they correspond to the proposed land use zones specified in the new Regulating Plan.

The Proposed Amendment increases the density allowed in the NMDSP area around the Metrolink Transit Station by introducing a new Station District zone, including the parcels currently occupied by the Transcenter surface parking lots north of the tracks. This zone places the most dense, attached residential uses (up to 80 du/acre, 2.84 FAR) in the immediate proximity of the transit station. The location of this zone would allow more residents to conveniently walk to the transit station to commute by rail or bus. Increased walkability would decrease the population's dependency on the automobile, which lends itself to significant savings in daily trips and required parking spaces.

Extend the NMDSP Westerly Boundary at Arrow Highway and Monte Vista Avenue

The southwest corner of Arrow Highway and Monte Vista Avenue currently lies outside the NMDSP planning boundary and has a General Plan land use designation of Business Park. This parcel is also zoned M1 Limited Manufacturing on the City's zoning map. The proposed amendment would revise the official NMDSP site plan and other map-based exhibits to reflect the expansion of the NMDSP west planning boundary line to incorporate this parcel as shown in Figure 2-6 (Existing vs. Proposed North Montclair Downtown Specific Plan Westerly Boundary).

A General Plan Amendment (GPA) would be required to allow this area to be incorporated into the NMDSP planning area and be re-designated in the General Plan as Planned Development. The

proposed change would also require a zone change to reflect the new zoning of the area as part of the NMDSP. The area would be rezoned with the land use zone of Town Center (TC) along Arrow Highway frontage and Corridor Residential (CR) for the remainder of the site. This change would include the revision of the site plan and the other map-based exhibits to reflect this expansion.

Extend the NMDSP Easterly Boundary

The project also proposes to expand the existing easterly area boundary line to incorporate approximately 40 acres of land that currently comprise the Turner Specific Plan on the west side of Central Avenue at Richton Street between Central Avenue and Monte Vista Avenue, as shown in Figure 2-7 (Existing vs. Proposed North Montclair Downtown Specific Plan Easterly Boundary). This area is currently designated as the Turner Specific Plan (1990) which would be replaced and incorporated into the NMDSP. This 40-acre area is bounded on the north by the existing Pacific Electric Inland Empire Trail, a multi-purpose (walking and bicycle) trail that runs between the city of Claremont on the west and the City of Rialto to the east. The portion of the Pacific Electric Inland Empire Trail running through the City of Montclair is approximately one mile in length. The trail is operational, owned by SANBAG, and maintained by the City of Montclair. The proposed expansion area would be designated as a mix of Corridor Residential and Town Center, with the Town Center designation being placed along Central Avenue as reflected in the revised Regulating Plan prepared for the Specific Plan update. In addition, as shown on the Regulating Plan, a portion of this area must be devoted to Open Space.

Central Avenue Land Use Designations

In the existing NMDSP, there are several properties along the west side of Central Avenue, between the Metrolink right-of-way and Moreno Street (e.g., John's Incredible Pizza, Best Buy and Target properties) that were not assigned a specific land use designation. The proposed specific plan update would assign a land use designation for these properties to Town Center (TC) and Corridor Residential (CR) as ultimate land use designations.

Land Use Overlays

The project proposes to introduce a new land use overlay, the Transition Overlay, over existing parcels that contain existing buildings with non-residential uses that are inconsistent with the NMDSP vision. In addition, the Transition Overlay specifies how the following development types relate to the NMDSP Development Code:

1. New use within or renovation of an existing building;
2. Additions to existing buildings within the Transition Overlay that are less than 20% of total existing gross floor area;

3. Additions to existing buildings within the Transition Overlay that are more than 20% of total existing gross floor area;
4. New buildings on sites less than two acres; and
5. Development on parcels two acres or larger.

The Proposed Amendment also amends the name, requirements, and locations of the Current NMDSP's "Town Center: Required Retail Frontage" overlay. In the current NMDSP, this overlay requires buildings along the north side of Moreno Street (just east of Fremont Street) and buildings facing the open space located at the northwest corner of Arrow Highway and Fremont Avenue to provide ground floor retail uses accommodated in ground floor shopfronts. The Proposed Amendment changes the name of this overlay to the "Shopfront Overlay," adjusts the locations to where it applies, and continues to require shopfront frontage types at the proposed locations, but allows non-retail uses as interim uses if market conditions are not amenable to supporting retail at these locations. The Shopfront Overlay continues to apply to the frontages surrounding the open space located north of Arrow Highway and Fremont Avenue, but the requirement along the north side of Moreno Street just west of Fremont Avenue is removed. Instead, shopfront frontages are required along new buildings that are introduced along the west side of Central Avenue between Moreno Street and Arrow Highway and along the ground floor of the parking garages facing the Transit Square and Transcenter bus bays located north of the existing Metrolink platforms and future Foothill Gold Line Extension platforms.

Development Potential

Implementation of the Proposed Amendment would alter the development potential for the planning area when compared to the 2006 NMDSP. The development potential refers to the ultimate development scenario, including dwelling units and commercial space, proposed at the culmination of the Proposed Amendment timeframe. This scenario is expressed in the text, conceptual diagrams, and phasing tables of the Proposed Amendment. The Proposed Amendment could replace some of the approximately 650,000 square feet of retail and industrial uses along the west side of Central Avenue to allow for more mixed-use and residential areas east of Fremont Avenue.

Table 2-2 (2016 Downtown Plan Residential Buildout) and Table 2-3 (2016 Downtown Non-Residential Buildout) compares the development potential of the Proposed Amendment with the 2006 Specific Plan.

Table 2-2
2016 Downtown Plan Residential Buildout[1]

Land Use	Zone				Total Residential Buildout		Proposed Amendment Change
	Neighborhood Residential 30 du/acre[2]	*Corridor Residential 50 du/acre[2]*	*Town Center 60 du/acre[2]*	*Station District (80 du/acre[2]*	*2016 Total[3]*	*2006 Total[4]*	*Change Since 2006*
Single-Family (du)	-8	-30	0	0	-38	0	-38
Multi-Family (du)	125	2,169	1,700	1,932	5,926	3,200	2,726
Total Residential (du)	**117**	**2,139**	**1,700**	**1,932**	**5,888**	**3,200**	**2,688**

1 Residential buildout derived by multiplying the total area within each zone by the expected maximum density (du/acre) for each zone. Residential buildout calculations do not include as developable area the areas designated "Preferred New Streets" and "Potential New Streets" nor do they include the area designated to accommodate parking structures.

2 Expected maximum density (du/acre) for the NR, CR, and SD zones as described in the 2006 Adopted NMDSP, Subsections 5.2.030.A, 5.2.040.A, and 5.2.050.C (Intent) for each respective zone. The expected maximum density for the SD zone (as well as the NR, CR, and TC zones) is consistent with best practices for transit oriented developments such as Montclair Station (see TOD 202: *Station Area Planning* by Reconnecting America, 2008).

3 2016 total residential buildout includes deduction of eight existing single-family houses in the NR zone and 385 multi-family units in the Paseos project and 30 single-family units and 99 multi-family units in the Arrow Station project. The CR zone unit deductions account for the net difference between a) the residential units introduced in projects built since adoption of the NMDSP in 2006 (Paseos and Arrow Station) and b) the maximum development potential as calculated by this residential buildout analysis, i.e., the Paseos and Arrow Station projects were not built out to the expected maximum density of 50 du/acre.

4 2006 total residential buildout per Table 3.0-5 (Existing Conditions vs. Downtown Plan Buildout) of the 2006 *North Montclair Downtown Specific Plan Final EIR*.

As shown in Table 2-2, the development potential allowed under the Proposed Amendment would provide for an additional 2,688 +/- dwelling units in the NMDSP area.

Table 2-3
2016 Downtown Plan Non-Residential Buildout[1]

Land Use	Zone				Total Non-Residential Buildout		Change Since 2006
	Neighborhood Residential 0.0 FAR	*Corridor Residential 0.6 FAR[2]*	*Town Center 1.0 FAR[2]*	*Station District 1.0 FAR[2]*	*2016 total[3]*	*2006 Total[4]*	*Change Since 2006*
Office	0	0	487,645	835,050	1,322		
Retail	0	-182,274	442,633	46,322	306,682		
Services	0	-8,433	159,376	108,321	259,264		
Industrial	0	0	0	-207,356	-207,356		
Non-Residential (sf)	**0**	**-190,707**	**1,089,655**	**782,337**	**1,681,285**	**899,000**	**782,285**

1 Non-residential Buildout derived by multiplying the total area within the applicable zones by the estimated maximum Floor Area Ratio (FAR) for each zone.

2 FAR consistent with best practices for transit oriented developments such as Montclair Station (see *TOD 202: Station Area Planning*, by Reconnecting America, 2008).

3 Includes deduction of approximately 650,000 sf of non-residential uses along the west side of Central Avenue and on parcels southwest of Monte.

4 2006 Buildout per Table 3.0-5 (Existing Conditions vs. Downtown Plan Buildout) of the 2006 *North Montclair Downtown Specific Plan Final EIR*.

As shown in Table 2-3, the development potential allowed under the Proposed Amendment would provide for an additional 782,285 square feet of non-residential space in the NMDSP area.

Establish Minimum Intensity Standards

As shown in Table 2-4 (Minimum Intensity Per Land Use Zone), the project proposes to establish minimum floor area ratio (FAR) standards in order to meet the overall NMDSP goal to generate a compact, pedestrian-friendly, transit-oriented, mixed-use setting.

Table 2-4
Minimum Intensity Per Land Use Zone

Land Use	Minimum Floor Area Ratio (FAR)
Neighborhood Residential	0.5
Corridor Residential	0.8
Town Center	1.5
Station District	2.0

New Street Alignment at Arrow Highway and Fremont Avenue

The project proposes a modification of the street alignment/pattern previously established in the NMDSP at the southeast corner of the Arrow Highway and Fremont Avenue intersection. Figure 2-8 (Existing vs. Proposed Street Alignment at Arrow Highway and Fremont Avenue) shows the proposed new street pattern and the re-designation of land use zones to fit the new alignment.

Reconfiguration of the Street Pattern at Moreno Street and Fremont Avenue

The 2006 NMDSP includes a street pattern along the northeast corner of Moreno Street and Fremont Avenue that includes the construction of a second north-south street east of Fremont Avenue that would be designated “New Fremont Avenue.” This street was envisioned to serve as a new link between the Montclair Transcenter and Montclair Plaza (now Montclair Place) and as the principal location of new long-term mixed-use development.

The project proposes to delete “New Fremont Avenue” from the plan and focus on the existing Fremont Avenue as the primary connection between the Montclair Transcenter and Montclair Place. The concept of creating a New Fremont Avenue as discussed above proved to be impractical and would result in a future parcel pattern that was not conducive to new development. Moreover, the existing Fremont Avenue alignment is better suited to visually and physically connect the Montclair Transcenter and Montclair Place regional mall as always envisioned by the NMDSP.

Figure 2-9 (Existing vs. Proposed Street Alignment at Moreno Street and Fremont Avenue) shows the proposed new street pattern and the re-designation of land use zones to fit the new pattern.

Updated Street Pattern on the Northeast Corner of Arrow Highway and Monte Vista Avenue

The NMDSP shows a new street pattern on the northeast corner of Arrow Highway and Monte Vista Avenue where the new 129-unit residential complex, called Arrow Station, is currently being constructed. The project proposes to update the street pattern in the NMDSP area to reflect the existing street pattern for this area. The existing street pattern compared to the pattern shown in the existing current NMDSP is shown in Figure 2-10 (Existing vs. Proposed Street Alignment on the Northeast Corner of Arrow Highway and Monte Vista Avenue). The street pattern east of the Arrow Station project is also updated in order to align with the Arrow Station street pattern and in relation to the removal of New Fremont Avenue.

Updated Street Pattern and Park at the Northeast Corner of Monte Vista Avenue and Moreno Street

The NMDSP update shows a new existing street pattern at the northeast corner of Monte Vista Avenue and Moreno Street where a new 385-unit residential complex built since the adoption of the existing current NMDSP, called The Paseos, is located. The project proposes to update the street pattern in the NMDSP area to reflect the existing street pattern and park for this area. The existing street pattern/park area compared to the pattern shown in the current NMDSP is shown in Figure 2-11 (Existing vs. Proposed Street Alignment on the Northeast Corner of Monte Vista Avenue and Moreno Street).

Updated Street Pattern North of Railroad Right-of-Way

The NMDSP updates the street, block, and open space pattern east of Monte Vista Avenue and north of the Metrolink Station to accommodate the most current Montclair Transcenter bus bay design. In addition, the street, block, and open space pattern conforms to the existing single-family parcels located along the south side of Huntington Drive.

Relocation of Parking Structures

The NMDSP provides parking for transit commuters in up to three structures oriented parallel and adjacent to the railroad tracks. The new parking structures, located along both the north side of the tracks, collectively must accommodate the same number of parking spaces currently provided in the existing Metrolink parking lots. The parking structure on the south side of the tracks is intended to support adjacent retail uses.

In addition, the parcels located north of the Metrolink station are subject to a new Station District zone, which accommodates the most dense, attached residential uses within the Specific Plan area (up to 80 du/acre, 2.84 Floor to Area Ratio (FAR)) within immediate proximity of the transit station, promoting walkability and less dependency on the automobile. This compact area would lend itself to significant savings in required parking spaces.

If the large parcels along the west side of Central Avenue are developed with higher-density, mixed-use development, retail parking would be located in shared parking lots or structures. Convenience parking could also be provided with on-street parallel or angled parking spaces.

Figure 2-12 (Existing vs. Proposed Parking Areas) shows the relocated parking areas in the Proposed Amendment area.

Establish Minimum Lot Standards

In order to encourage new buildings to contribute to the NMDSP's goal of generating a compact, pedestrian-friendly, transit-oriented, mixed-use environment that is of an appropriate scale for the City, standards for minimum lot width, maximum building width, and minimum spacing between buildings are introduced. Table 2-5 (Minimum Lot Size and Maximum Building Size Allowed Per Land Use Zone) shows the minimum lot widths in relation to Front Street that would be allowed in the Proposed Amendment area for development in each respective land use zone. It also shows maximum building widths along Front Street and minimum spacing between these buildings.

Table 2-5
Minimum Lot Size and Maximum Building Size Allowed Per Land Use Zone

Land Use	Minimum Lot Width Allowed	Maximum Building Width along Front Street	Minimum Spacing between Buildings along Front Street
Neighborhood Residential	100 feet	100 feet	15 feet
Corridor Residential	125 feet	150 feet	15 feet
Town Center	150 feet	150 feet	15 feet
Station District	175 feet	175 feet	15 feet

In addition, building articulation and massing standards are introduced in order to guide the design of new buildings that add interest to the building and create variations in height and form.

Allow for Tandem Parking Standards

The project proposes to place new text in Section 5.4.010.D (Parking Design and Development Standards) of the Code as new Subsection 3. The text in Subsection 3 would read as follows:

3. Tandem Parking
   a. Tandem parking is allowed within multi-family projects and the residential component of mixed-use projects subject to the following standards:
      1. No more than two (2) cars may park in each tandem space.
      2. Both tandem spaces shall be assigned to the same dwelling unit.
      3. Each residential unit shall be provided with a minimum of 1.5 parking spaces. Second, tandem spaces shall be in addition to the required parking spaces.
      4. Up to 20 percent of the total required off-street parking spaces may be provided in a tandem configuration. The maximum number of spaces permitted in a tandem configuration refers to the total individual spaces, not the total number of tandem spaces. For example, if ten (10) total residential spaces are required, one (1) tandem spaces with two (2) cars in the tandem space for a total of two individual spaces may be provided.
      5. Vehicle movements necessary to move cars parked in a tandem configuration shall not take place on any public street.
      6. Guest parking spaces shall not be provided in a tandem configuration.

The project also proposes that the table in Subsection 4 (Parking Space and Lot Dimensions) be modified as follows:

Angle of Parking	Length of Parking Stall	Width of Parking Stall	Aisle Width
60° or less (one way) 90° (one way)	18 feet	8.5 feet	18 feet
90° (two-way)	18 feet	8.5 feet	24 feet
90° (tandem)	34 feet	9 feet	24 feet

Finally, regarding guest/visitor parking, the project proposes to add the following requirements to Section C.3 (Parking) of the NMDSP for development standards for each zone as follows:

- SD (provided in a new Section 5.2.030.D.3): Guest: 1 space for every 4 units
- TC (renumbered as Section 5.2.040.D.3): Guest: 1 space for every 4 units

- CR (renumbered as Section 5.2.050.D.3) Guest: 1 space for every 4 units
- NR (renumbered as Section 5.2.060.D.3) Guest: 1 space for every 4 units

Remove References to Single Family Residential Uses

The current NMDSP defines a single-family dwelling unit as a detached building designed as a residence for one household. The project proposes to amend Table 5-1, Allowable Land Uses and Permit Requirements, and all other references within the current NMDSP to show that single-family detached dwelling units are only permitted on existing, undivided lots within the Neighborhood Residential land use zone, or as part of a development within the Corridor Residential and Neighborhood Residential land use zones that incorporate the Bungalow Court Architectural Type. This proposal is consistent with the overall goal of the NMDSP to capture a larger share of the demand for attached housing and to provide higher density attached housing within a mixed-use setting.

New Signage Standards

The current NMDSP does not provide any guidance for signage in a pedestrian-oriented, mixed-use environment. The Proposed Amendment introduces signage standards to contribute to the creation of a rich urban environment that demonstrates variety, quality and design integrity.

New Public Realm and Landscape Standards

The current NMDSP provided insufficient standards for street and block design and did not provide direction for the design of sidewalks, streetlights, street furnishings, crosswalks, and open spaces. It also did not indicate where intersection bulb-outs should be located or include landscape design considerations. The Proposed Amendment introduces new standards and guidelines for these insufficient and/or missing elements.

Update of Exhibits

The following exhibits within the NMDSP would be updated to reflect the Proposed Amendment:

1. Existing Conditions diagrams (pages 2:1 – 2:4)
2. Illustrative Plan (pages 3:1 – 3:2)
3. Public Realm Plan (Pages 4:1 – 4:2)
4. Proposed Street and Park Plan (pages 4:6 – 4:7)
5. Fremont Avenue Street Section (page 4:9)
6. Regulating Plan (pages 5:3 – 5:4)

2.8 REQUIRED PERMITS AND APPROVALS

The City of Montclair is expected to use the Supplemental EIR in its decision-making relative to the Proposed Amendment. The required discretionary approvals that are being sought by the City of Montclair include the following:

1. A General Plan Amendment (GPA) to allow for the revision of the official NMDSP site plan and other map-based exhibits to include the expansion area at the southwest corner of Arrow Highway and Monte Vista Avenue. This area would be re-designated in the General Plan from Business Park to Planned Development.
2. A zone change in the official City of Montclair Zoning Map and other exhibits to reflect the new zoning for the southwest corner of Arrow Highway and Monte Vista Avenue from M1 Limited Manufacturing to Specific Plan and the corresponding land use designations of Town Center (along Arrow Highway) and Corridor Residential (on the remainder of the property) pursuant to the updated North Montclair Downtown Specific Plan.
3. A Specific Plan Amendment (SPA) to the North Montclair Downtown Specific Plan to incorporate all of the components of the Proposed Amendment as described below.
4. Replace and incorporate the Turner Montclair Specific Plan into the expanded boundaries of the NMDSP. The current boundaries of the area within the Turner Specific Plan are Monte Vista Avenue on the west, the boundary line between the cities of Montclair and Upland on the north, Central Avenue on the east, and the Metrolink rail line on the south.

Other regulatory agencies that may also require permits or other approvals for the Proposed Amendment include:

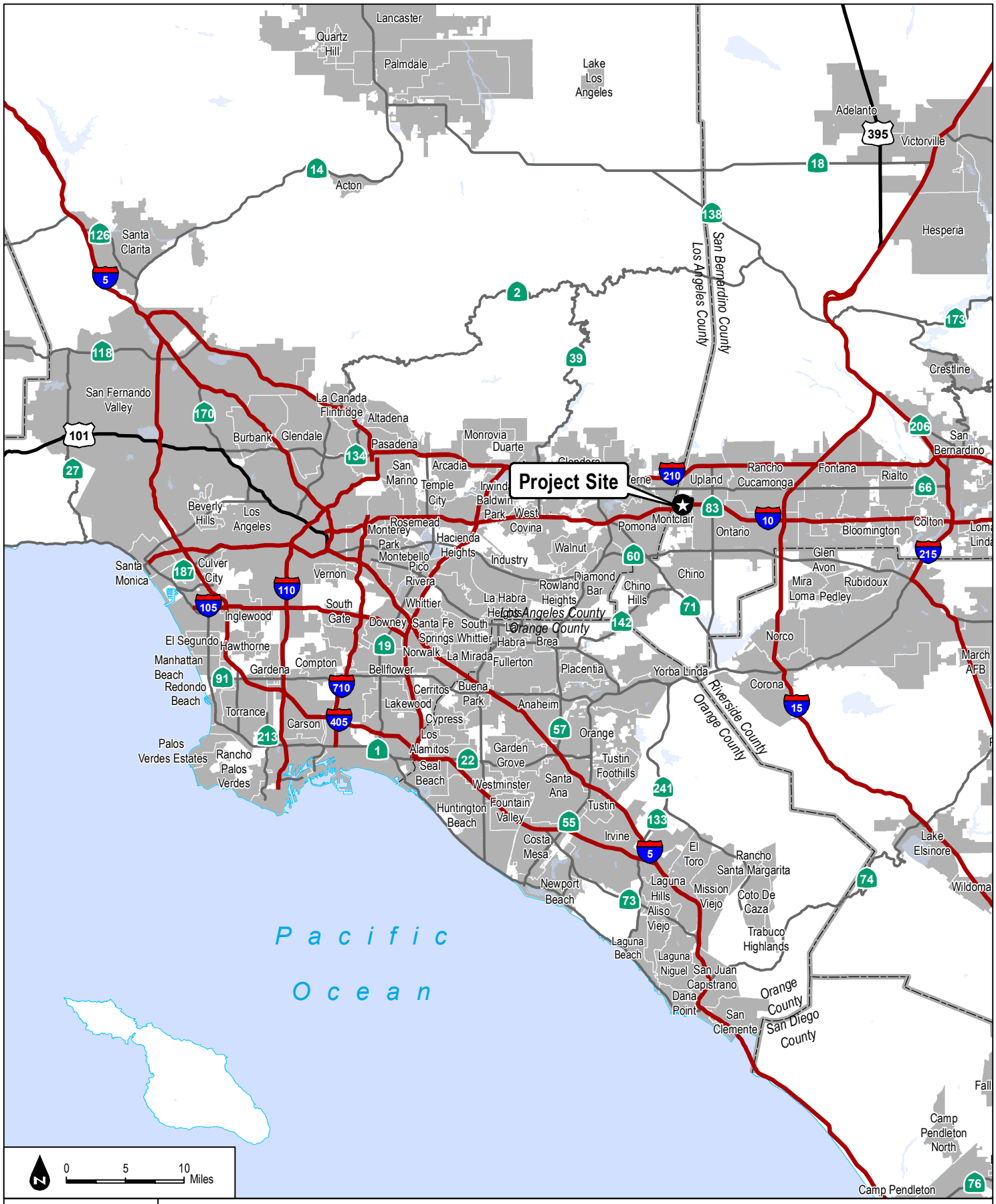
- Airport Land Use Commission review for the Cable Airport and the Ontario International Airport;
- Native American Heritage Commission and affiliated Tribes for the Assembly Bill 52 consultation process; and
- California Native American tribes for the Senate Bill 18 consultation process.

2.9 REFERENCES

City of Montclair. 1998. *North Montclair Specific Plan*. Prepared by Urban Design Studio and LSA Associates, Inc. Adopted January 5, 1998.

City of Montclair. 2006. *North Montclair Downtown Specific Plan*. Prepared by Moule & Polyzoides Architects and Urbanists, Adopted May 5, 2006.

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed November 3, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.



SOURCE: ESRI 2016

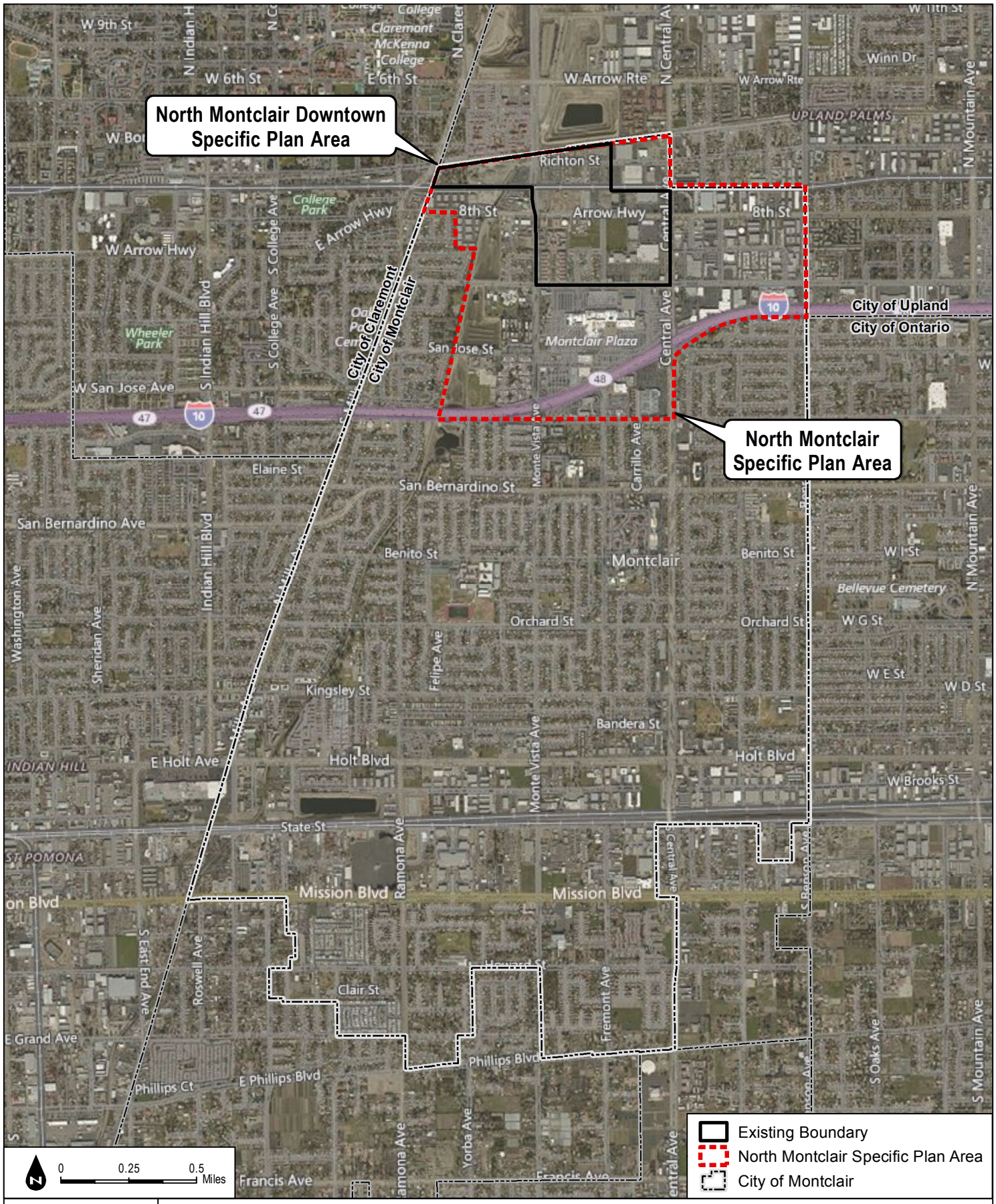
FIGURE 2-1

Regional Map

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan.

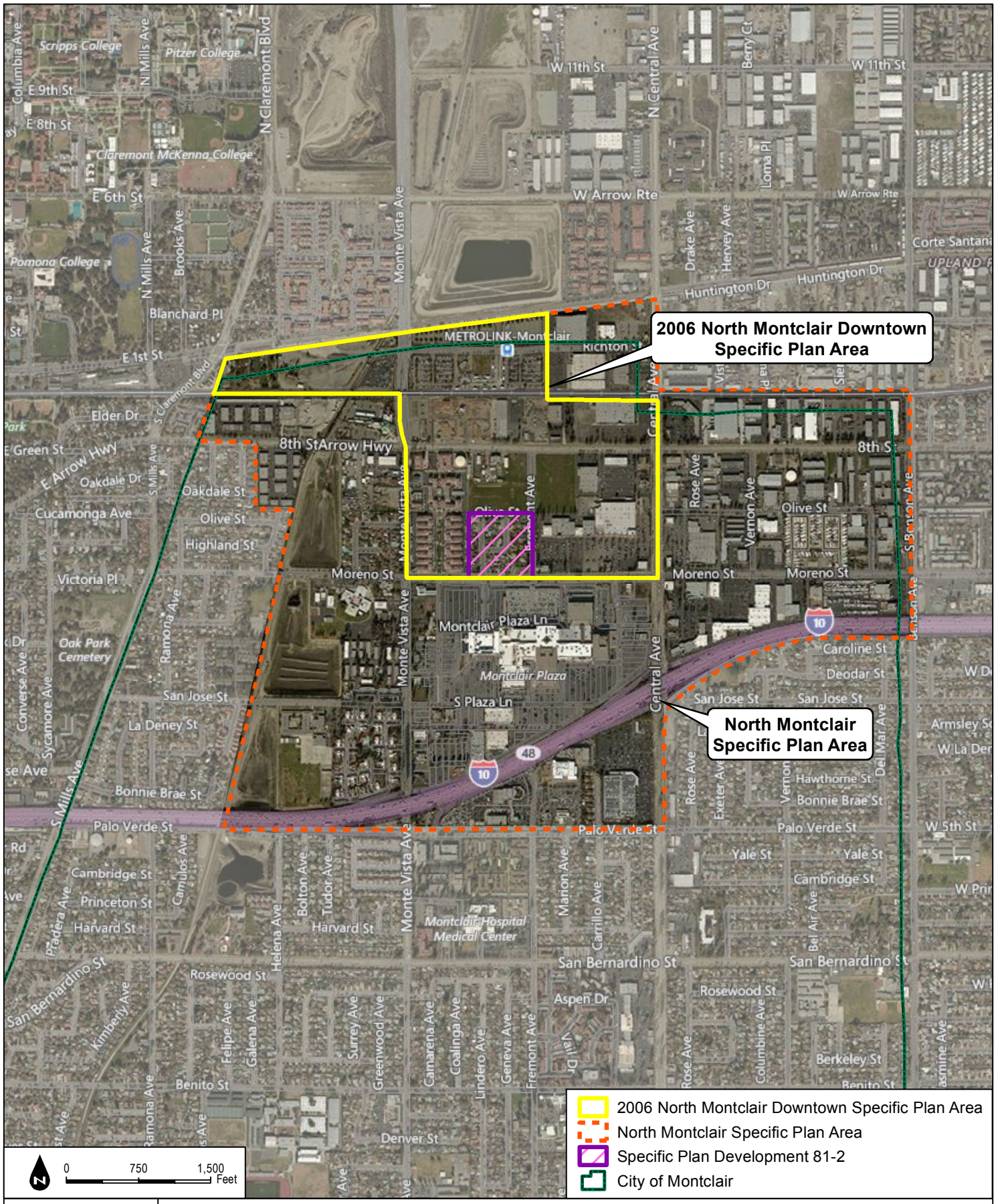
FIGURE 2-2

City of Montclair

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



DUDEK

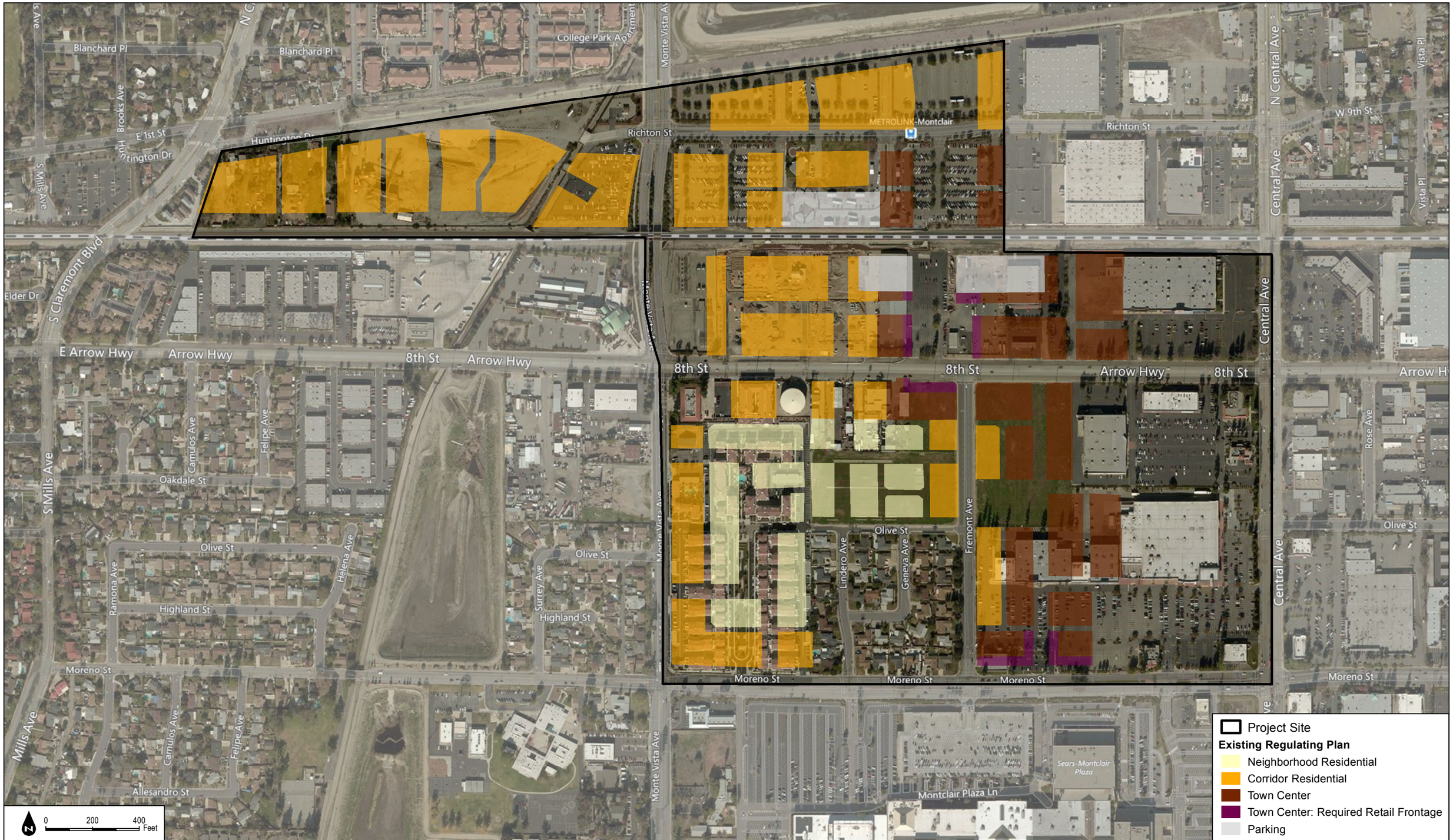
SOURCE: Bing Imagery, 2016

FIGURE 2-3

North Montclair Downtown Specific Plan

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan 05/28/2016.

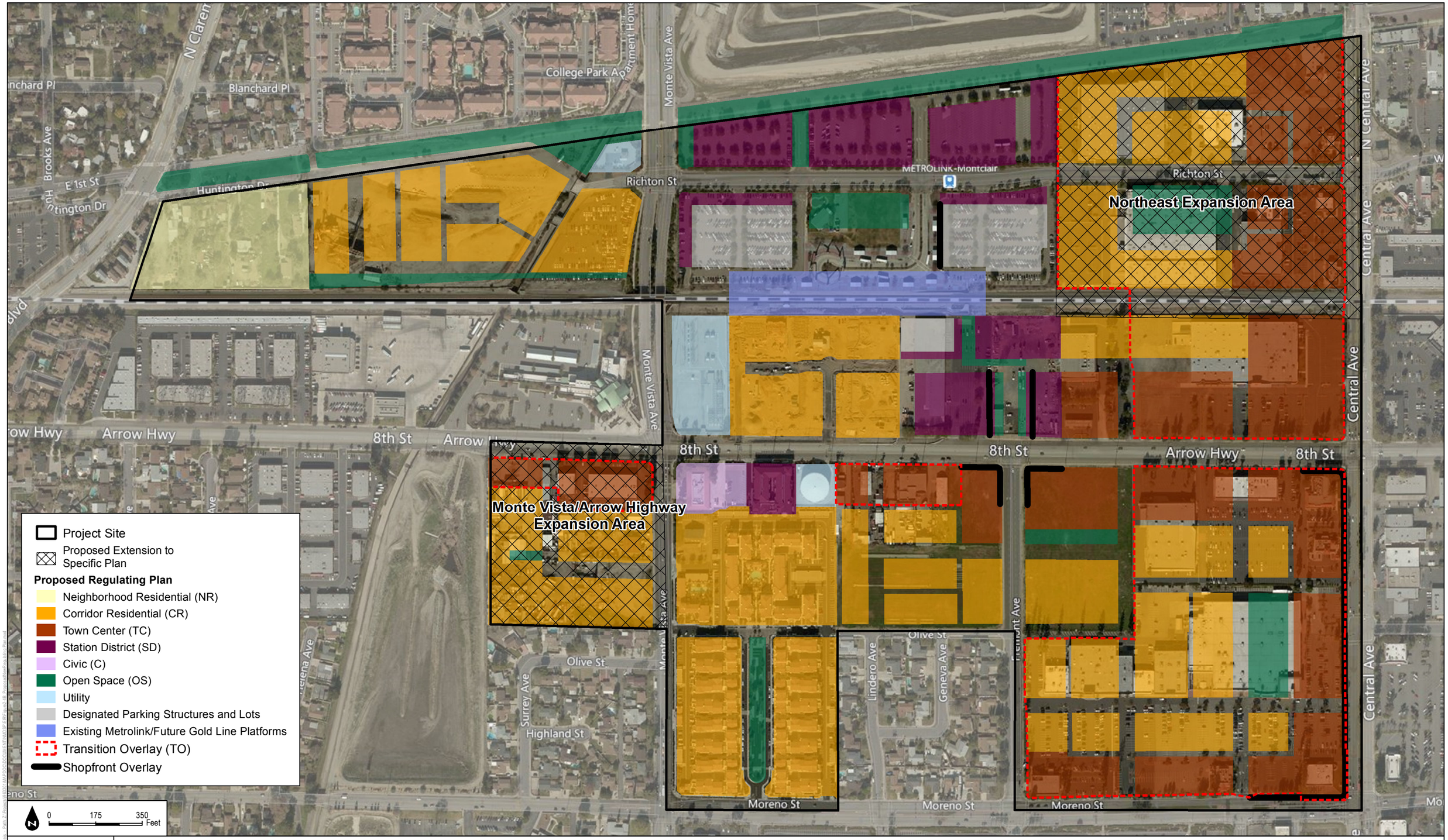
FIGURE 2-4A

North Montclair Downtown Specific Pland Existing Regulating Plan

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan 07/13/2016.

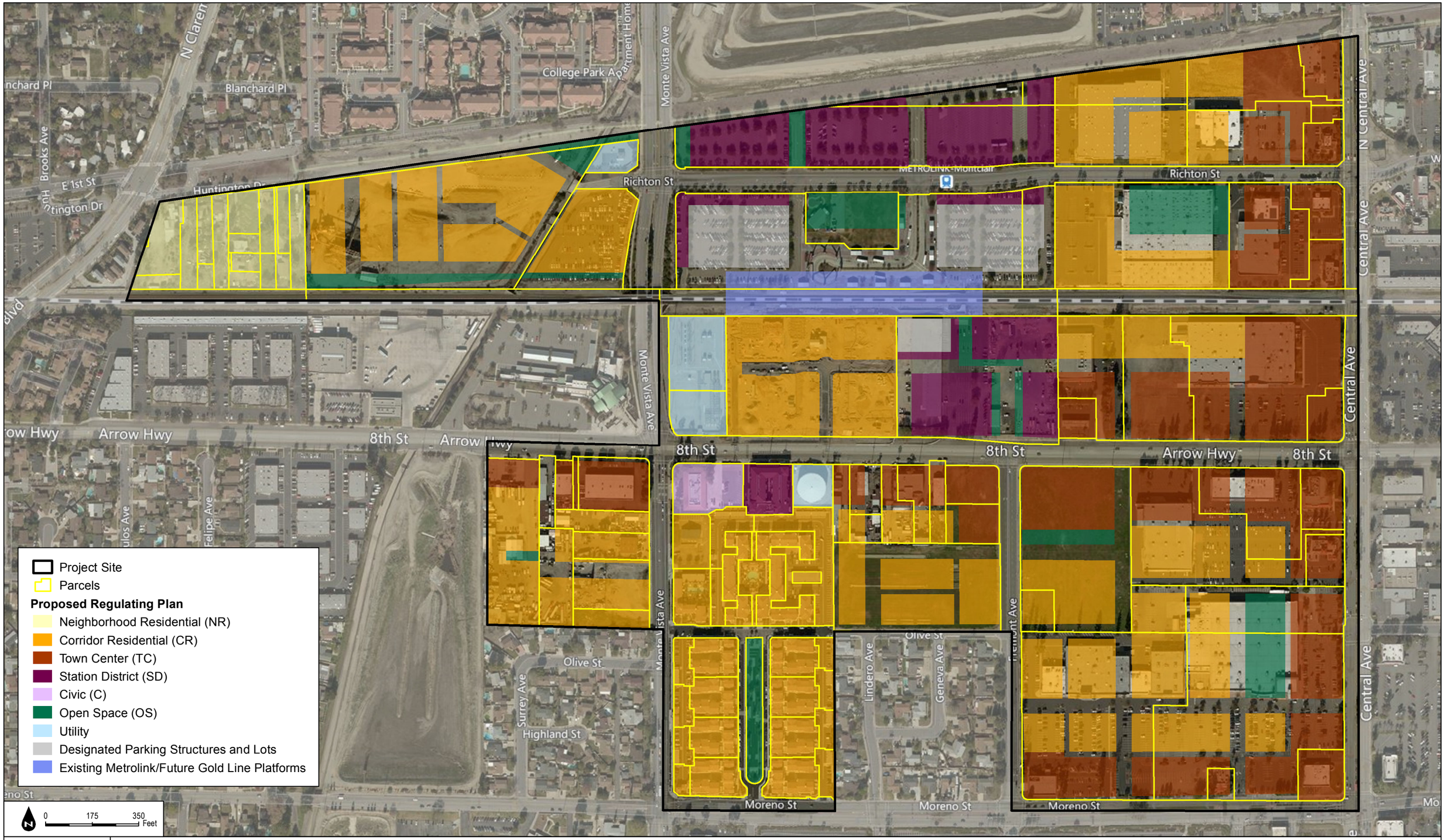
DUDEK

FIGURE 2-4B

Proposed North Montclair Downtown Speficic Plan Regulating Plan

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Residential Plan

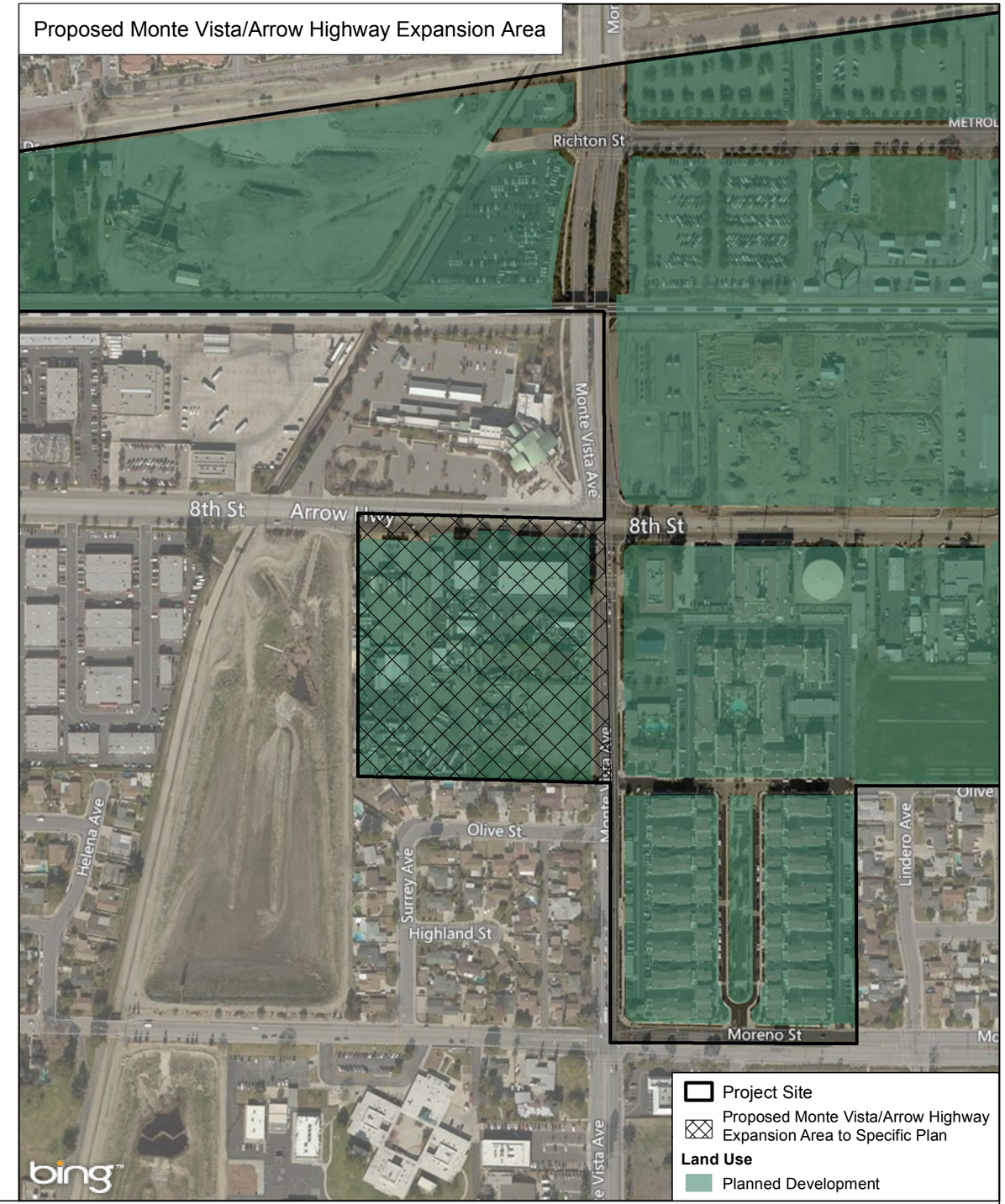
DUDEK

FIGURE 2-5

Existing Property Lines, Buildings and Features

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; Northern Montclair Residential Plan.

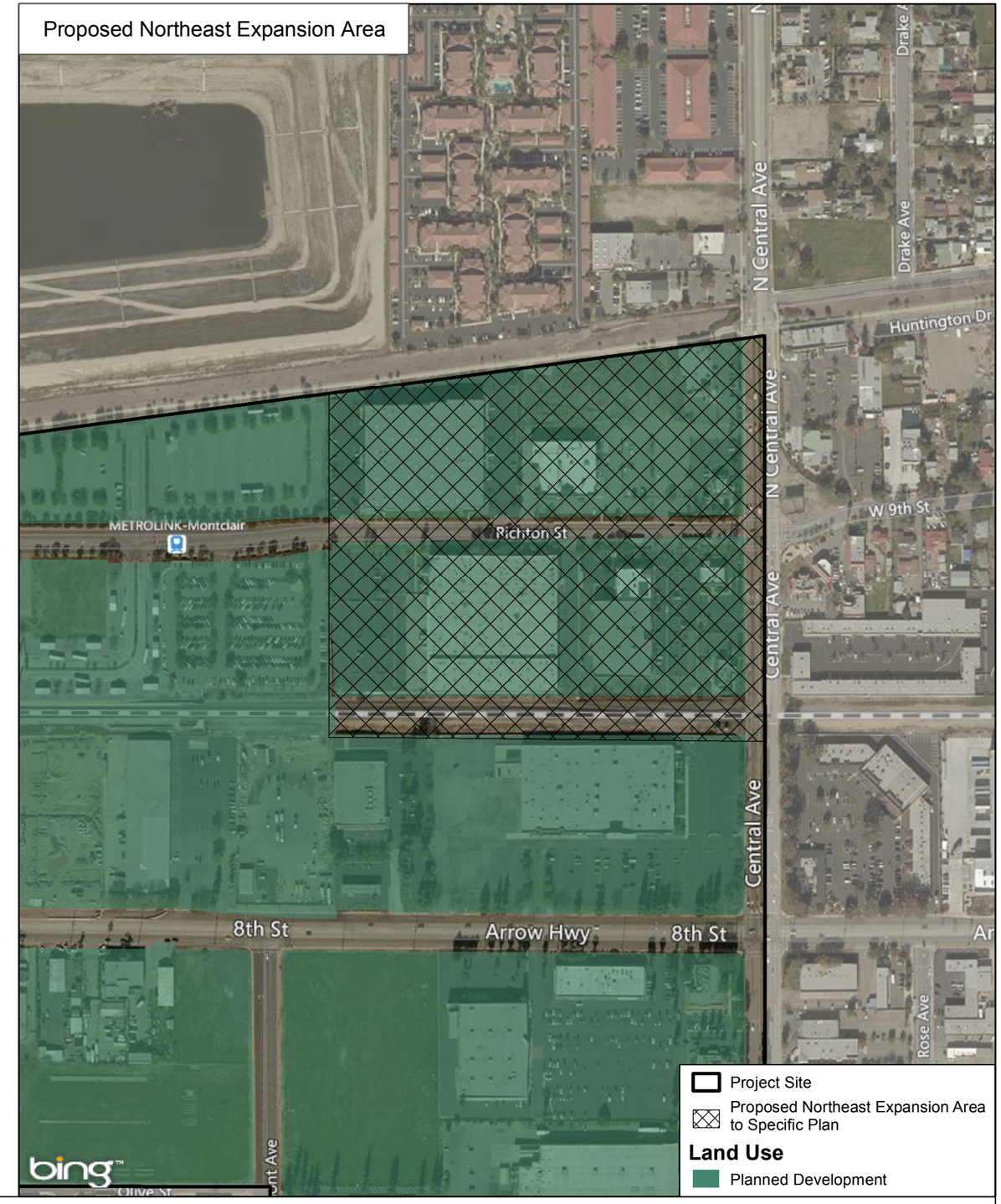
FIGURE 2-6

Existing vs. Proposed North Montclair Downtown Specific Plan Westerly Boundary

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; Northern Montclair Residential Plan.

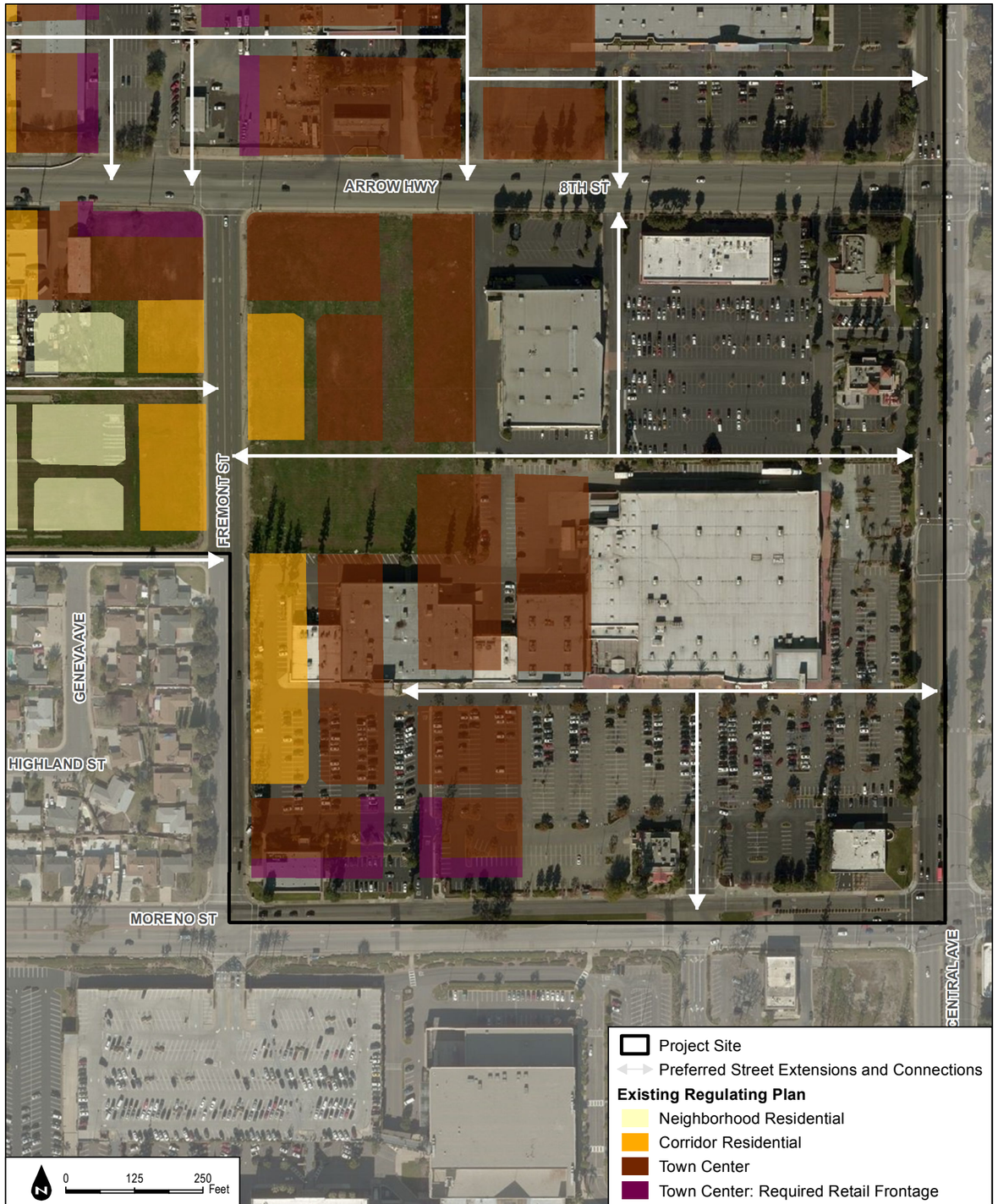
FIGURE 2-7

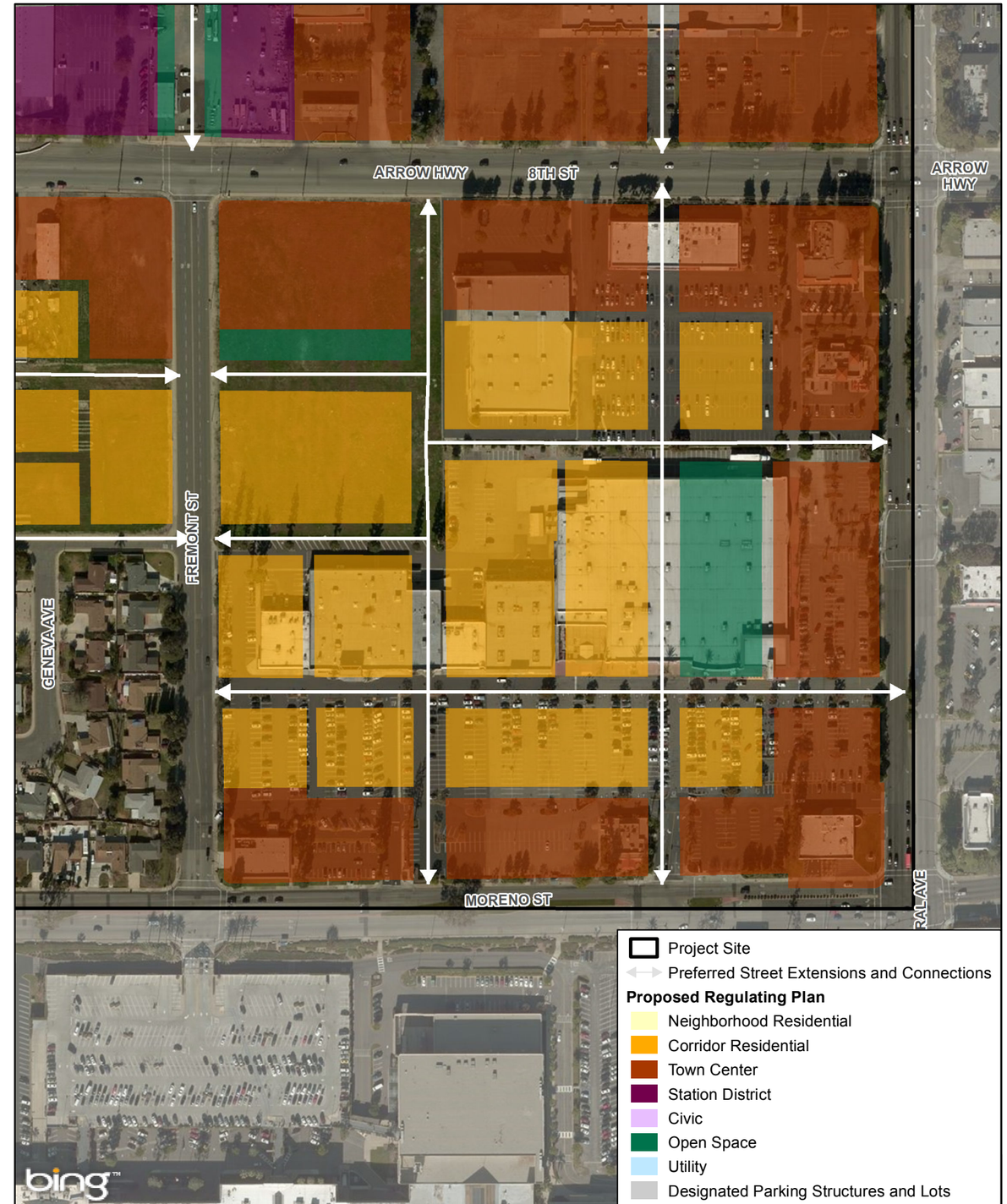
Existing vs. Proposed North Montclair Downtown Specific Plan Easterly Boundary

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



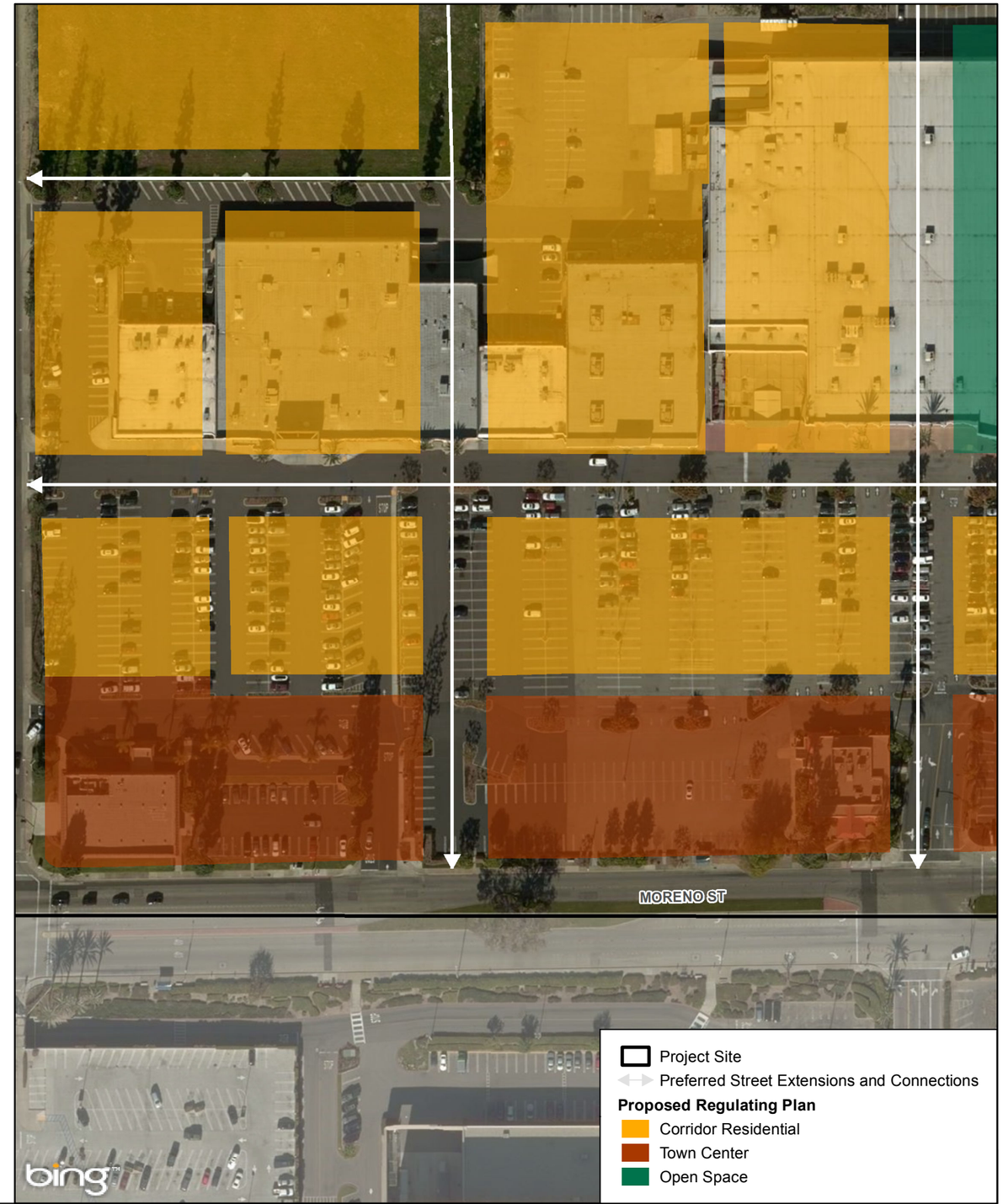


SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan; County of San Bernardino, 2016.

FIGURE 2-8

Existing vs. Proposed Street Alignment at Arrow Highway and Fremont Avenue

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan.

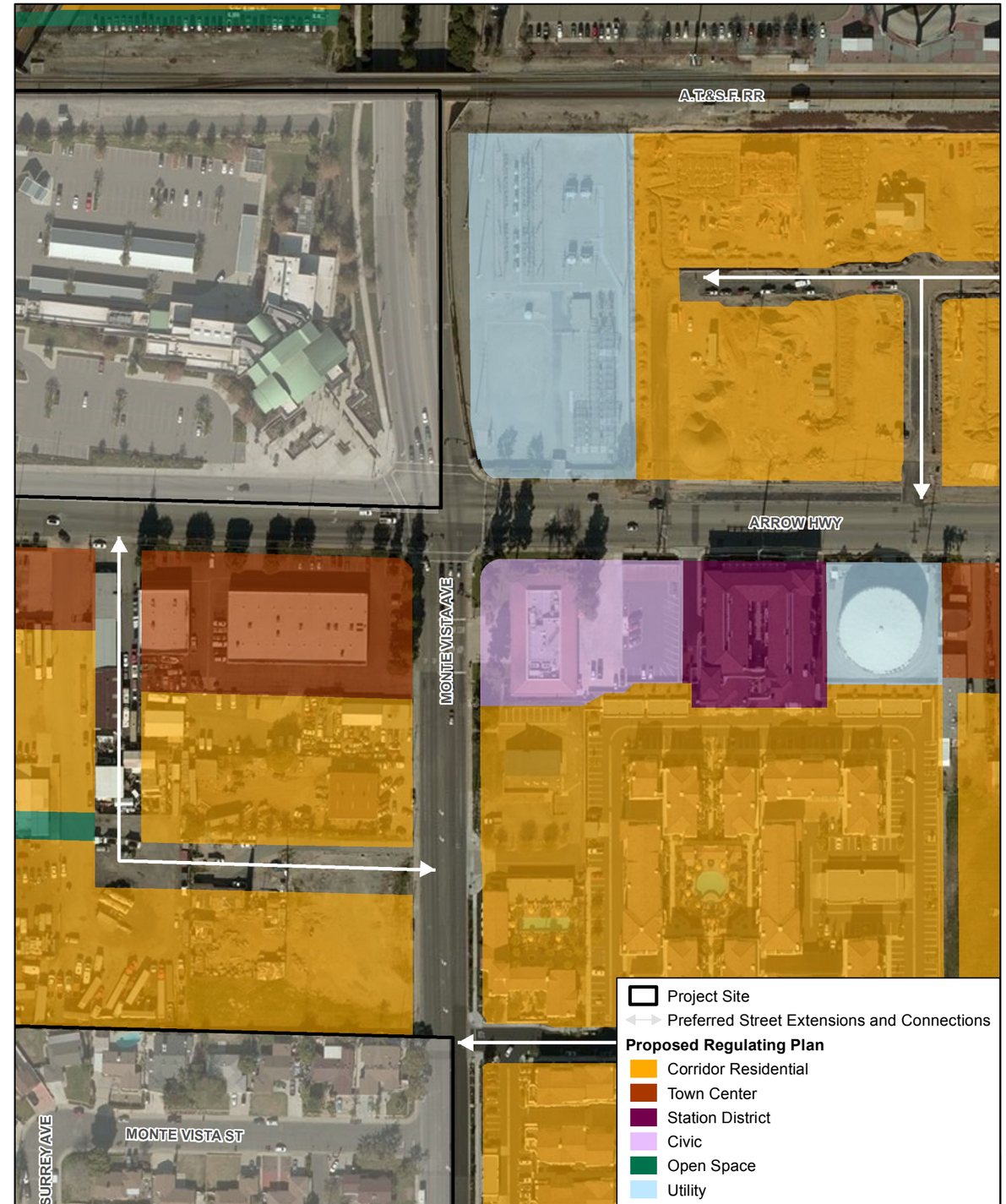
FIGURE 2-9

Existing vs. Proposed Street Alignment at Fremont Avenue and Moreno Street

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK

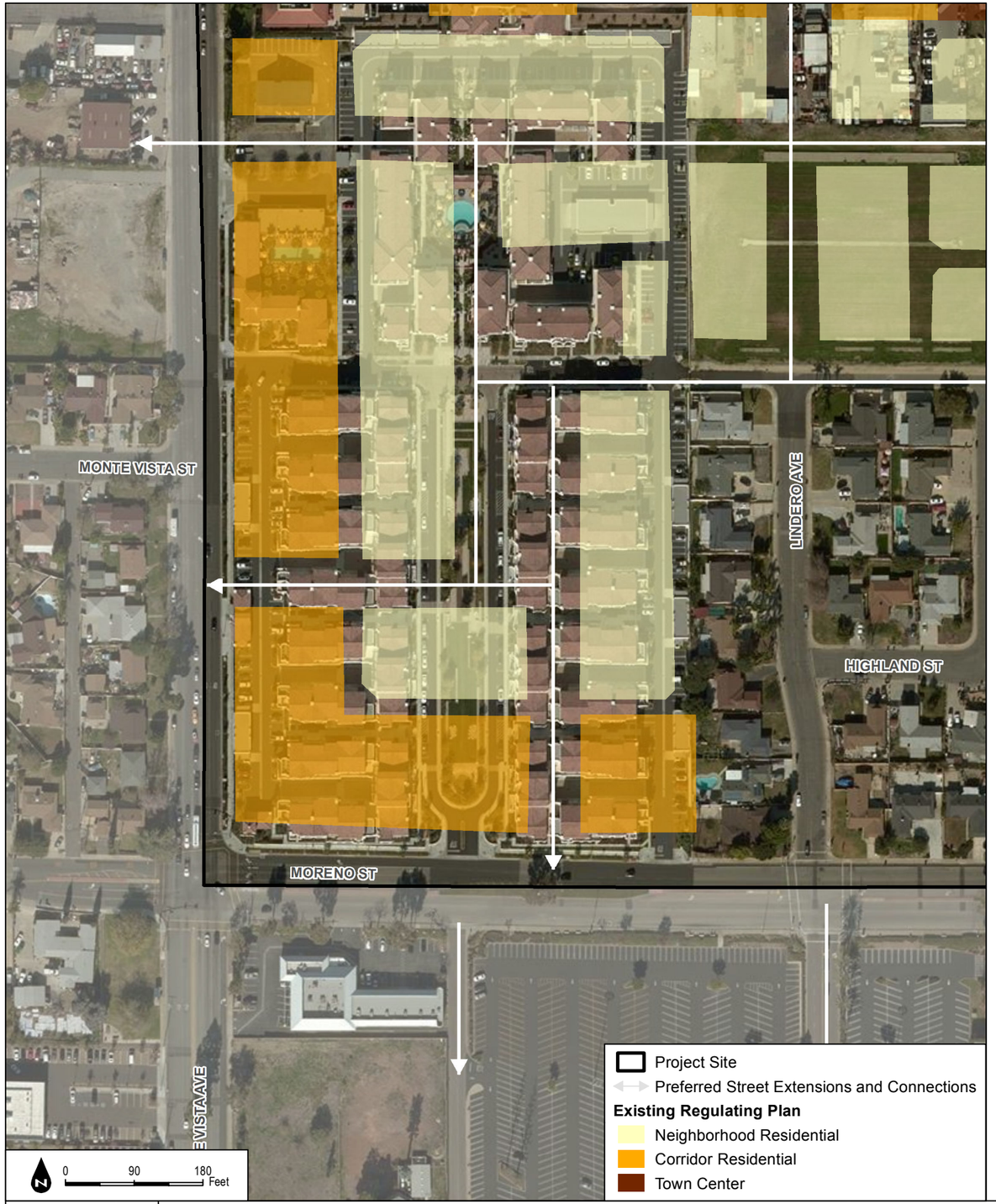


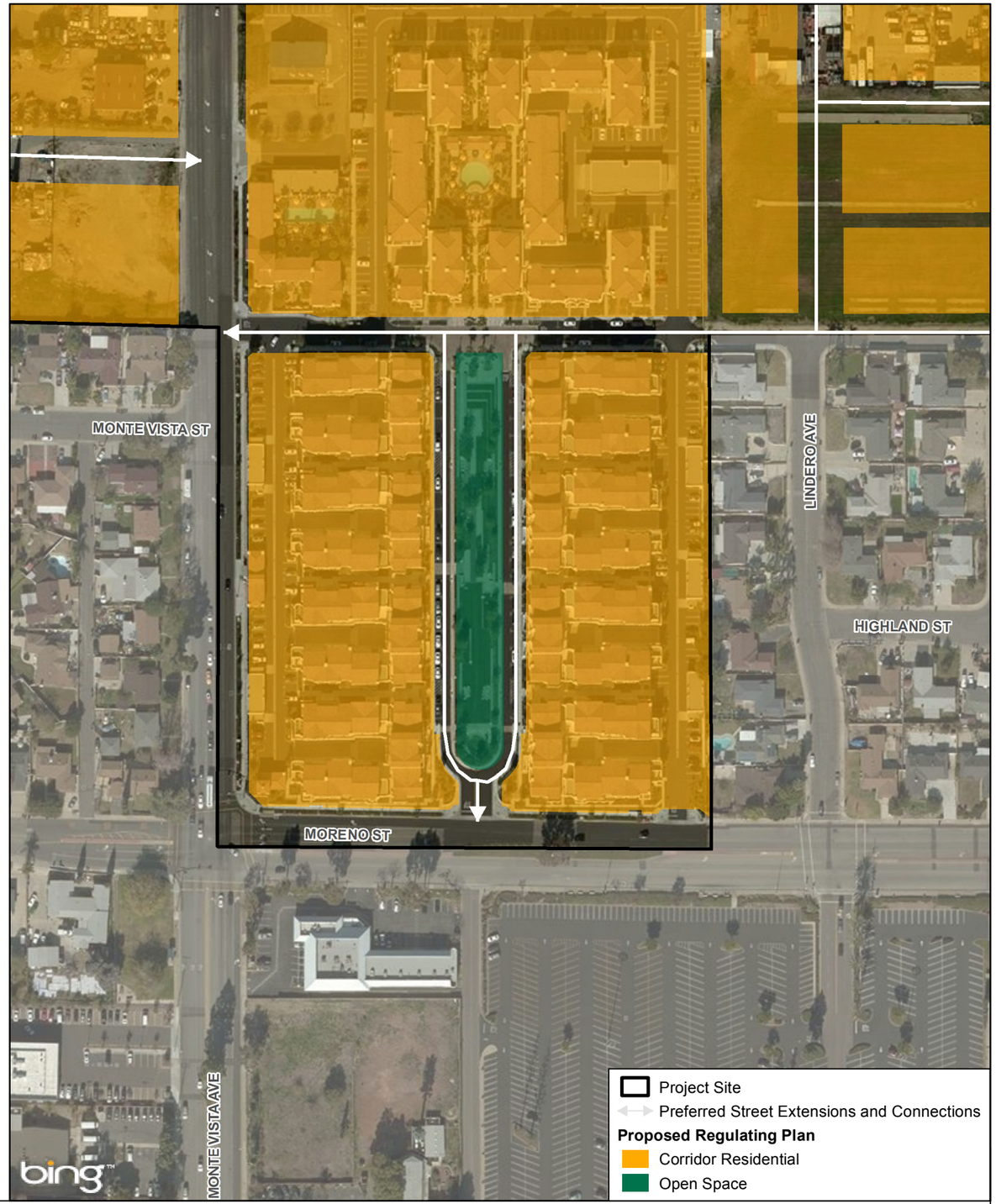
SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan.

FIGURE 2-10

Existing vs. Proposed Street Alignment on the Northeast Corner of Arrow Highway and Monte Vista Avenue

INTENTIONALLY LEFT BLANK





SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan.

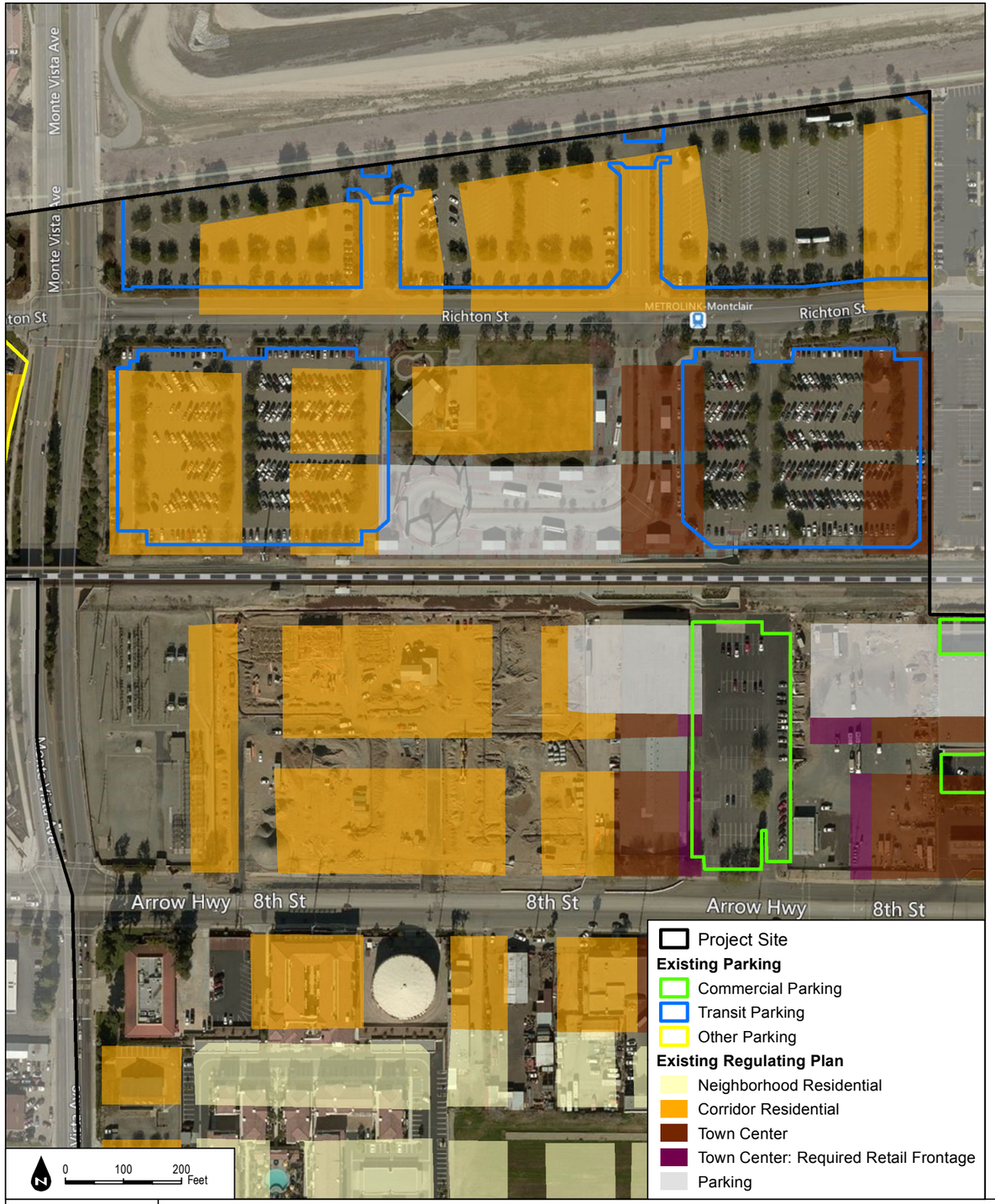
FIGURE 2-11

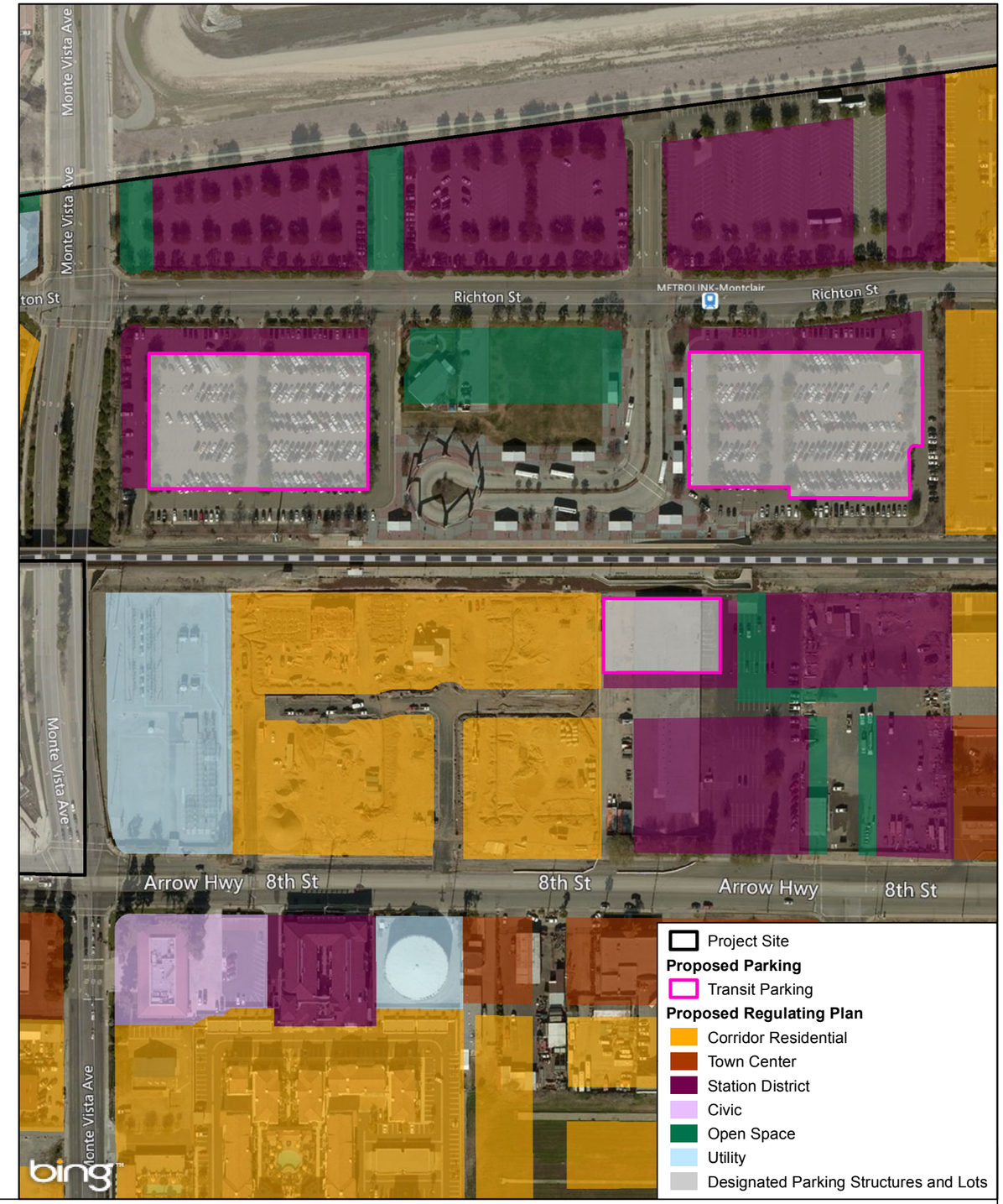
Existing vs. Proposed Street Alignment on the Northeast Corner of Monte Vista Avenue and Moreno Street

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK





SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan, 06/14/2016.

DUDEK

FIGURE 2-12

Existing vs. Proposed Parking Areas

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK

CHAPTER 3
ENVIRONMENTAL ANALYSIS

The following sections contain an analysis, by issue area, of the potentially significant environmental effects of the Proposed Amendment. The environmental issue areas analyzed in this section are as follows:

- Aesthetics (Section 3.1)
- Air Quality (Section 3.2)
- Biological Resources (Section 3.3)
- Cultural Resources (Section 3.4)
- Greenhouse Gas Emissions (Section 3.5)
- Hydrology and Water Quality (Section 3.6)
- Noise (Section 3.7)
- Population and Housing (Section 3.8)
- Public Services (Section 3.9)
- Recreation (Section 3.10)
- Mineral Resources (Section 3.11)
- Transportation and Traffic (Section 3.12)
- Utilities and Service Systems (Section 3.13)

The discussions of each environmental issue area include the following subsections:

- Existing Conditions
- Regulatory Setting
- Thresholds of Significance
- Impacts Analysis
- Cumulative Impacts
- Mitigation Measures
- Significance after Mitigation

The Transportation/Traffic section of the Supplemental EIR also includes a Methodology section.

As stated in the October 2016 Initial Study (see Appendix A), it was found that the Proposed Amendment would have either no new impacts/no impacts or a less than significant impact with or without new mitigation relative to the following environmental issue areas. As such, these issue areas are not included in this EIR.

- Agriculture and Forestry Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Land Use and Planning
- Mineral Resources

3.1 AESTHETICS

This section describes the existing visual setting and resources of the North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) site and vicinity, identifies associated regulatory requirements, and analyzes the Proposed Amendment's impacts to scenic vistas. The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). It was concluded in the Initial Study, that there were either no new impacts/no impacts to scenic resources within a state scenic highway and existing visual character or quality of the site and its surroundings.. As such, these issues are not further discussed in this section.

The 2006 NMDSP Final EIR found there are no scenic views from area roadways or other vantage points within, or adjacent to, the project area and that implementation of the Specific Plan would have no impact on such resources. In order to assess if there are new impacts to scenic vistas, the Proposed Amendment area was assessed from four new viewpoints in the October 2016 Initial Study (Appendix A). It was determined that there would be no new impact/no impact from three of the four new viewpoints assessed in the Initial Study: 1) looking northwest from Moreno Street and Central Avenue; 2) looking west from Central Avenue; and 3) looking east and west along Arrow Highway. At the fourth new viewpoint, looking north from Richton Street, it was determined that a new potentially significant impact could occur from this viewpoint under the Proposed Amendment. Therefore, the scenic vista discussion in Sections 3.1.1 and 3.1.4 focuses on the existing northerly views to the San Gabriel Mountains available to Richton Street motorists and pedestrians as they pass through the proposed Northeast Expansion Area and potential impacts to those views associated with future development.

The 2006 NMDSP EIR found that exterior lighting on existing buildings within the planning area already met street lighting standards, and that implementation of the NMDSP in accordance with existing City lighting standards would ensure that added light and glare would result in less than significant impacts to day and nighttime views in the area. However, the Initial Study concluded that future development under the Proposed Amendment would increase lighting in the planning area that could significantly impact nighttime views in the area. Furthermore, the Initial Study determined that new mitigation would be required to reduce the impact to a less than significant level. Therefore, the lighting and glare discussion in Sections 3.1.1 and 3.1.4 focuses on existing sources of nighttime lighting in the Proposed Amendment area and addresses whether lighting installed as a component of future development would adversely affect nighttime views in the area.

3.1.1 Existing Conditions

Scenic Vistas

While existing views to the north from Richton Street through the proposed Northeast Expansion Area are not designated by the City of Montclair as "scenic vistas", mountainous terrain and ridgelines can be particularly prominent visual features in available views when not obscured by existing development or atmospheric conditions including smog. For example, as eastbound Richton Street motorists and pedestrians enter the Northeast Expansion Area (see Figure 2-4B), northerly views to the San Gabriel Mountains are screened by a large, two-story concrete tilt up warehouse structure. However, after passing the structure, mountainous terrain to the north is visible through a "viewing window" made possible by the presence of a small surface parking lot and lack of vertical development in the immediate foreground distance. The approximate 100-foot long viewing window is present in the peripheral view of passing motorists for less than two seconds (assuming travel at the posted speed limit of 40 miles per hour). Pedestrians are afforded a slightly longer view duration than motorists due to a slower rate of travel. After passing the viewing window and upon the approach to Central Avenue, northerly views to the San Gabriel Mountains are partially obstructed from view of motorists and pedestrian by development and landscaping. More specifically, clear views of the mountainous terrain are screened by a two-story commercial structure housing Pomona Valley Harley Davidson and shortly thereafter, are routinely interrupted by street and parking lot trees (including tall queen palm trees), and one-story commercial structures located within the Arthur Murray Plaza (i.e., the commercial plaza located at the northeastern corner of the Richton Street and Central Avenue intersection). Interrupted, peripheral views to the San Gabriel Mountains are available to passing motorists and pedestrians over an approximate 375-foot long segment of Richton Street generally situated east of the two-story commercial structure housing Pomona Valley Harley Davidson and west of Central Avenue.

Light and Glare

There are numerous sources of nighttime lighting in the Proposed Amendment area and in surrounding neighborhoods. In addition to street lighting along Richton Street and Central Avenue, parking lot lighting and interior and exterior lighting associated with existing structures and businesses in the Proposed Amendment area contribute light and glare to the nighttime environment. Existing sources of lighting outside of the Proposed Amendment area include parking lot lighting at the adjacent Montclair Transcenter, multi-family residential (Ranch Monte Vista Apartment Homes) and strip commercial development to the north (i.e., north of the Pacific Electric Bike Trail), commercial development to the east across Central Avenue, and parking lot and exterior lighting at a large pizza restaurant (i.e., John's Incredible Pizza Company) located to the south across the Metrolink tracks. Outside of the immediate surrounding area, retail, single-family and multi-family residential properties within the NMDSP

boundary utilize exterior and interior lighting that contributes to the nighttime lighting environment. In addition, parking lot and exterior mounted structure lighting at Montclair Plaza (an indoor regional shopping mall located south of Moreno Street and the southern boundary of the NMDSP area), the Montclair East Shopping Center (a collection of commercial retail businesses and restaurants with shared surface parking lots located southeast of the NMDSP area), and other commercial centers located east of Central Avenue contribute lighting to the overall visual environment.

3.1.2 Regulatory Setting

Federal

There are no federal regulations pertaining to the perseveration of scenic vistas, available views from local streets (such as Richton Street) in the City of Montclair, or effects associated with lighting installed as a component of future development in the City.

State

There are no state regulations pertaining to the perseveration of scenic vistas, available views from local streets (such as Richton Street) in the City of Montclair, or effects associated with lighting installed as a component of future development in the City.

Local

City of Montclair General Plan

According to the City of Montclair General Plan Circulation Element, the City contains no scenic highway corridors (City of Montclair 1999). Further, Richton Street is not identified as a "key roadway" in City of Montclair Circulation Element and there are no General Plan policies that are particularly relevant to the preservation of scenic vistas or views of the San Gabriel Mountains from local roads in the city.

The General Plan Land Use Element contains the following Residential and Commercial Land Use policies regarding nighttime lighting:

Policy LU-1.1.19 Provide adequate streets (right-of-way and paved widths), sidewalks, utilities, water, sewers, storm drainage and street lighting systems in balance with the varying neighborhood population densities.

Policy LU-1.1.28 Ensure adequate municipal services for all commercial areas, and provide for the improvement of street appearance through a program of street tree planting, suitable street lighting, the under grounding of unsightly overhead utility lines, and the regulation of signs and outdoor advertising.

City of Montclair Municipal Code

Section 11.66.030, Parking Improvements, of the City of Montclair Municipal Code contains general lighting standards that are applicable to parking spaces (other than those in a garage or carport) developed as a component of future redevelopment. For example, Section 11.66.030 (D) states that parking spaces "shall have any light arranged so that the light shall be directed onto the parking area and away from any adjacent property".

While not particularly relevant to the Proposed Amendment area because the NMDSP would redesignate the Northeast Expansion Area with a regulating plan distinct from that of City of Montclair zoning, the City's Municipal Code contains lighting standards for residential medium high density uses (i.e., lands zoned R-3). Similar to the Corridor Residential (CR) designation proposed for portions of the Northeast Expansion Area, the R-3 zone permits multi-family development including apartments, condominium, and townhomes. The following standards are contained in Municipal Code § 11.22.040 (E)(1) and (2) and apply to multi-family residential developments constructed in the R-3 zone:

- **Site Lighting.** A professionally-prepared photometric analysis demonstrating that all parking areas, driveways, private streets, walkways, and other outdoor public spaces shall be illuminated to an adequate level for security and safety during all hours of darkness shall be required to be submitted for review and approval by the Community Development Department.
- **Garages.** Fully enclosed garages shall be wired to include a fixture or fixtures that has/have the capacity to support *light* sources providing a minimum of illumination level of 1,500 lumens. Said illumination shall be in addition to any lighting that may be provided by the required automatic garage door opener.

3.1.3 Thresholds of Significance

The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). Since it was concluded in the Initial Study, that no new impacts to resources within a state scenic highway or existing visual quality and character of the site and surroundings would result from future development within the Proposed Amendment area, the following significance criteria are not included as part of this EIR:

B. Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

C. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The following significance criteria, included for analysis in this EIR, is based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and will be used to determine the significance of potential aesthetic impacts. Impacts to aesthetics would be significant if the Proposed Amendment would:

A. Have a substantial adverse effect on a scenic vista?

D. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

3.1.4 Impacts Analysis

A. Would the project have a substantial adverse effect on a scenic vista?

No New Impact/No Impact. The 2006 NMDSP EIR found that there are no scenic views from area roadways or other vantage points within, or adjacent to, the NMDSP area, and as such, implementation of the NMDSP would have no impact on such resources. In order to assess if there are new impacts to scenic vistas, the Proposed Amendment area was assessed from four new viewpoints in the Initial Study (Appendix A). Scenic vistas are publicly accessible viewpoints that provide views of areas from the project site and onto the project site that exemplify a community's environment (i.e., scenic resources). There are no scenic vistas from public vantage points in the planning area. There are no scenic views from area roadways or other vantage points within the surrounding area onto the NMDSP area. The viewshed experience from public areas in the vicinity of the planning area is dominated by views of commercial and residential development. The development allowed under the Proposed Amendment would result in similar (if not improved) visual character of the area. However, the views of the San Gabriel Mountains to the north could be partially blocked by the implementation of future projects under the Proposed Amendment. As such, the potential change in distant views of the surrounding areas as experienced from the following four identified viewpoints was included for assessment in the Initial Study (Appendix A):

- View No. 1 (Looking Northwest from Moreno Street and Central Avenue)
- View No. 2 (Looking West from Central Avenue)
- View No.3 (Looking north from Richton Street)
- View No. 4 (Looking east and west along Arrow Highway)

The Initial Study concluded that no new impact/no impact would occur to viewing scenic vistas from viewpoints identified as View No. 1, View No. 2, and View No. 4 as no scenic vistas would be obstructed. View No. 3 includes predominant views of the

existing surface parking lots and industrial buildings (with ornamental landscaping) on the Proposed Amendment site currently experienced by motorists and pedestrians traveling along Richton Street, that will be preserved. The San Gabriel Mountains are approximately four miles north of Richton Street and are not proximate to the Proposed Amendment area. Only partial views of the mountains can be seen in the distant background, as the views are compromised by existing development and landscaping in the area. While looking from the Proposed Amendment site, views of future development in the Proposed Amendment area would replace partial views of the mountains. The mountains act as a visual background that is relatively small in scale. Views north to the San Gabriel Mountains would be preserved with a park that connects the train station and bus platforms with the linear park along the Huntington Drive right-of-way at the Montclair-Upland border. The Initial Study identified that partial views of the San Gabriel Mountains may not remain with build-out of the Proposed Amendment area. Additionally, motorists along Richton Street may no longer be able to have views of the mountains. Therefore, the Initial Study identified a new potentially significant impact that could occur from View No. 3 under the Proposed Amendment. As such, potential impacts from this viewpoint are studied further in this Supplemental EIR.

While northerly views through the Northeast Expansion Area are occasionally long and extend over ten miles to the ridgelines of the San Gabriel Mountains, the presence of existing development along Richton Street generally prohibits particularly wide and expansive scenic views. Further, interrupted views of mountainous terrain are currently available in the peripheral field of vision of passing motorists and pedestrians which, in addition to existing development and prevailing travel speeds, limits views exposure. Under existing conditions, interrupted views of the San Gabriel Mountains are experienced briefly by motorists and pedestrians over an approximate 375-foot long segment of Richton Street generally situated east of the two-story commercial structure housing Pomona Valley Harley Davidson and west of Central Avenue. While views of mountainous terrain are available along this stretch of Richton Street through the Northeast Expansion Area, existing views are not designated as scenic vistas by the City, Richton Street is not a City-designated scenic corridor, and the street is currently buffered by one- and two-story commercial and industrial warehouse development.

As proposed, the land area located north of Richton Street within the Northeast Expansion Area would be developed with Corridor Residential and Town Center uses. In general, multi-story Corridor Residential land uses are proposed where the existing two-story concrete tilt up warehouse structure and two-story commercial structures housing Pomona Valley Harley Davidson are currently constructed. Because existing two-story structures obstruct the San Gabriel Mountains from view of Richton Street motorists and pedestrians, future redevelopment of these areas with multistory corridor

residential land uses would not substantially affect views to mountainous terrain. Rather, similar to existing conditions, future redevelopment efforts would result in vertical development that would obstruct the San Gabriel Mountains from view of passing motorists and pedestrians. Future redevelopment of the existing Arthur Murray Plaza with Town Center development and more specifically, multistory office and service land uses would result in increased blockage of prominent landforms (i.e., the San Gabriel Mountains) in the views of passing motorists and pedestrians on Richton Street. However, the increased view blockage would be experienced briefly by both motorists and pedestrians and changes to the landscape would occur within the peripheral field of vision of both mobile receptors. Further, views to the mountains would be restored to Richton Street-based receptors upon passing through the Northeast Expansion Area and heading north along Central Avenue and Monte Vista Avenue into the communities of Upland and Claremont. In addition, Richton Street is not designated by the state or City of Montclair as a scenic corridor offering particularly scenic vistas such that the street draws motorists and pedestrians on account of the scenic qualities of the visible landscape. Rather, Richton Street is a local road which, through the Northeast Expansion Area, is buffered by commercial and industrial warehouse development. Therefore, due to the brief duration of increased view blockage to the San Gabriel Mountains, the presence of existing commercial and industrial warehouse development, and the lack of scenic designation and/or sensitivity applied to Richton Street, future redevelopment of the Northeast Expansion Area would not result in a substantial adverse effect on a scenic vista. **No new impact/no impact** would occur from this viewpoint under the Proposed Amendment. No mitigation is required.

D. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Construction

No New Impact/No Impact. As identified in the Initial Study (Appendix A), during construction, future activities in the Proposed Amendment area may generate new sources of light and glare that could be viewed by sensitive receptors in the surrounding area. However, the construction of specific development under the Proposed Amendment would likely comply with the permitted construction timeframes established in the City's Noise Ordinance (i.e., eight hours a day, five days a week) and thus would not generally occur during evening or nighttime hours. As concluded in the Initial Study (Appendix A), since activities during evening and nighttime hours would be limited and because lighting associated with construction activities would cease upon the completion of construction, short-term (i.e., construction) impacts to day or nighttime views associated with future development in the Proposed Amendment area would be considered **no new impact/no impact**.

Operation

Less than Significant Impact with New Mitigation Required. While existing uses and businesses in the Proposed Amendment area utilize nighttime lighting that contributes to the nighttime visual environment, future development envisioned in the Proposed Amendment area represents an intensification of use and would likely entail the installation of multiple lighting sources. Lighting sources in the Proposed Amendment area associated with future development may include driveway/entryway lighting, sign/monument lighting, accent lighting for landscaping, overhead lighting for common areas and pedestrian walkways, and exterior mounted lighting on new structures. As such, future development envisioned in the Proposed Amendment area would increase the number of fixtures and lighting sources in the planning area compared to current conditions which could adversely affect nighttime views in the area. However, with the implementation of mitigation measure **MM-AES-1**, future project applicants would be required to prepare a project-specific lighting and signage plan and associated photometric analysis to ensure that all lighting is located, directed, and shielded in a manner that complies with City Codes and that the potential for sky glow and light trespass from the development area to adjacent properties is minimized. Lighting and signage plans would be submitted to City staff for review and approval prior to future development plan approval.

With regard to new parking lots associated with future development, parking lot lighting would comply with requirements established in the NMDSP (City of Montclair 2006). Specifically, parking lot lighting would comply with the following requirements:

a. Outdoor light fixtures shall be limited to a maximum height of 15 feet or the height of the nearest building, whichever is less.

b. Lighting shall be energy-efficient, and shielded or recessed so that:

   i. The light source (i.e., bulb, etc.) is not visible from off the site; and

   ii. Glare and reflections are confined to the maximum extent feasible within the boundaries of the site.

   Each light fixture shall be directed downward and away from adjoining properties and public rights-of-way.

c. No lighting on private property shall produce an illumination level greater than one foot-candle on any property within a residential zoning district except on the site of the light source.

d. No permanently installed lighting shall blink, flash, or be of unusually high intensity or brightness, as determined by the Director.

Compliance with the parking lot lighting requirements of the NMDSP would ensure that new parking lots do not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. All lighting would be shielded and directed downward so as to minimize the potential for sky glow and light trespass onto adjacent properties. Furthermore, all proposed lighting would be required to comply with operational illumination levels that restrict light trespass onto off-site residential-zoned lands to one-foot candle.

While building materials associated with future development in the Proposed Amendment area have not yet been determined, the mix of architectural styles envisioned in the North Montclair Downtown Specific Plan document does not include styles that typically incorporate particularly reflective materials such as glass and/or stainless steel in building exteriors. A mix of styles including Main Street Commercial, Mediterranean, Craftsman, Art Deco, and California Contemporary were identified in the 2006 NMDSP as relevant to the area's history and deserving of continued use and interpretation. As such, future development in the Proposed Amendment area may include elements of the mix of styles identified in the 2006 NMDSP and would generally not include particularly reflective building materials. Future development would incorporate windows, however, given the presence of existing development on-site and in the surrounding area, new windows would not be considered a new source of substantial glare and would not adversely affect daytime views in the planning area. Given these factors and the incorporation of new mitigation, the contribution of light and glare from the operation of future projects associated with the Proposed Amendment would result in a **less than significant impact with new mitigation required**.

3.1.5 Cumulative Impacts

Future redevelopment of the Northeast Expansion Area with Corridor Residential and Town Center land uses would not result in a cumulative scenic vista impact and would not contribute to cumulatively considerable impact on scenic vistas. As previously stated, Richton Street is not designated by the state or City of Montclair as a scenic corridor and is not described in the General Plan as containing scenic vistas or particularly scenic views. Views of the San Gabriel Mountains are available along the street however; the mountainous terrain is occasionally obstructed from view by existing development and is routinely interrupted by street and parking lot trees. Future redevelopment of the existing Arthur Murray Plaza would result in increased view blockage of the San Gabriel Mountains to Richton Street receptors (i.e., motorists and pedestrians) however, the increased view blockage would be experienced briefly and would be located in the peripheral field of vision of east-west oriented receptors. Further, views to the San Gabriel Mountains are available to motorists and pedestrians on nearby north-south travel corridors including Central Avenue, Monte Vista Avenue, and North Benson Avenue. Therefore,

future redevelopment of the Northeast Expansion Area with Corridor Residential and Town Center land uses would not result in a cumulative scenic vista impact. There would be **no new impact/no impact** to scenic vistas. No mitigation is required.

Future redevelopment of the Northeast Expansion Area would occur on a site developed with restaurant and commercial uses. Existing sources of nighttime lighting operate in the Proposed Amendment area and its surroundings, and future development would be subject to the lighting requirements of the 2006 NMDSP. Furthermore, a cumulative impact to day and nighttime views in the area during operation would not occur because future development would be subject to mitigation measure **MM-AES-1** and would be required to demonstrate to the City that the installation of proposed lighting would not create substantial light trespass onto adjacent properties and would not adversely affect nighttime views in the area. Because future redevelopment of the Northeast Expansion Area would occur in a developed area and new uses would be subject to mitigation measure **MM-AES-1**, lighting associated with future redevelopment operations would not result in a cumulative impact to day and nighttime views. As such, cumulative impacts to day and nighttime views from lighting are considered **less than significant with mitigation incorporated**.

3.1.6 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. A less than significant impact/no new impacts to scenic vistas would occur as a result of future development under the Proposed Amendment. As such, no mitigation is required. Implementation of new mitigation measure **MM-AES-1** would reduce impacts to nighttime views associated with new sources of lighting to a less than significant level.

MM-AES-1 Prior to building permits being issued, project applicants shall prepare lighting and signage plans for specific future development allowed under the Proposed Amendment. All lighting and signage plans shall depict the proposed locations and heights of light poles and signs and must be approved by the City of Montclair. Concurrent with the building permit submittal, project applicants shall incorporate lighting design specifications to meet the City's minimum safety and security standards, as outlined in the City's Building Security Requirements. The following measures shall be included in all lighting plans:

- Luminaires shall be designed with cutoff-type fixtures or features that cast low-angle illumination to minimize incidental spillover of light onto adjacent properties. Fixtures that shine light upward or horizontally shall not spill any light onto adjacent properties.

- Luminaires shall provide accurate color rendering and natural light qualities. Low-pressure sodium and high-pressure sodium fixtures that are not color-corrected shall not be used, except as part of an approved sign or landscape plan.
- Luminaire mountings shall be downcast and pole heights minimized to reduce the potential for back scatter into the nighttime sky and incidental spillover light onto adjacent properties. The height of light poles shall be reviewed and approved by the City to ensure consistency with the City's Municipal Code requirements. Luminaire mountings shall be treated with non-glare finishes.

3.1.7 Significance After Mitigation

Future redevelopment of the Northeast Expansion Area would result in no new scenic vista impacts. Impacts to existing views along Richton Street resulting from future development of the Proposed Amendment area would be less than significant and the project would have no new impact/no impact to scenic vistas. Therefore, no mitigation is required.

With the implementation of new mitigation measure **MM-AES-1**, impacts to day and nighttime views from new sources of lighting and glare associated with future redevelopment of the Northeast Expansion Area would be less than significant.

3.1.8 References

City of Montclair. 1999. City of Montclair General Plan.

City of Montclair. 2006. North Montclair Downtown Specific Plan Administrative Draft August 19, 2016.

Montclair, California, Municipal Code §11.66.030 Parking Improvements.

Montclair, California, Municipal Code § 11.22.040 (E)(1), (2).

INTENTIONALLY LEFT BLANK

3.2 AIR QUALITY

This section describes the existing air quality setting of the North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) area and discusses applicable federal, state, and regional regulations pertaining to air quality. The October 2016 Initial Study (Appendix A) for the Proposed Amendment concluded that there were no new impacts/no impacts as it relates to creating objectionable odors affecting a substantial number of people. Therefore, this issue is not included as part of this EIR. This section evaluates the impacts to air quality associated with future development under the Proposed Amendment as follows: conflict with or obstruct implementation of the applicable air quality plan; violate any air quality standard or contribute substantially to an existing or projected air quality violation; result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors); and expose sensitive receptors to substantial pollutant concentrations. Air quality modeling data and associated information has been included as part of Appendix B.

3.2.1 Existing Conditions

The Proposed Amendment area is located within the South Coast Air Basin (SCAB). The SCAB is characterized as having a Mediterranean climate (typified as semiarid with mild winters, warm summers, and moderate rainfall). The SCAB is a 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. It includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

Climate and Meteorology

The SCAB generally lies in the semi-permanent, high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SCAB is a function of the area's natural physical characteristics (e.g., weather and topography) as well as of man-made influences (e.g., development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the SCAB.

Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the basin, averaging 75 degrees Fahrenheit (°F). However, with a less pronounced oceanic influence, the eastern inland portions of the basin show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have recorded temperatures over 100 °F in recent years. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine

layer. Except for infrequent periods when dry air is brought into the basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the basin. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail, due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the basin. The City of Montclair's (City) climate is characterized by relatively low rainfall, with warm summers and mild winters. Average temperatures range from a high of 91 degrees Fahrenheit (°F) in August to a low of 38°F in January. Annual precipitation averages about 0.26 to 3.56 inches, falling mostly from November through April (WRCC 2016).

Sunlight

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain "primary" pollutants (mainly reactive hydrocarbons and oxides of nitrogen (NO_x)[1]) react to form "secondary" pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind of the emission sources. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Temperature Inversions

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air mix and disperse into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in coastal Southern California. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air, which acts as a lid through which the cooler marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above mean sea level (amsl), the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet amsl, the terrain prevents the pollutants from entering the upper atmosphere, resulting in the pollutants settling in the foothill communities. Below 1,200 feet amsl, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours. Mixing heights for inversions are lower in the summer and inversions are more persistent, being partly responsible for the high levels of ozone (O_3) observed during summer months in the

[1] NO_x is a general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen.

SCAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. The basin has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter equal to or less than 10 microns (PM_{10}), particulate matter with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$), and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following text.[2] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors, such as hydrocarbons and NO_x. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere ozone layer as well as at the Earth's surface in the troposphere. The O_3 that the Environmental Protection Agency (EPA) and California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level ozone is a harmful air pollutant that causes numerous adverse health effect and is thus, considered "bad" ozone. Stratospheric ozone, or "good" ozone, occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the earth's atmosphere. Without the protection of the beneficial stratospheric ozone layer, plant and animal life would be seriously harmed.

[2] The descriptions of each of the criteria air pollutants and associated health effects are based on the EPA's Criteria Air Pollutants (2016a) and the CARB Glossary of Air Pollutant Terms (2016a).

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections.

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can

injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$. Other groups considered sensitive are smokers, people who cannot breathe well through their noses, and exercising athletes (because many breathe through their mouths).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly

95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics “Hot Spots” Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners,

gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM; 17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000).

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The SCAQMD identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993).

The closest off-site sensitive receptors to the Proposed Amendment area are single-family and multi-family residences which surround the Proposed Amendment area; however, construction activities generated by future projects under the Proposed Amendment would take place both near and far from adjacent, existing sensitive receptors within the Proposed Amendment area. For example, future construction associated with Corridor Residential and Town Center uses north of Moreno Street and West of Fremont Avenue would take place within approximately 70 feet (21.34 meters) of residential uses (along Geneva Avenue and Fremont Avenue); construction associated with Town Center uses at the southwest corner of Central Avenue and 8th Street would be located approximately 1,000 feet (304.80 meters) away from these same residences. Therefore, given that the closest existing sensitive receptors are located within approximately 70 feet (21.34 meters) of proposed construction sites, these sensitive receptors

would be exposed to localized air quality impacts resulting from future construction activities under the Proposed Amendment.

3.2.2 Regulatory Setting

Regulatory oversight for air quality in the SCAB is maintained by the EPA at the federal level, CARB at the state level, and by the SCAQMD at the local level. Applicable laws, regulations and standards of these three agencies are described in the following subsections.

Federal

Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990 forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including the setting of National Ambient Air Quality Standards (NAAQS; federal standards) for major air pollutants, hazardous air pollution (HAP) standards, approval of state attainment plans, motor vehicle emission standards, stationary source emissions standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions. Federal standards are established for criteria pollutants under the Clean Air Act, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The federal standards describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The federal standards (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. Federal standards for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the federal standards at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the federal standards must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the federal standards to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels.

Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify National Emission Standards for HAPs to protect public health and welfare. HAPs include certain volatile organic

chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

State

Criteria Air Pollutants

CARB has established California Ambient Air Quality Standards (CAAQS; state standards), which are generally more restrictive than the federal standards. The state standards describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. The state standards for O_3, CO, SO_2 (1 hour and 24 hours), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The federal and state standards are presented in Table 3.2-1, Ambient Air Quality Standards.

Table 3.2-1
Ambient Air Quality Standards

Pollutant	Average Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as primary standard
	8 hours	0.070 ppm (137 μg/m³)	0.070ppm (137 μg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	Same as primary standard
	Annual arithmetic mean	20 μg/m³	—	
$PM_{2.5}$[i]	24 hours	No separate state standard	35 μg/m³	Same as primary standard
	Annual arithmetic mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³
Pb[j,k]	30-day average	1.5 μg/m³	—	—
	Calendar quarter	—	1.5 μg/m³ (for certain areas)[j]	Same as primary standard
	Rolling 3-month average	—	0.15 μg/m³	

Table 3.2-1
Ambient Air Quality Standards

Pollutant	Average Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
H_2S	1-hour	0.03 ppm (42 µg/m^3)	—	—
Vinyl chloride[i]	24-hour	0.01 ppm (26 µg/m^3)	—	—
SO_4	24-hour	25 µg/m^3	—	—
Visibility-reducing particles	8-hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	—

Source: CARB 2016b.

Notes: O_3 = ozone; ppm= parts per million by volume; µg/m^3 = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m^3 = milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; Pb = lead; H_2S = hydrogen sulfide; SO_4 = sulfates; PST = Pacific standard time.

a State standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, and suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility-reducing particles—are values that are not to be exceeded. All others are not to be equaled or exceeded. The CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25° Celsius (C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

g To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb, whereas California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

h In 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

i On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

j CARB has identified Pb and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

j The national standard for Pb was revised on October 15, 2008, to a rolling 3-month average. The 1978 Pb standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

k The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, the ARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Several Airborne Toxic Control Measures that reduce diesel emissions including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

Local

South Coast Air Quality Management District

The SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the project is located. The SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD's Air Quality Management Plans (AQMPs) include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The current AQMP was adopted by the SCAQMD governing board in December 2012 (SCAQMD 2013). The previous AQMP, adopted in 2007 (SCAQMD 2007), was prepared by SCAQMD and the Southern California Association of Governments (SCAG). The 2007 AQMP proposed policies

and measures to achieve federal and state standards for improved air quality in the SCAB and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under SCAQMD jurisdiction. As part of the 2007 AQMP, the SCAQMD requested that the EPA "bump up" the O_3 nonattainment status from "severe" to "extreme" to allow additional time for the SCAB to achieve attainment of the federal standard. The EPA approved the redesignation of the SCAB to an extreme O_3 nonattainment area, which was effective as of June 2010.

The 2012 AQMP is designed to meet applicable federal and state requirements for O_3 and particulate matter. The 2012 AQMP demonstrates attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 in the SCAB through adoption of all feasible measures. The 2012 AQMP also updates the EPA-approved 8-hour O_3 control plan with new measures designed to reduce reliance on the Clean Air Act Section 182(e)(5) long-term measures for NO_x and VOC reductions. Based on general plans for cities and counties in the SCAB, demographic growth forecasts for various socioeconomic categories (i.e., population, housing, employment by industry) developed by the SCAG for their 2012 *Regional Transportation Plan/Sustainable Communities Strategy* (2012 RTP/SCS) were used in the 2012 AQMP. In addition, emissions reductions resulting from SCAQMD regulations adopted by June 2012 and CARB regulations adopted by August 2011 are included in the baseline. The 2012 AQMP reduction and control measures, which are outlined to mitigate emissions, are based on existing and projected land use and development. The Final 2012 AQMP was approved by CARB on January 25, 2013, and was reviewed by the EPA with a final ruling on April 14, 2016.

On June 30, 2016, the SCAQMD released the draft 2016 AQMP for public review. The draft 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air. The draft 2016 AQMP represents a new approach, focusing on available, proven, and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2016). Because mobile sources are the principal contributor to the SCAB's air quality challenges, the SCAQMD has been and will continue to be closely engaged with CARB and the EPA, who have primary responsibility for these sources. The draft 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality but also local businesses and the regional economy. These "win-win" scenarios are key to implementation of this draft 2016 AQMP with broad support from a wide range of stakeholders.

Because the 2016 AQMP is in draft form, the current approved SCAQMD AQMP is the 2012 AQMP.

Applicable Rules

Emissions that would result from stationary and area sources during operation under the project may be subject to SCAQMD rules and regulations. The SCAQMD rules applicable to the project may include the following:

- **Rule 201 – Permit to Construct:** This rule establishes an orderly procedure for the review of new and modified sources of air pollution through the issuance of permits. Rule 201 specifies that any facility installing nonexempt equipment that causes or controls the emissions of air pollutants must first obtain a permit to construct from the SCAQMD.
- **Rule 401 – Visible Emissions:** This rule establishes the limit for visible emissions from stationary sources.
- **Rule 402 – Nuisance:** This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403 – Fugitive Dust:** This rule requires fugitive dust sources to implement best available control measures for all sources to ensure all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.
- **Rule 431.2 – Sulfur Content of Liquid Fuels:** The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of SOx and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.
- **Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines**: This rule applies to stationary and portable engines rated at greater than 50 horsepower (hp). The purpose of Rule 1110.2 is to reduce NOx, VOCs, and CO emissions from engines. Emergency engines, including those powering standby generators, are generally exempt from the emissions and monitoring requirements of this rule because they have permit conditions that limit operation to 200 hours or less per year as determined by an elapsed operating time meter.
- **Rule 1113 – Architectural Coatings*:*** This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.
- **Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities:** This rule requires renovation and demolition activities to limit asbestos emissions. The

requirements for demolition and renovation activities include asbestos surveying, notification, asbestos-containing material (ACM) removal procedures and times schedules, ACM handling and clean-up procedures, and storage, disposal, and landfilling requirements for asbestos-containing waste materials (ACWM). Operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States. With respect to air quality planning and other regional issues, the SCAG has prepared the *2008 Regional Comprehensive Plan: Helping Communities Achieve a Sustainable Future* (2008 RCP) for the region (SCAG 2008). The 2008 RCP is a problem-solving guidance document that directly responds to what the SCAG has learned about Southern California's challenges through the annual State of the Region report card. It responds to the SCAG's Regional Council directive in the 2002 Strategic Plan to develop a strategic plan for defining and solving our interrelated housing, traffic, water, air quality, and other regional challenges (SCAG 2008).

In regards to air quality, the 2008 RCP sets the policy context in which SCAG participates in and responds to the SCAQMD air quality plans and builds off the SCAMQD AQMP processes that are designed to meet health-based criteria pollutant standards in several ways (SCAG 2008). First, it complements AQMPs by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in AQMPs. Second, the 2008 RCP emphasizes the need for local initiatives that can reduce the region's GHG emissions that contribute to climate change, an issue that is largely outside the focus of local attainment plans, which is assessed in Section 3.5, Greenhouse Gas Emissions. Third, the 2008 RCP emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On April 7, 2016, the SCAG's Regional Council adopted the 2016–2040 RTP/SCS (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The 2016 RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The 2016 RTP/SCS was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions,

tribal governments, nonprofit organizations, businesses, and local stakeholders within the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In June 2016, SCAG received its conformity determination from the Federal Highway Administration and the Federal Transit Administration indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 Federal Transportation Improvement Program Consistency Amendment through Amendment 15-12 have been met (SCAG 2016).

The SCAQMD draft 2016 AQMP applies the updated SCAG growth forecasts assumed in the 2016 RTP/SCS; however, as explained previously, the current applicable air quality plan is the SCAQMD 2012 AQMP, which is based on the SCAG 2012 RTP/SCS.

City of Montclair

The City of Montclair General Plan (City of Montclair 1999) includes various policies related to improving air quality (both directly and indirectly). Applicable policies include the following:

Circulation Element

Policy CE-1.1.6 Keep traffic on all streets in balance with the capacity of the circulation system by regulating the intensity and density of land use in conformity with Level of Service (LOS) "D" or better performance during typical weekday peak hours.

Policy CE-1.1.8 Continue promotion of the construction of sidewalks in residential areas to provide safe pedestrian circulation.

Policy CE-1.1.10 Promote the provision of public modes of transportation between strategic locations such as the Montclair Plaza Shopping Center, and other traffic generators such as the Montclair Transcenter and potential Metrolink station on the Riverside Line.

Housing Element

Policy HE-1.1.27 Develop housing in a manner which will allow the maximum use of alternative energy sources (e.g. solar, wind, cogeneration).

Air Quality Element

Policy AQ-2.1.1 Encourage and facilitate mixed use and self-sufficient development which are pedestrian and transit-oriented. The areas north of the Montclair Plaza and within the Montclair Transcenter have been identified by the "North Montclair Specific Plan" as viable sites for such developments.

Policy AQ-2.3.2 Require interconnected signal control systems for all primary arterials including those which cross interjurisdictional boundaries.

Policy AQ-2.4.3 Provide bicycle and pedestrian pathways and facilities to encourage non-motorized trips.

Regional and Local Air Quality Conditions

South Coast Air Basin Attainment Classification

Pursuant to the 1990 federal Clean Air Act amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 3.2-2 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS, and the attainment classifications for the criteria pollutants.

Table 3.2-2
South Coast Air Basin Attainment Classification

Pollutant	Averaging Time	Designation/Classification
Federal Standards		
O_3	8 hours	Nonattainment (Extreme)
NO_2	1 hour	Unclassifiable/Attainment
	Annual arithmetic mean	Attainment (Maintenance)
CO	1 hour; 8 hours	Attainment (Maintenance)
SO_2	24 hours; annual arithmetic mean	Unclassifiable/Attainment
PM_{10}	24 hours	Attainment (Maintenance)
$PM_{2.5}$	24 hours; annual arithmetic mean	Nonattainment (Serious)
Pb	Quarter	Unclassifiable/Attainment
	3-month average	Nonattainment (Partial)

Table 3.2-2
South Coast Air Basin Attainment Classification

Pollutant	Averaging Time	Designation/Classification
State Standards		
O_3	1 hour; 8 hours	Nonattainment
NO_2	1 hour; annual arithmetic mean	Attainment
CO	1 hour; 8 hours	Attainment
SO_2	1 hour; 24 hours	Attainment
PM_{10}	24 hours; annual arithmetic mean	Nonattainment
$PM_{2.5}$	Annual arithmetic mean	Nonattainment
Pb[a]	30-day average	Attainment
SO_4	24 hours	Attainment
H_2S	1 hour	Unclassified
Vinyl chloride[a]	24 hours	No designation
Visibility-reducing particles	8 hours (10:00 a.m.–6:00 p.m.)	Unclassified

Sources: EPA 2016b (federal); CARB 2016c (state).
Notes: CO = carbon monoxide; H_2S = hydrogen sulfide; NO_2 = nitrogen dioxide; O_3 = ozone; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; SO_4 = sulfates
[a] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined.

In summary, the SCAB is designated as a nonattainment area for federal and state O_3 standards and federal and state $PM_{2.5}$ standards. The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state CO standards, federal and state NO_2 standards, and federal and state SO_2 standards. While a portion of the SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard (Los Angeles County), it is designated attainment for the state lead standard (EPA 2016b; CARB 2016c).

Local Ambient Air Quality

The project area's local ambient air quality is monitored by SCAQMD and CARB. CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The Upland monitoring station, located at 1350 San Bernardino Road, California, is the nearest air quality monitoring station to the project site, approximately 3.4 miles east of the project site. However, data for this site were only available for 8-hour O_3, 1-hour O_3, NO_2, and CO concentrations. SO_2, PM_{10}, and $PM_{2.5}$ measurements were taken from the Fontana monitoring station (14360 Arrow Boulevard, approximately 11.3 miles east of the Proposed Amendment site). The data collected at these stations are considered representative of the air quality experienced in the project vicinity. Air quality data from 2013 through 2015

are provided in Table 3.2-3. Table 3.2-3 also displays the number of days that exceed the ambient air quality standards.

Table 3.2-3
Local Ambient Air Quality Data

	Ambient Air Quality Standard	2013	2014	2015
Ozone (O_3) (Upland Monitoring Station)				
Maximum 1-hour concentration (ppm)	0.09 ppm (state)	0.143	0.126	0.136
Number of days exceeding state standard (days)		*25*	*34*	*49*
Maximum 8-hour concentration (ppm)	0.070 ppm (state)	0.112	0.101	0.106
	0.070 ppm (federal)	0.111	0.101	0.106
Number of days exceeding state standard (days)		*44*	*60*	*69*
Number of days exceeding federal standard (days)		*27*	*42*	*53*
Nitrogen Dioxide (NO_2) (Upland Monitoring Station)				
Maximum 1-hour concentration (ppm)	0.18 ppm (state)	0.062	0.074	0.071
	0.100 ppm (federal)	0.062	0.074	0.072
Number of days exceeding state standard (days)		*0*	*0*	*0*
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Annual concentration (ppm)	0.030 ppm (state)	0.019	0.016	0.016
	0.053 ppm (federal)	ND	0.017	0.016
Carbon Monoxide (CO) (Upland Monitoring Station)				
Maximum 1-hour concentration (ppm)	20 ppm (state)	—	—	—
	35 ppm (federal)	3.0	2.9	2.1
Number of days exceeding state standard (days)		—	—	—
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Maximum 8-hour concentration (ppm)	9.0 ppm (state)	—	—	—
	9 ppm (federal)	1.4	1.2	1.3
Number of days exceeding state standard (days)		—	—	—
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Sulfur Dioxide (SO_2) (Fontana Monitoring Station)				
Maximum 1-hour concentration (ppm)	0.075 ppm (federal)	0.043	0.040	0.040
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Maximum 24-hour concentration (ppm)	0.14 ppm (federal)	0.021	0.010	0.011
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Annual concentration (ppm)	0.030 ppm (federal)	0.005	0.004	0.003
Coarse Particulate Matter (PM_{10}) (Fontana Monitoring Station)				
Maximum 24-hour concentration ($\mu g/m^3$)	50 $\mu g/m^3$ (state)	86.0	65.0	92.0
	150 $\mu g/m^3$ (federal)	90.0	68.0	96.0
Number of days exceeding state standard (days)[a]		*90.2 (15)*	*ND (10)*	*ND (13)*
Number of days exceeding federal standard (days)[a]		0.0 (0)	0.0 (0)	ND (0)
Annual concentration (state method) ($\mu g/m3$)	20 $\mu g/m^3$ (state)	38.8	ND	ND

Table 3.2-3
Local Ambient Air Quality Data

	Ambient Air Quality Standard	2013	2014	2015
Fine Particulate Matter ($PM_{2.5}$) (Fontana Monitoring Station)				
Maximum 24-hour concentration (μg/m³)	35 μg/m³ (federal)	43.6	34.9	50.5
Number of days exceeding federal standard (days) [a]		*3.0 (1)*	*ND (0)*	*10.4 (3)*
Annual concentration (μg/m³)	12 μg/m³ (state)	12.3	ND	11.0
	12.0 μg/m³ (federal)	12.2	ND	11.0

Sources: CARB 2016d; EPA 2016c.
Notes: ppm = parts per million by volume; μg/m³ = micrograms per cubic meter; — = not available; ND = insufficient data available to determine the value.
Data were taken from CARB iADAM (http://www.arb.ca.gov/adam) or EPA AirData (http://www.epa.gov/airdata/) and represent the highest concentrations experienced over a given year.
Exceedances of federal and state standards are shown for ozone and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed either federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.
[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

3.2.3 Thresholds of Significance

The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following significance criterion based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). It was concluded in the Initial Study, that there were no new impacts/no impacts for the following significance criterion. Therefore, the following significance criterion is not included as part of this EIR.

E. Would the project create objectionable odors affecting a substantial number of people? No New Impact/No Impact

The following significance criteria, included for analysis in this EIR, will be used to determine the significance of potential air quality impacts. Impacts to air quality would be significant if the Proposed Amendment would:

A. Conflict with or obstruct implementation of the applicable air quality plan.

B. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

C. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

D. Expose sensitive receptors to substantial pollutant concentrations.

CEQA acknowledges that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon by the City to determine whether the project would have a significant impact on air quality. The SCAQMD CEQA Air Quality Handbook, as revised in March 2015, sets forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 3.2-4 are exceeded.

A project would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O_3 (see Table 3.2-1), which is a nonattainment pollutant, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 3.2-4. These emission-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly (see the previous discussion of O_3 and its sources), and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table 3.2-4
SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (pounds per day)*	*Operation (pounds per day)*
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥ 10 in 1 million Chronic and acute hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants[c]		
NO_2 1-hour average NO_2 annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.030 ppm (state) and 0.0534 ppm (federal)	

Table 3.2-4
SCAQMD Air Quality Significance Thresholds

Ambient Air Quality Standards for Criteria Pollutants[c]	
CO 1-hour average CO 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)
PM_{10} 24-hour average PM_{10} annual average	10.4 μg/m^3 (construction)[d] 2.5 μg/m^3 (operation) 1.0 μg/m^3
$PM_{2.5}$ 24-hour average	10.4 μg/m^3 (construction)[d] 2.5 μg/m^3 (operation)

Source: SCAQMD 2015a.

Notes: μg/m^3 = micrograms per cubic meter; CO = carbon monoxide; NO_2 = nitrogen dioxide; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; ppm = parts per million; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides; TAC = toxic air contaminant; VOC = volatile organic compounds

GHG emissions thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included as they will be addressed within the GHG emissions analysis and not the air quality study.

[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

[b] TACs include carcinogens and noncarcinogens.

[c] Ambient air quality standards for criteria pollutants are based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.

[d] Ambient air quality threshold are based on SCAQMD Rule 403.

In addition to the above-listed emission-based thresholds, SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of construction activities, referred to as a localized significance threshold (LST) analysis.

For project sites of 5 acres or less, the SCAQMD LST Methodology (2009) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling.

The LST significance thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, while the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The LST significance threshold for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. The allowable emission rates depend on the following parameters:

- Source-receptor area (SRA) in which the project is located

- Size of the project site
- Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals)

The Proposed Amendment area is located in SRA 32 (Northwest San Bernardino Valley). The SCAQMD provides guidance for applying CalEEMod to the LSTs. LST pollutant screening level concentration data is currently published for 1-, 2-, and 5-acre sites for varying distances. The maximum number of acres disturbed on the peak day was estimated using the Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (SCAQMD 2014). During grading activities, fugitive dust can be generated from the movement of dirt on the project site. CalEEMod estimates dust from dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt into haul trucks. Each of those activities is calculated differently in CalEEMod, based on the number of acres traversed by the grading equipment. Only some pieces of equipment generate fugitive dust in CalEEMod. The CalEEMod manual identifies various equipment and the acreage disturbed in an 8-hour day:

- Crawler tractors, graders, and rubber tired dozers: 0.5 acres per 8-hour day
- Scrapers: 1 acre per 8-hour day

While the look-up tables include projects up to 5 acres, it should be noted that projects which could disturb greater than 5 acres would require dispersion modeling to determine LSTs. Based on the SCAQMD guidance and construction equipment estimations from CalEEMod, it was assumed that the maximum acres on the project site that would be disturbed by off-road equipment would be 4.0 acres/day. While grading activities could result in a site disturbance greater than 5 acres, this analysis was based on construction equipment usage and quantities as generated by CalEEMod. Because the SCAQMD does not provide lookup table values for a site of 4.0-acres site disturbance, the LST values for 2 and 5 acres within SRA 32 were interpolated to generate LSTs for 4.0 acres. This approach is conservative as it assumes that all on-site grading emissions would occur within a 4-acre area and would over predict potential localized impacts (i.e., more pollutant emissions occurring within a smaller area and within closer proximity to potential sensitive receptors). If a project exceeds the LST look-up values, then the SCAQMD recommends that project-specific air quality modeling be performed.

The closest sensitive receptors (i.e., closest residences to future construction sites within the Proposed Amendment area) would be located approximately 70 feet (21.34 meters) from potential construction activity locations. Because the SCAQMD does not provide lookup table values for 21.34 meters, the LST value for a distance of 25 meters was used; this represents the closest distance presented in the lookup tables. The LST values from the SCAQMD lookup

tables for SRA 32 for a disturbed acreage of 4.0 acres and a receptor distance of 25 meters are shown in Table 3.2-5.

Table 3.2-5
Localized Significance Thresholds for Source Receptor Area 32
(Northwest San Bernardino Valley)

Pollutant	Threshold (pounds/day)
NO_2	237
CO	1,794
PM_{10}	13
$PM_{2.5}$	8

Source: SCAQMD 2008.
Notes: CO = carbon monoxide; NO_2 = nitrogen dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; ppm = parts per million
LST thresholds were determined based on the values for a 4-acre site at a distance of 25 meters from the nearest sensitive receptor.

3.2.4 Impacts Analysis

A. Would the project conflict with or obstruct implementation of the applicable air quality Plan?

New Significant and Unavoidable Impact. The purpose of this environmental analysis is to determine if the project is inconsistent with the assumptions and objectives of the regional air quality plans, and thus, if it would interfere with the region's ability to comply with federal and state air quality standards. Specifically, the SCAQMD recommends that environmental documents should discuss the project's consistency with the current AQMP (2012 AQMP), including several of the underlying key assumptions for the air quality plans, such as the number and location of population, housing units, and employment from the SCAG growth projections and plans, as well as consistency with a local government's air quality element or air quality-related policies in other general plan elements, if the local government has adopted such policies.

In general, projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP. The 2012 AQMP reduction and control measures, which are outlined to mitigate emissions, are based on existing and projected land use and development within the cities and counties that make up the SCAB. Demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) were developed by the SCAG for its 2012 Regional Transportation Plan based on general plans for cities and counties in the SCAB. The 2012 AQMP relies on the land use and population projections

provided in SCAG 2012 Regional Growth Forecast, which is consistent with the local plans; therefore, the 2012 AQMP is generally consistent with local government plans.

If the project is inconsistent, the SCAQMD recommends that local governments should consider project modifications or inclusion of mitigation to eliminate the inconsistency. The SCAQMD CEQA Air Quality Handbook states, "It is important to note that even if a project is found consistent it could still have a significant impact on air quality under CEQA. For example, if the analysis demonstrates a project is consistent with the regional air plans and local Air Quality Element that does not mean that the project could not also have a significant effect on air quality by exceeding the significance thresholds" (SCAQMD 2015a). There are two key indicators of consistency with the AQMP:

- Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP; and
- Whether the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

The 2006 EIR found that buildout of the planning area would result in the total population of the City exceeding the maximum population forecasts used by SCAG and the SCAQMD. However, the 2006 EIR was found to be consistent with strategies outlined within the AQMP, including tree planting, providing parking for transit users, constructing mixed-use development near transit, and developing multi-modal paths.

The Proposed Amendment would extend the westerly boundary of the NMDSP area to include an additional parcel that is currently zoned M1 (limited manufacturing), expand the easterly boundary to incorporate the entire Turner Specific Plan (1990) area (approximately 40 acres of land) on the west side of Central Avenue at Richton Street between Central Avenue and Monte Vista Avenue, and assign a land use designation of Town Center (TC) and Corridor Residential (CR) to several properties along the west side of Central Avenue. Because, the Proposed Amendment would update the existing land uses within the NMDSP and extend the existing boundary of the NMDSP to include additional land, the Proposed Amendment would induce additional population and housing growth to the City, albeit in the form of transit-oriented and mixed-use development, which is intended in part, to reduce reliance on vehicle use. The Proposed Amendment is located in an infill area and more generally, western San Bernardino County, which is part of the Los Angeles metropolitan area. It is anticipated that most of the jobs associated with buildout of the NMDSP would be filled by residents immediately

within the vicinity of the Proposed Amendment area or from neighboring communities and/or cities. As discussed in Section 3.8, Population and Housing, the Proposed Amendment is estimated to generate approximately 17,240 new City residents (9,677 generated from the new residential development and 7,563 generated from the new non-residential development). This population estimate is a conservative worst-case estimate, as it assumes that all of the new employees for future development allowed under the Proposed Amendment currently live outside of the City, that all of these employees would move into the City upon obtaining a job in the planning area, and that all of the new employees would bring a household consisting of two or more persons each. While this scenario would have the potential to occur, it would be very unlikely, particularly considering the urbanized and built-out nature of the region in which the City is located. Although buildout of the Proposed Amendment area would include more compact development achieved by increasing development density, as well as provide a land use pattern and transportation infrastructure more supportive of alternative methods of transportation including public transit, walking, and bicycling, the Proposed Amendment would result in additional growth in population and employment to the City which would exceed the growth projections of SCAG. Therefore, the Proposed Amendment would conflict with the 2012 AQMP.

To address the criterion regarding the Proposed Amendment's potential to result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP, an air quality modeling analysis that identified the Proposed Amendment's impact on air quality was performed. Detailed results of the modeling conducted for the Proposed Amendment are included in Appendix B. CalEEMod (version 2016.3.1) was used to model emissions for the proposed project and analyze significance of impacts under criterion b) below.

The SCAB is a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. As discussed for impact criterion b), the Proposed Amendment would result in a net increase of VOC and NO_x emissions, even with compliance with SCAQMD Rules 403 and 1113 and implementation of mitigation measures **MM-AIR-1** and **MM-AIR-2**. These mitigation measures require the project to implement fugitive dust control measures which will help reduce the amount of particulate matter emitted during construction activities and converting all construction diesel equipment to at least EPA Tier 3 engine standards in order to reduce significant VOC and NO_x emissions. Additionally, at full buildout, the Proposed Amendment would exceed the SCAQMD operational daily thresholds for NO_x, PM_{10}, and $PM_{2.5}$ emissions. Therefore, the Proposed Amendment would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely

attainment of the ambient air quality standards or interim emission reductions in the 2012 AQMP.

In summary, because the Proposed Amendment would conflict with or obstruct implementation of the applicable air quality plan, the impact is considered a **new significant and unavoidable impact**.

B. Would the project violate any air quality standard or contribute substantially to an existing or projected violation?

The 2006 EIR found that the NMDSP would exceed the SCAQMD operational criteria pollutant thresholds for O_3 precursors (VOC and NO_x) and PM_{10} without implementation of mitigation. With mitigation, while NO_x and PM_{10} emissions were reduced to a less than significant impact however, VOC emissions were determined to remain significant.

Construction and operation of the land uses to be developed under the Proposed Amendment may result in emissions of criteria air pollutants from mobile, area, and/or stationary sources, which may cause exceedances of the NAAQS and CAAQS or contribute to existing nonattainment of ambient air quality standards. The following discussion identifies potential short-term construction and long-term operational impacts that would result from implementation of the project. Feasible mitigation measures to reduce or avoid any potential significant impacts, as appropriate, are proposed.

Construction Emissions

New Significant and Unavoidable Impact.

Construction activity from implementing future projects under the Proposed Amendment would cause temporary, short-term emissions of various air pollutants at each project site developed throughout the 18-year buildout period. VOC and NO_x, PM_{10}, and $PM_{2.5}$ would be emitted by construction equipment during various activities, which may include, but are not limited to, grading, excavation, building construction, and demolition. Soil disturbance during construction activities emit fugitive dust, a fraction of which is comprised of PM_{10} and $PM_{2.5}$. It is unknown when the exact timing of construction activities will take place; therefore, this analysis assumes a worst-case scenario of the construction of future projects under the Proposed Amendment commencing in 2017 and full buildout predicted by 2035. The analysis assumes that the earliest start date for construction represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

CalEEMod assumes emissions from each construction phase would occur sequentially, no matter the size of the project, unless each project is assessed separately. For example, all demolition activities are assumed to occur in the first years of the buildout period and architectural coatings are assumed to be applied in the last years of buildout. The actual order and timing of individual future construction projects is unknown.

Construction emissions were calculated using CalEEMod for the estimated worst-case day over the construction period associated with each phase. Maximum daily emissions estimated during each year of construction (2017 through 2035) are reported in Table 3.2-6 below. Construction schedule assumptions, including phase type, duration, and sequencing, were generated using CalEEMod.

Implementation of future development under the Proposed Amendment would generate construction-related air pollutant emissions from three general activity categories: entrained dust, equipment and vehicle exhaust emissions, and architectural coatings. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Future projects would be required to comply with SCAQMD Rule 403 to control dust emissions during construction activities. To account for dust control measures to comply with SCAQMD Rule 403 in the calculations, it was assumed that the active sites would be watered at minimum twice daily, as necessary depending on weather conditions, resulting in a 55% reduction in fugitive dust as implemented by CalEEMod. Exhaust from internal combustion engines used by construction equipment and vendor trucks (delivery trucks) and worker vehicles would result in emissions of NO_x, VOCs, CO, PM_{10}, and $PM_{2.5}$. The construction equipment mix and estimated hours of operation per day, as well as the estimated number of worker, vendor (delivery trucks), and haul trips anticipated for each construction phase of future projects under the Proposed Amendment are based on CalEEMod default assumptions. The application of architectural coatings, such as exterior/interior paint and other finishes, would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SCAQMD's Rule 1113. Per SCAQMD Rule 1113, the VOC content of most non-specialty architectural coatings would be limited to 50 grams of VOC per liter of coating for residential land uses and 100 grams of VOC per liter of coating for nonresidential land uses, which is therefore reflected in CalEEMod. Detailed model assumptions and outputs are provided in Appendix B.

The maximum unmitigated daily emissions from future construction under the Proposed Amendment are provided in Table 3.2-6. Details of the emissions calculations are provided in Appendix B.

Table 3.2-6
Estimated Maximum Daily Unmitigated Construction Emissions

Construction Year	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer Emissions						
2017	4.24	43.74	24.17	0.04	2.74	2.16
2018	5.22	59.61	36.21	0.06	6.32	4.05
2019	4.86	54.60	34.37	0.06	6.07	3.82
2020	35.93	165.18	290.14	0.98	71.58	20.58
2021	33.09	150.52	267.20	0.96	71.03	20.06
2022	30.83	140.98	246.73	0.93	70.83	19.87
2023	28.30	113.43	226.83	0.90	70.63	19.68
2024	26.71	111.56	213.06	0.88	70.54	19.60
2025	25.24	108.87	198.76	0.86	70.45	19.51
2026	24.04	107.31	186.59	0.84	70.43	19.49
2027	22.89	105.89	175.81	0.82	70.41	19.48
2028	21.72	104.67	166.42	0.80	70.39	19.45
2029	20.46	103.52	157.36	0.79	70.37	19.43
2030	19.17	97.91	149.35	0.78	69.96	19.07
2031	17.85	97.30	142.33	0.77	69.95	19.05
2032	16.66	96.42	135.46	0.76	69.93	19.03
2033	1.56	7.14	16.14	0.03	0.51	0.38
2034	140.00	7.14	20.56	0.09	12.42	3.34
2035	139.84	1.76	19.64	0.09	12.41	3.32
Winter Emissions						
2017	4.25	43.76	24.01	0.04	2.74	2.16
2018	5.22	59.62	36.02	0.06	6.32	4.05
2019	4.86	54.60	34.20	0.06	6.07	3.82
2020	36.15	165.17	249.78	0.90	71.59	20.59
2021	33.34	150.19	229.75	0.88	71.03	20.06
2022	31.13	140.49	212.16	0.86	70.84	19.88
2023	28.62	112.99	194.19	0.83	70.63	19.68
2024	27.09	111.08	182.47	0.82	70.54	19.60
2025	25.66	108.33	170.47	0.79	70.45	19.51
2026	24.50	106.71	160.26	0.78	70.44	19.50
2027	23.38	105.23	151.22	0.76	70.42	19.48
2028	22.22	103.97	143.34	0.74	70.39	19.46
2029	20.95	102.77	135.73	0.73	70.37	19.43
2030	19.65	97.12	129.01	0.72	69.97	19.07
2031	18.31	96.49	123.06	0.72	69.95	19.05
2032	17.11	95.57	117.30	0.71	69.93	19.03
2033	1.56	7.14	16.08	0.03	0.51	0.38
2034	140.07	7.14	16.84	0.08	12.42	3.34

Table 3.2-6
Estimated Maximum Daily Unmitigated Construction Emissions

Construction Year	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2035	139.91	1.80	16.08	0.08	12.41	3.32
Maximum daily emissions	**140.07**	**165.18**	**290.14**	**0.98**	**71.59**	**20.59**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Notes: See Appendix B for detailed results.
These estimates reflect control of fugitive dust required by SCAQMD Rule 403 and compliance with SCAQMD Rule 1113 which limits VOC content of architectural coatings.
VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter

The maximum daily **unmitigated** emissions would substantially exceed the SCAQMD significance thresholds for the pollutants of VOC and NO_x. The inventory represents a worst case emission estimate for construction activity since specific information for individual projects to be developed under the Proposed Amendment are unknown at this time. Emissions from construction activities are expected to decline over time as new cleaner equipment replaces older higher emitting equipment. However, construction emissions would continue to exceed SCAQMD daily significance thresholds even with the regulatory reductions. The 2006 EIR found that any combination of projects within the NMDSP would result in construction impacts that would be significant, although emission estimates were not provided. In order to reduce emissions associated with construction impacts, the 2006 EIR included mitigation, which is included as **MM-AIR-1**. Additionally, mitigation measure **MM-AIR-2**, also included, requires that all construction diesel equipment over 75 hp meet EPA Tier 3 engine standards. Table 3.2-7 presents the maximum mitigated daily emissions from construction of future projects under the Proposed Amendment.

Table 3.2-7
Estimated Maximum Daily Mitigated Construction Emissions

Construction Year	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer Emissions						
2017	1.07	19.31	25.83	0.04	1.41	0.98
2018	2.03	31.86	37.84	0.06	5.12	3.03
2019	1.96	31.26	37.64	0.06	5.06	2.98
2020	35.07	161.08	291.27	0.98	71.38	20.42
2021	32.36	147.55	268.51	0.96	70.92	19.98
2022	30.20	139.21	248.16	0.93	70.81	19.88

Table 3.2-7
Estimated Maximum Daily Mitigated Construction Emissions

Construction Year	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2023	27.74	112.48	228.35	0.90	70.67	19.74
2024	26.22	111.28	214.65	0.88	70.63	19.71
2025	24.81	109.23	200.40	0.86	70.58	19.66
2026	23.61	107.67	188.24	0.84	70.57	19.65
2027	22.46	106.25	177.46	0.82	70.55	19.63
2028	21.29	105.03	168.07	0.80	70.53	19.61
2029	20.03	103.88	159.01	0.79	70.50	19.59
2030	18.84	101.85	151.18	0.78	70.37	19.47
2031	17.53	101.24	144.16	0.77	70.35	19.45
2032	16.34	100.36	137.29	0.76	70.33	19.43
2033	0.73	11.31	17.58	0.03	0.79	0.66
2034	133.91	11.31	20.59	0.09	12.50	3.41
2035	133.77	2.36	19.68	0.09	12.50	3.41
Winter Emissions						
2017	1.07	19.32	25.68	0.04	1.41	0.98
2018	2.03	31.86	37.64	0.06	5.12	3.03
2019	1.96	31.27	37.46	0.06	5.06	2.98
2020	35.29	161.06	250.91	0.90	71.39	20.43
2021	32.61	147.22	231.06	0.88	70.92	19.99
2022	30.51	138.72	213.60	0.86	70.81	19.88
2023	28.07	112.04	195.71	0.83	70.67	19.75
2024	26.60	110.80	184.07	0.82	70.63	19.71
2025	25.23	108.69	172.12	0.79	70.59	19.67
2026	24.07	107.07	161.91	0.78	70.57	19.65
2027	22.94	105.59	152.87	0.76	70.55	19.64
2028	21.78	104.33	144.99	0.74	70.53	19.61
2029	20.52	103.13	137.38	0.73	70.50	19.59
2030	19.32	101.07	130.84	0.72	70.37	19.47
2031	17.99	100.43	124.89	0.72	70.35	19.45
2032	16.78	99.51	119.13	0.71	70.33	19.43
2033	0.74	11.31	17.53	0.03	0.79	0.66
2034	133.98	11.31	17.51	0.08	12.50	3.41
2035	133.84	2.40	16.11	0.08	12.50	3.41
Maximum daily emissions	**133.98**	**161.08**	**291.27**	**0.98**	**71.39**	**20.43**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Notes: See Appendix B for detailed results.
These estimates reflect control of fugitive dust required by SCAQMD Rule 403, compliance with SCAQMD Rule 1113 which limits VOC content of architectural coatings and MM-AQ-2 which requires the use of Tier 3 construction equipment. It should be noted that MM-AQ-1 includes additional fugitive dust control measures which cannot be reflected in CalEEMod.
VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter

As summarized in Table 3.2-7, mitigated construction-related emissions includes implementation of mitigation measures **MM-AIR-1** and **MM-AIR-2**, which requires all construction equipment greater than 75 hp to meet Tier 3 EPA engine standards. Table 3.2-7 indicates that mitigated construction emissions would exceed the SCAQMD threshold for VOC and NO_x. CARB off-road equipment regulations would result in reductions in NO_x emissions as new equipment meeting current and future standards replaces older higher emitting equipment. Regulations are normally implemented over a 5- to 10-year period, at which time a new round of regulations are proposed if still needed to attain the air quality standards. CARB has a long history of tightening regulations as technology advances increase the feasibility of additional controls.

Because the Proposed Amendment's estimated daily future project mitigated construction emissions exceed the SCAQMD significance thresholds for VOC and NO_x, despite the implementation of all feasible mitigation, construction emissions are considered a **new significant and unavoidable impact**. The Proposed Amendment would comply with SCAQMD Rule 1113 which limits the VOC content of architectural coatings; additionally the Proposed Amendment would implement mitigation requiring the use of Tier 3 construction equipment in order to reduce NO_x emissions. However, no other feasible mitigation is available which could reduce maximum daily construction emissions further.

Operational Emissions

New Significant and Unavoidable Impact. The Proposed Amendment would result in the development of 4,910 apartment units, 1,016 condo/townhome units, 1,322,695 square feet in office uses, and 565,946 square feet of retail uses, as well as the potential demolition of 9 single-family houses and 207,356 square feet in industrial uses currently in operation in the Proposed Amendment area. Operational emissions would increase each year as developments within the Proposed Amendment area are completed and occupied. Emissions were estimated based on the cumulative amount of development estimated for the buildout year of 2035.

Following the completion of construction activities, future projects under the Proposed Amendment would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile, energy, and area sources (water heating and landscaping).

Vehicular Traffic

The Proposed Amendment would impact air quality through the vehicular traffic generated by the land uses to be developed. According to the traffic study prepared for the Proposed Amendment (Stantec 2016), the Proposed Amendment would result

in a total of 75,335 daily trips, which is 52,119 daily trips more than the existing land uses to be demolished. These existing uses to be replaced generate approximately 23,216 daily trips.

Future project-related traffic was assumed to include a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2035 were used to estimate emissions associated with full buildout of the Proposed Amendment area.

Energy

In addition to estimating mobile source emissions, CalEEMod was also used to estimate emissions from energy use for the Proposed Amendment and the existing land uses to be replaced, which includes natural gas combustion. CalEEMod default Title 24 energy intensities for electricity and natural gas were update to reflect compliance with 2016 Title 24 standards. 2016 Title 24 standards calls for a 28% savings over 2013 Title 24 standards for residential development and a 5% reduction for nonresidential development.

Area Sources

CalEEMod was also used to estimate area source emissions from the Proposed Amendment and existing land uses to be replaced, which include landscaping, consumer products, and architectural coatings for building maintenance. It is assumed that the Proposed Amendment would comply with SCAQMD Rule 445 which restricts the installation of wood-burning devices in new development.

Table 3.2-8 presents the maximum daily emissions associated with operation of future projects under the Proposed Amendment after all construction has been completed. The values shown for motor vehicles and area sources include the maximum summer or winter daily emissions results from CalEEMod.

Table 3.2-8
Estimated Maximum Daily Operational Emissions

Emission Source	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Proposed Project						
Area	195.01	91.64	523.98	0.57	9.67	9.67
Energy	2.83	24.30	11.03	0.15	1.96	1.96
Mobile	112.22	913.46	1,177.29	6.96	523.80	144.28
Total Summer Emissions	*310.06*	*1,029.40*	*1,712.30*	*7.68*	*535.41*	*155.91*

Table 3.2-8
Estimated Maximum Daily Operational Emissions

Emission Source	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Existing Land Uses						
Area	137.97	9.30	253.53	0.56	32.89	32.89
Energy	0.34	2.93	1.47	0.02	0.23	0.23
Mobile	127.79	686.42	1,285.89	3.67	152.03	45.22
Total Winter Emissions	*266.10*	*698.65*	*1,540.89*	*4.25*	*185.15*	*78.34*
Net Change in Maximum Daily Emissions	**43.96**	**330.75**	**171.41**	**3.43**	**350.26**	**77.57**
Pollutant threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**Yes**	**No**	**No**	**Yes**	**Yes**

Notes: See Appendix B for detailed results.
Emission estimates includes maximum summer or winter emissions
VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter

As shown in Table 3.2-8, maximum daily emissions of NO_x, PM_{10}, and $PM_{2.5}$ attributed to future projects under the Proposed Amendment would exceed the SCAQMD daily significance thresholds. The greatest sources of emissions are from on-road and off-road vehicles. As discussed earlier, the Proposed Amendment thresholds are a highly conservative measure of significance for a long-range plan. Analysis of emission projections accounting for the effects of adopted regulations show that there would be a significant net increase in emissions with buildout of the Proposed Amendment area compared with existing land uses. The 2006 EIR concluded that operational impacts as a result of buildout of the specific plan would exceed the SCAQMD significance thresholds for ROG, NO_x, and PM_{10}. In order to reduce emissions associated with construction impacts, the 2006 EIR included mitigation measure **MM-AIR-1**, which is included as mitigation for the Proposed Amendment. The Proposed Amendment would comply with SCAQMD Rule 1113 which limits the VOC content of architectural coatings; additionally the Proposed Amendment would implement mitigation requiring the use of Tier 3 construction equipment in order to reduce NO_x emissions. No other feasible mitigation is available. As such, this impact would remain significant and unavoidable, even with implementation of feasible mitigation. The impact is considered a **new significant and unavoidable impact**.

C. Would the project result in a cumulatively considerable new increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold emissions which exceed quantitative thresholds for ozone precursors)?

New Significant and Unavoidable Impact. Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SCAQMD develops and implements plans for future attainment of ambient air quality standards. In considering cumulative impacts from the proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SCAB is designated as nonattainment for the CAAQS and NAAQS. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution to nonattainment status in the SCAB. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (SCAQMD 2003).

The SCAB has been designated as federal nonattainment area for O_3 and $PM_{2.5}$ and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB including motor vehicles, off-road equipment, commercial and industrial facilities. Construction and operation of future projects under the Proposed Amendment would generate VOC and NO_x emissions (which are precursors to O_3), and emissions of PM_{10} and $PM_{2.5}$. As indicated in Tables 3.2-7 and 3.2-8, buildout of the Proposed Amendment would cause an exceedance of the SCAQMD emission-based significance thresholds for VOC and NO_x emissions during construction and NO_x, PM_{10}, and $PM_{2.5}$ emissions after full buildout of the Proposed Amendment, even after incorporation of mitigation measures **MM-AIR-1** and **MM-AIR-2**. Furthermore, the Proposed Amendment would comply with SCAQMD Rule 1113 which limits the VOC content of architectural coatings and would implement mitigation requiring the use of Tier 3 construction equipment in order to reduce NO_x emissions. No other feasible mitigation is available which could reduce VOC and NO_x construction emissions substantially. Accordingly, the Proposed Amendment would result in a cumulatively considerable increase in emissions of nonattainment pollutants. Impacts are considered to be a **new significant and unavoidable impact**.

D. Would the project expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Thresholds Analysis

No Impact/No New Impact. The closest sensitive receptors are located within 70 feet (21.34 meters) of potential construction locations within the Proposed Amendment area. An LST analysis has been prepared to determine potential impacts to nearby sensitive receptors during construction of future projects under the Proposed Amendment. As indicated in the discussion of the thresholds of significance, the SCAQMD also recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of a project site. The impacts were analyzed using methods consistent with those in the SCAQMD's *Final Localized Significance Threshold Methodology* (SCAQMD 2008). According to the LST Methodology, "off-site mobile emissions from the Project should not be included in the emissions compared to the LSTs" (SCAQMD 2008). Hauling construction materials associated with future construction under the Proposed Amendment is not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways. Emissions from the trucks would be relatively brief in nature and would cease once the trucks pass through the main streets.

As previously discussed, sensitive receptors would be located within and near the Proposed Amendment area. Sensitive receptors may be located within a range of 25 to 100 meters (82 to 328 feet). For this analysis, however, it was assumed that the closest sensitive receptors would be located adjacent to the Proposed Amendment's boundary. The LSTs for a 4-acre site within 25 meters (closest distance within the SCAQMD LST look-up table) of sensitive receptors in SRA 32 are shown in Table 3.2-9, and compared to the maximum daily on-site project construction emissions.

Table 3.2-9
Localized Significance Thresholds Analysis for Project Construction

Pollutant	Project Construction Emissions (pound/day)	LST Criteria (pounds/day)	Exceeds LST?
NO_2	67.94	237	No
CO	38.78	1,794	No
PM_{10}	6.46	13	No
$PM_{2.5}$	4.23	8	No

Source: SCAQMD 2008.
Notes: See Appendix B for detailed results.
Localized significance thresholds are shown for maximum disturbance of 4.0-acres corresponding to a distance to a sensitive receptor of 25 meters.
These estimates reflect control of fugitive dust required by Rule 403.
LST = localized significance threshold; NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = particulate matter; $PM_{2.5}$ = fine particulate matter

As shown in Table 3.2-9, future construction activities would not generate emissions in excess of site-specific LSTs; therefore, localized construction impacts during construction of future projects under the Proposed Amendment would be less than significant. In addition, diesel equipment would also be subject to the CARB ATCM for in-use off-road diesel fleets, which would minimize diesel particulate matter emissions. As such, there would be **no impact/no new impact** during construction.

Carbon Monoxide Hotspots

No Impact/No New Impact. Mobile source impacts occur basically on two scales of motion. Regionally, project-related travel will add to regional trip generation and increase the vehicle miles traveled within the SCAB. Locally, proposed project traffic will be added to the City of Montclair and other neighboring city roadways within the Proposed Amendment area. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing.

CO transport is extremely limited and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors such as residents, school children, hospital patients, and older adults. Typically, high CO concentrations are associated with roadways or intersections operating at an unacceptable level of service (LOS). Projects contributing to adverse traffic impacts may result in the formation of such CO hotspots.

To verify that the Proposed Amendment would not cause or contribute to a violation of the CO standards, a screening evaluation of the potential for CO hotspots was conducted. The California Department of Transportation (Caltrans) and the U.C. Davis Institute of Transportation Studies *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) (Caltrans 1997), and the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993) were followed. CO hotspots are typically evaluated when (1) the LOS of an intersection or roadway decreases to LOS E or worse; (2) signalization and/or channelization is added to an intersection; and (3) sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or roadway segment. According to the CO Protocol, if project traffic volume worsens an intersection's

LOS to E or F from a LOS D or above, this intersection represents a potential for a CO violation and would be required to be further analyzed.

The Proposed Amendment's traffic study evaluated whether there would be a decrease in the LOS (e.g., congestion) at the intersections affected by the Proposed Amendment. The traffic study evaluated 18 intersections for two different scenarios which included Existing Plus Project and Long-Range (Year 2040). According to the CO Protocol, there is a cap on the number of intersections that need to be analyzed for any one project. For a single project with multiple intersections, only the three intersections representing the worst LOS ratings of the project, and, to the extent they are different intersections, the three intersections representing the highest traffic volumes, need be analyzed. For each intersection failing a screening test as described in this protocol, an additional intersection should be analyzed (Caltrans 1997).

The following study area intersections would operate at an unacceptable LOS and were determined to be the most impacted for each respective scenario. The potential impact of the project on local CO levels was assessed at these intersections with the Caltrans CL4 interface based on the California LINE Source Dispersion Model (CALINE4), which allows microscale CO concentrations to be estimated along each roadway corridor or near intersections (Caltrans 1998a).

1. Existing (2016) Plus Project Intersection#7 – Central Avenue and Arrow Highway for PM peak hour
2. Future (2040) Plus Project Intersection#18 – Central Avenue and Mission Boulevard for AM and PM peak hour

The modeling analysis was performed for worst-case wind angle, in which the model selects the wind angles that produce the highest CO concentrations at each of the receptors. The suburban land classification of 40 inches (100 centimeters) was used for the aerodynamic roughness coefficient, which determines the amount of local air turbulence that affects plume spreading. The at-grade option was used in the analysis; for at-grade sections, CALINE4 does not permit the plume to mix below ground level. The mixing zone, which is defined as the width of the roadway plus 10 feet (3 meters) on either side, was estimated for each roadway using Google Earth (2016). The calculations assume a mixing height of 3,280 feet (1,000 meters), a flat topographical condition between the source and the receptor (link height of 0 meters), and a meteorological condition of little to almost no wind (3.3 feet (1 meter) per second), consistent with Caltrans guidance (Caltrans 1998b).

The vehicle emission factor was predicted using CARB's mobile source emissions inventory model, EMFAC2014, and represents the weighted average emission rate of the local San Bernardino County vehicle fleet expressed in grams per mile per vehicle. Consistent with the traffic report, emission factors for 2016 and 2040, were used in the CALINE4 model. Emission factors were based on a 10-mile-per-hour (mph) average speed for all of the intersections, a temperature of 50.1°F,[3] and an average humidity of 55%. The hourly traffic volume anticipated to travel on each link, in units of vehicles per hour, was based on the traffic study. Modeling assumptions are outlined in Appendix B.

Four receptor locations at each intersection were modeled to determine CO ambient concentrations. A receptor was assumed on the sidewalk at each corner of the modeled intersections, for a total of four receptors adjacent to the intersection, to represent the possibility of extended outdoor exposure. CO concentrations were modeled at these locations to assess the maximum potential CO exposure that could occur in 2016 and 2040. A receptor height of 5.9 feet (1.8 meters) was used in accordance with Caltrans recommendations for all receptor locations (Caltrans 1998b).

The SCAQMD provides projected future concentrations of CO emissions in order to assist with a CO Hotspots Analysis. The projected future 1-hour CO background concentration of 3.6 parts per million for 2016 and 2020 for the closest monitoring station to the Proposed Amendment area is located within the City of Pomona, and was assumed for 2016 and 2040 (SCAQMD 2015b). To estimate an 8-hour average CO concentration, a persistence factor of 0.7, as is recommended for urban locations, was applied to the output values of predicted concentrations in parts per million at each of the receptor locations.

The results of the model are shown in Table 3.2-10 CALINE4 Predicted Carbon Monoxide Concentrations. Model input and output data are provided in Appendix B.

Table 3.2-10
CALINE4 Predicted Carbon Monoxide Concentrations

Intersection	Maximum Modeled Impact (ppm)	
	1-hour	*8-hour*
Existing Plus Project (2016) Central Avenue and Arrow Highway (PM peak hour)	4.3	3.0

[3] The Caltrans Institute of Transportation Studies *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) (Caltrans 1997) guidance is to use the smallest mean minimum temperature observed in January over the past 3 years plus the temperature adjustment for the geographic location and time period. The smallest mean minimum at the Pomona Fairplex station was 45.1°F in January 2016 (WRCC 2016). Assuming a 5°F correction factor for both AM and PM traffic conditions, average morning and evening temperature would be approximately 50.1°F (Caltrans 1997).

Table 3.2-10
CALINE4 Predicted Carbon Monoxide Concentrations

Intersection	Maximum Modeled Impact (ppm)	
	1-hour	*8-hour*
Future Plus Project (2040) Central Avenue and Mission Boulevard (AM peak hour)	3.6	2.5
Future Plus Project (2040) Central Avenue and Mission Boulevard (PM peak hour)	3.6	2.5

Source: Caltrans 1998a (CALINE4).
Notes: CO = carbon monoxide; ppm = parts per million.
Modeled concentrations reflect background 1-hour concentration of 3.6 ppm.
8-hour concentrations were obtained by multiplying the 1-hour concentration by a factor of 0.7, as referenced in Caltrans 1997, Table B.15.

As shown in Table 3.2-10, maximum CO concentration predicted for the 1-hour averaging period would be 4.3 ppm, which is below the state 1-hour CO standard of 20 ppm (see Table 3.2-1 for state standards). The maximum predicted 8-hour CO concentration of 3.0 ppm would be below the state CO standard of 9 ppm. Neither the 1-hour nor 8-hour state standard would be equaled or exceeded at any of the intersections studied. Accordingly, CO hotspot impacts would be less than significant and there would be **no impact/no new impact**.

Health Impacts of Toxic Air Contaminants

New Significant and Unavoidable Impact. In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as TACs or HAPs. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and is aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal HAPs, and is adopting appropriate control measures for sources of these TACs. The following measures are required by state law to reduce diesel particulate emissions:

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-Use Off-road Diesel Vehicles (Title 13 California Code of Regulations, Chapter 9, Section 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.
- All commercial diesel vehicles are subject to Title 13, Section 2485 of the California Code of Regulations, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to 5 minutes; electric auxiliary power units should be used whenever possible.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SCAQMD recommends an incremental cancer risk threshold of 10 in a million. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment (OEHHA) risk-assessment methodology. In addition, some TACs have non-carcinogenic effects. The SCAQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) effects.[4]

The greatest potential for TAC emissions during construction would be diesel particulate emissions from heavy equipment operations and heavy-duty trucks during construction of future projects under the Proposed Amendment, both of which are subject to a CARB Airborne Toxics Control Measure to reduce diesel particulate emissions. As described above for the LST analysis, PM_{10} (representative of diesel particulate matter) emissions and exposure would be minimal. According to OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period/duration of activities associated with the project. Since the Proposed Amendment involves phased demolition and construction activities in many areas across the Proposed Amendment area, future projects under the Proposed Amendment would not require the extensive use of heavy-duty construction equipment or diesel trucks in any one location over the duration of development, which would limit the exposure of any proximate individual sensitive receptor to TACs. Furthermore, mobile sources powered by diesel fuel emit DPM, which is classified as a TAC because many toxic compounds adhere to diesel exhaust particles. Statewide programs for mobile sources and diesel-fired equipment set mandatory exhaust standards for manufacturers of these engines and require equipment owners or operators to register portable equipment. Emissions of DPM have been declining with the introduction of ultra-low sulfur diesel fuel, which reduces particulates and sulfur oxides, and with the phase-in of particulate filters on vehicle exhaust systems, Therefore, TACs generated during construction would not be expected to result in concentrations causing significant health risks. Additionally, **MM-AIR-1** includes provision of diesel exhaust controls if projects to be developed under the Proposed Amendment result in substantial exposure and risk. No residual TAC emissions and corresponding cancer risk are anticipated after construction, nor are any long-term sources of TAC emissions anticipated during operation of future projects under the Proposed Amendment.

[4] Non-cancer adverse health risks are measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentrations of the various non-carcinogens from the Project to published reference exposure levels that can cause adverse health effects.

Additionally, CARB has published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005), which identifies certain types of facilities or sources that may emit substantial quantities of TACs, and therefore, could conflict with sensitive land uses, such as "schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities." The *Air Quality and Land Use Handbook* is a guide for siting of new sensitive land uses, but it does not mandate specific separation distances to avoid potential health impacts. The enumerated facilities or sources include the following:

- High-traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Dry cleaners
- Large gas dispensing facilities.

CARB recommends that sensitive receptors not be located downwind or in proximity to such sources to avoid potential health hazards.

The operation of the rail line located within the Proposed Amendment area between Arrow Highway and Richton Street could expose adjacent residences to emissions of TACs. Because of the potential risk to future sensitive receptors within the immediate vicinity of the rail line, mitigation measure **MM-AIR-3** is required to mitigate the exposure from these emission sources. In summary, **MM-AIR-3** requires future residential development within 500 feet adjacent to the rail line to evaluate potential health risk concerns utilizing the latest OEHHA guidelines at the time of analysis and requires that heating, ventilation, and air conditioning (HVAC) systems enhanced with Maximum Efficiency Reporting Value (MERV) filters are to be installed if the cancer risks exceeds the applicable standard at the time of development. The Proposed Amendment would not generate substantial TAC emissions that would conflict with surrounding sensitive receptors; however, the Proposed Amendment could expose future inhabitants to TAC emissions from these sources because of their proximity to the existing rail line. While the Proposed Amendment identifies potential land uses, the exact locations, distances, and specifications in regards to future development projects within the planning area are currently unknown, and as such, any such study undertaken

presently would be speculative without further details. Furthermore, as buildout of the Proposed Amendment would occur over a roughly 20-year period, emission reductions anticipated from CARB and SCAQMD regulations will help reduce emissions from older equipment; for example, CARB off-road equipment regulations would result in reductions in emissions as new equipment meeting current and future standards replaces older higher emitting equipment. Furthermore, emission factors would decrease over time to reflect implementation of increasingly stringent regulatory emission control measures. Therefore, impacts are considered a **new significant and unavoidable impact**.

3.2.5 Cumulative Impacts

Air pollution by nature is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, the SCAQMD thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. The potential for the Proposed Amendment to result in a cumulatively considerable impact, specifically a cumulatively considerable new increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS and/or CAAQS, is addressed in Section 3.2.2. As previously discussed, maximum daily construction emissions would cause an exceedance in the SCAQMD emission-based significance thresholds for VOC and NO_x, while maximum daily operational emissions wound cause an exceedance of NO_x, PM_{10}, and $PM_{2.5}$ emissions, even after incorporation of mitigation measures **MM-AQ-5** and **MM-AIR-1** through **MM-AIR-3**. Therefore, cumulative air quality impacts would be a **new significant and unavoidable impact**.

3.2.6 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. The following mitigation measure from the 2006 NMDSP EIR will be incorporated for the Proposed Amendment.

MM-AQ-5 **Odors.** During discretionary review of mixed-use projects involving bars, taverns and nightclubs or personal services such as nail salons, hair salons, and dry cleaners, City reviewers shall ensure odors are reduced or eliminated pursuant to AQMD Rule 402.

New mitigation measures for the Proposed Amendment are described below:

MM-AIR-1 **Construction.** The City shall require developers of projects within the boundary of the NMDSP to comply with the following air pollution control measures:

- Maintain equipment and vehicle engines in good condition and in proper tune as per manufacturers' specifications and per SCAQMD rules, to minimize exhaust emissions.
- Suspend use of all construction equipment operations during second stage smog alerts. Contact the SCAQMD daily for daily forecasts.
- Use electricity from power poles rather than temporary diesel- or gasoline-powered generators.
- Use methanol- or natural gas-powered mobile equipment and pile drivers instead of diesel, if readily available at competitive prices.
- Use propane- or butane-powered on-site mobile equipment instead of gasoline, if readily available at competitive prices.
- Store all volatile liquids, including fuels or solvents, in closed containers.
- No open burning of debris, lumber or other scrap shall be permitted.

The City shall evaluate, prior to final construction approval, a project's risk of releasing significant quantities of diesel particulate emissions, using applicable SCAQMD Guidelines. Projects which may exceed acceptable thresholds (generally an increase in risk of 10/million or more), shall be required to install one or more pieces of filtering equipment (diesel particulate filter or diesel oxidation catalyst) and/or use emulsified fuels on their highest emitting piece or pieces of equipment on-site. The project proponent shall consult with the City and/or SCAQMD and comply with the recommendations made by both entities. If there is a conflict between what the City recommends and what SCAQMD recommends, the SCAQMD's recommendation shall control.

Dust Control

- All areas with vehicle traffic shall be watered periodically; at a minimum, this requires twice daily applications (once in late morning and once at end of workday).
- Streets adjacent to the project site shall be swept as needed to remove silt that may have accumulated from construction activities in order to prevent excessive amounts of dust.

- Exposed areas, new driveways and sidewalks shall be seeded, treated with soil binders, or paved as soon as possible.
- Stockpiles of soil, sand and other loose materials shall be covered.
- Trucks hauling soil, debris, sand or other loose materials shall be covered.
- Project area streets shall be swept at least once daily.
- A dust control monitor shall be appointed to oversee and implement all dust control measures.
- The Contractor shall maintain continuous control of dust resulting from construction operations.
- Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour.
- During construction, the amount of disturbed area shall be minimized.
- On-site vehicle speeds shall be reduced to 15 miles per hour or less.
- The City reserves the right to require additional measures depending on the nature and location of the particular project proposal.

MM-AIR-2 **Construction Equipment.** For off-road equipment with engines rated at 75 horsepower or greater, no construction equipment shall be used that is less than Tier 3 at the commencement of construction (2017). An exemption from these requirements may be granted by the City of Montclair in the event that the applicant documents that (1) equipment with the required tier is not reasonably available (e.g., reasonability factors to be considered include those available within City of Montclair within the scheduled construction period), and (2) corresponding reductions in criteria air pollutant emissions are achieved from other construction equipment.

MM-AIR-3 **Health Risk and Land Use Compatibility.** All developments under the Proposed Amendment that include sensitive receptors, such as residential units, that would be located within 500 feet of the rail line shall undergo, prior to project approval, a screening-level health risk analysis to determine if cancer risk would exceed the applicable SCAQMD threshold. The latest OEHHA guidelines shall be used for at the time of analysis. If the threshold would be exceeded at the site of the subsequent project, appropriate mitigation shall be implemented to reduce exposure and health risk to less than significant levels. This may include, but would not be limited to, requiring an engineer certified by the American Society of Heating, Refrigeration and Air-Conditioning Engineers to design the

ventilation systems of sensitive receptors to incorporate a Minimum Efficiency Reporting Value (MERV) filter with a rating high enough to minimize indoor diesel exposure by creating positive static pressure. Additionally, the project sponsor shall provide a plan to the City that would ensure ongoing maintenance of ventilation and filtration systems and shall ensure the disclosure to buyers and/or renters regarding the findings of the analysis and inform occupants as to proper use of any installed air filtration system.

3.2.7 Significance After Mitigation

Impact criteria a), b), c), and d) resulted in significant impacts due to construction emissions exceeding the SCAQMD significance threshold for VOC and NO_x emissions and operational emissions exceeding the SCAQMD emission based thresholds for NO_x, PM_{10}, and $PM_{2.5}$ emissions. Therefore, the Proposed Amendment was determined to conflict with the 2012 AQMP because the Proposed Amendment would increase the frequency or severity of existing air quality violations within the region. As provided in the 2006 EIR, mitigation measure **MM-AIR-1** was included which would help reduce equipment exhaust and fugitive dust emissions during construction activities. Mitigation measure **MM-AIR-2** requires that all construction diesel equipment greater than 75 hp meet Tier 3 engine standards at a minimum, in order to reduce NO_x emissions generated by construction equipment. Upon implementation of mitigation measures **MM-AIR-1** and **MM-AIR-2**, however, impacts would remain significant and unavoidable because construction VOC and NO_x emissions substantially exceed the SCAQMD emission based thresholds. No additional feasible mitigation is available to reduce anticipated mobile emissions during project operations; therefore, impacts are considered a **new significant and unavoidable impact** during operation. Additionally, because the Proposed Amendment could expose sensitive receptors to emissions of TACs from the existing rail line, mitigation measure **MM-AIR-3** requires that new development evaluate the potential health risk exposure due to these emissions and install MERV filters as necessary. Finally, the incorporation of mitigation measure **MM-AQ-5** from the 2006 NMDSP EIR will require future projects to comply with AQMD Rule 402, which will ensure less than significant odor impacts from future commercial operations.

3.2.8 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

17 CCR 93000–93001. Substances Identified as Toxic Air Contaminants, as amended.

CARB (California Air Resources Board). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000. http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf.

CARB. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005. http://www.arb.ca.gov/ch/landuse.htm.

CARB. 2016a. "Glossary of Air Pollutant Terms". Accessed October 12, 2016. http://www.arb.ca.gov/html/gloss.htm.

CARB. 2016b. "Ambient Air Quality Standards." May 4, 2016. Accessed at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CARB. 2016c. "Area Designation Maps/State and National." Last updated May 5, 2016. http://www.arb.ca.gov/desig/adm/adm.htm.

CARB. 2016d. "iADAM Air Quality Data Statistics." Accessed October 12, 2016. http://arb.ca.gov/adam.

Caltrans (California Department of Transportation). 1997. *Transportation Project-Level Carbon Monoxide Protocol*. Appendix B, Table B.2. Prepared by the Institute of Transportation Studies, University of California, Davis. Revised December 1997.

Caltrans. 1998a. CALINE4 - A Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways. Version 1.32. Written by Sonoma Technology, Inc. Petaluma, California. Sponsored by the University of California, Davis Institute of Transportation Studies and Caltrans. http://www.dot.ca.gov/hq/InfoSvcs/EngApps/.

Caltrans. 1998b. *User's Guide for CL4: A User-Friendly Interface for the Caline4 Model for Transportation Project Impact Assessments*. User's Guide STI-997480-1814-UG. June 1998. http://www.dot.ca.gov/hq/env/air/documents/CL4Guide.pdf.

City of Montclair. 1999. City of Montclair General Plan.

EPA (U.S. Environmental Protection Agency). 2016a. "Criteria Air Pollutants" Last updated October 5, 2016. https://www.epa.gov/criteria-air-pollutants.

EPA. 2016b. "Region 9: Air Quality Analysis, Air Quality Maps." Last updated April 27, 2016. http://www.epa.gov/region9/air/maps/.

EPA. 2016c. "AirData: Access to Air Pollution Data." Last updated September 14, 2016. https://www.epa.gov/outdoor-air-quality-data/monitor-values-report.

SCAQMD (South Coast Air Quality Management District). 1993. *CEQA Air Quality Handbook*.

SCAQMD. 2003. *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution.* August 2003. http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf?sfvrsn=2

SCAQMD. 2008. *Final Localized Significance Threshold Methodology*. Revised July 2008.

SCAQMD. 2013. *Final 2012 Air Quality Management Plan*.

SCAQMD. 2014. *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*. Website last update in 2014. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2.

SCAQMD. 2015a. *SCAQMD Air Quality Significance Thresholds*. March 2015. http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2.

SCAQMD. 2015b. Future CO Concentrations. http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

SCAQMD. 2016. *Draft 2016 Air Quality Management Plan.*

Southern California Association of Governments (SCAG). 2012. 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy.

SCAG. 2016. 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy.

Stantec Consulting Services Inc (Stantec). 2016. North Montclair Downtown Specific Plan Amendment Project Traffic Study.

Western Regional Climate Center (WRCC). 2016. Pomona Fairplex (047050), Monthly Climate Summary. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7050. Accessed October 12, 2016.

INTENTIONALLY LEFT BLANK

3.3 BIOLOGICAL RESOURCES

This section describes the existing biological resources on the proposed North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) site and in the Proposed Amendment's general vicinity. The October 2016 Initial Study (Appendix A) for the Proposed Amendment concluded that there were no new impacts/no impacts: for riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, these issues are not included as part of this environmental impact report (EIR). As such, analysis provided in this section focuses on regulatory requirements and potential impacts related to implementation of the Proposed Amendment as it relates to: species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; and federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

3.3.1 Existing Conditions

Habitat

The Proposed Amendment area is largely devoid of natural vegetation, and is dominated by pavement and existing development. This is consistent with existing conditions that show that the area is developed with commercial structures, residences and surface parking lots. The entire area is almost entirely covered with impervious surfaces, with the exception of four vacant dirt lots that are highly disturbed, previously graded and support minimal amounts of low-growing vegetation. Although some sensitive species are suspected to occur in the region, the Proposed Amendment area has limited suitable habitat area.

The planning area has been developed for approximately 40 years and is located within a developed, urbanized area. The only waterway in the area is the San Antonio Wash, a maintained concrete flood control channel. The San Antonio Channel runs through the planning area but it is channelized and would not be expected to support substantial fish populations. No habitat appropriate for resident or migratory fish is located in the plan area (USFWS 2016). Thus, habitat for resident or migratory wildlife species is limited on-site due mainly to the developed nature of the area.

Sensitive Species

The potential for sensitive species is uniformly low across the Proposed Amendment area. The area is located in the center third of the United States Geological Survey (USGS) Ontario quadrangle,[1] where several sensitive species have historically been sighted. An electronic database review of this area was conducted in the California Natural Diversity Database (CNDDB) to generate a project vicinity species occurrence report (see Appendix C, California Natural Diversity Database Occurrence Report). This report includes a list and description of any candidate, sensitive, or special-status wildlife or plant species that has been historically sighted on, or within a five-mile radius of, the Proposed Amendment area. According to the CNDDB report, several sensitive species have historically been sighted in areas throughout the Ontario quadrangle; however, they have not been recently reported on-site.

Sensitive Wildlife Species

The CNDDB report found that the following sensitive wildlife species have the potential to occur on or near the Proposed Amendment area:

- Swainson's hawk — *Buteo swainsoni*
- Burrowing Owl — *Athene cunicularia*
- Coastal California Gnatcatcher — *Polioptila californica californica*
- Western Yellow bat — *Lasiurus xanthinus*
- Pallid bat — *Antrozous pallidus*
- Western mastiff bat — *Eumops perotis californicus*
- Big free-tailed bat — *Nyctinomops macrotis*
- Northwestern San Diego pocket mouse — *Chaetodipus fallax fallax*
- San Diego desert woodrat — *Neotoma lepida intermedia*
- Coast horned lizard — *Phrynosoma blainvillii*
- Two-striped gartersnake — *Thamnophis hammondii*

[1] Quadrangles are areas established by the United States Geological Survey as a way of categorizing and dividing topographical maps. Quadrangles cover an area measuring 7.5 minutes of latitude and 7.5 minutes of longitude. The Proposed Amendment is approximately located in the center third of the Ontario quadrangle.

Sensitive Plant Species

The CNDDB report found that the following sensitive plant species have the potential to occur on or near the Proposed Amendment area:

- White rabbit-tobacco — *Pseudonagphalium leucocephalum*
- San Bernardino aster — *Symphyotrichum defoliatum*
- Rigid fringepod — *Thysanocarpus rigidus*
- Salt Spring checkerbloom — *Sidalcea neomexicana*
- Slender-horned spineflower — *Dodecahema leptoceras*
- Prostrate vernal pool navarretia — *Navarretia prostrata*
- Mesa horkelia — *Horkelia cuneata* var. *puberula*
- California saw-grass — *Cladium californicum*

Wildlife Corridors

Wildlife corridors are limited in the Proposed Amendment area due the lack of intact cover, waterways, and the relatively developed nature of the Proposed Amendment area. Furthermore, the potential for wildlife nursery sites is limited due to the lack of intact natural habitat on-site. Therefore, development of the area would not interfere substantially with movement or nesting/breeding of wildlife species. There are no running waters within the Proposed Amendment area, and therefore, future development under the Proposed Amendment would have no potential to affect the movement of migratory fish. Additionally, as stated in the City's General Plan, wildlife populations no longer exist in the City due to the elimination of habitat and the current urban setting. As the City is not expected to support large wildlife populations and does not contain substantial wildlife habitat, the Proposed Amendment area is not part of a wildlife corridor.

Habitat Conservation Plans

The City's General Plan does not designate any areas of the City as being within a habitat conservation plan (City of Montclair 1999). Furthermore, the City is not within any of the regional conservation plans designated by the state (CDFW 2016). As such, implementation of the Proposed Amendment would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat plan.

3.3.2 Regulatory Setting

Any project in the Proposed Amendment area would be required to comply with applicable federal, state, and local regulations that establish policies to protect biological resources. Applicable regulations are summarized in the following paragraphs.

Federal

Endangered Species Act

The federal Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.), provides for listing of endangered and threatened species of plants and animals and designation of critical habitat for listed animal species. The ESA also prohibits all persons subject to U.S. jurisdiction from "taking" endangered species, which includes any harm or harassment. Section 7 of the ESA requires that federal agencies, prior to project approval, consult the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service to ensure adequate protection of listed species that may be affected by the project.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The list of bird species covered by the MBTA is extensive and is detailed in 50 Code of Federal Regulations (CFR) 10.13. The regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species, including any part, egg, or nest of such a bird (50 CFR 10.12). Migratory birds are not necessarily federally listed endangered or threatened birds under the ESA. The MBTA, which is enforced by the USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11).

Clean Water Act

The federal Water Pollution Control Act (also known as the Clean Water Act) (33 U.S.C. 1251 et seq.), as amended by the Water Quality Act of 1987 (PL 1000-4), is the major federal legislation governing water quality. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges into waters of the United States are regulated under Section 404. Waters of the United States include (1) all navigable waters (including all waters subject to the ebb and flow of tides); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including

intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above. In California, the State Water Resources Control Board and the nine Regional Water Quality Control Boards are responsible for implementing the Clean Water Act. Important applicable sections of the Clean Water Act are discussed below:

1. **Section 303** requires states to develop water quality standards for inland surface and ocean waters and submit to the U.S. Environmental Protection Agency for approval. Under Section 303(d), the state is required to list waters that do not meet water quality standards and to develop action plans, called total maximum daily loads, to improve water quality.
2. **Section 304** provides for water quality standards, criteria, and guidelines.
3. **Section 401** requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Clean Water Act. Certification is provided by the respective Regional Water Quality Control Board.
4. **Section 402** establishes the National Pollutant Discharge Elimination System, a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. The National Pollutant Discharge Elimination System program is administered by the Regional Water Quality Control Board. Conformance with Section 402 is typically addressed in conjunction with water quality certification under Section 401.
5. **Section 404** provides for issuance of dredge/fill permits by the U.S. Army Corps of Engineers (ACOE). Permits typically include conditions to minimize impacts on water quality. Common conditions include ACOE review and approval of sediment quality analysis before dredging, a detailed pre- and post-construction monitoring plan that includes disposal site monitoring, and required compensation for loss of waters of the United States.

U.S. Army Corps of Engineers

The ACOE has primary federal responsibility for administering regulations that concern waters and wetlands in the project area. In this regard, the ACOE acts under two statutory authorities, the Rivers and Harbors Act (33 U.S.C., Sections 9 and 10), which governs specified activities in navigable waters, and the Clean Water Act (Section 404), which governs specified activities in waters of the United States, including wetlands and special aquatic sites. Wetlands and non-wetland waters (e.g., rivers, streams, and natural ponds) are a subset of waters of the United States and receive protection under Section 404 of the Clean Water Act. The ACOE has primary federal responsibility for administering regulations that concern waters and wetlands in the

project area under statutory authority of the Clean Water Act (Section 404). In addition, the regulations and policies of various federal agencies mandate that the filling of wetlands be avoided to the extent feasible. The ACOE requires obtaining a permit if a project proposes placing structures within navigable waters and/or alteration of waters of the United States.

State

California Endangered Species Act

Similar to the federal ESA, the California ESA of 1970 provides protection to species considered threatened or endangered by the State of California (California Fish and Game Code, Section 2050 et seq.). The California ESA recognizes the importance of threatened and endangered fish, wildlife, and plant species and their habitats, and prohibits the taking of any endangered, threatened, or rare plant and/or animal species unless specifically permitted for education or management purposes.

California Fish and Game Code

The California Fish and Game Code regulates the handling and management of the state's fish and wildlife. Most of the code is administered or enforced by the California Department of Fish and Wildlife (CDFW; before January 1, 2013, California Department of Fish and Game (CDFG)). One section of the code generally applies to public infrastructure projects:

- **Section 1602** regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFW has jurisdiction over riparian habitats associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources.

Local

Tree Policy

The City has an adopted Tree Policy that provides guidelines for the protection and preservation of trees planted within the City's rights-of-way and at City facilities. The Tree Policy contains a provision that prohibits private property owners from performing any planting, pruning, removing, and spraying of a City tree. The Tree Policy also contains the Oak Tree Preservation Guidelines, which prohibits the removal of oak trees within the City on public or private property without obtaining written approval from the City. Under the City's Tree Policy, the City's street trees may be considered for removal under the following conditions: if a tree is diseased or infested, if a tree is causing a liability, if a tree is damaging hardscape such as sidewalks or driveways, if a tree is causing serious damage to the structural integrity of a building, if the tree

must be removed to allow for construction, and/or if a tree is causing damage to a sewer. In the event that trees within the City right-of-way would be removed for the purposes of development allowed under the Proposed Amendment, the applicant would be required to obtain an encroachment and construction permit from the City's Public Works Department. Conversely, in the event that trees would be planted within the city's right-of-way, they would be required to conform with the guidelines provided in the City's Tree Policy, which include specifications for tree species, sizes, spacing, quantity, and tree guards (City of Montclair 2004).

General Plan Community Design Implementing Policies

The City's General Plan also contains several policies in its Community Design Implementing Policies relative to trees (City of Montclair, 1999):

CE-1.1.15. Existing specimens and stands of trees and other plant materials of outstanding scenic value should be protected.

CD-1.1.16. Older mature trees provide a sense of age and permanence. Every effort should be made to retain these trees, even in new development and in instances where the tree can be saved in the event of a disorder. As a policy, the City should adopt and maintain a Master Plan of Street Trees that includes a minimum maintenance and replacement program.

2006 North Montclair Downtown Specific Plan

The North Montclair Downtown Specific Plan that was adopted by the City on May 15, 2006 (2006 plan) found that the implementation of the 2006 plan would not affect any biological resource including sensitive species, wildlife or plant habitat, riparian habitat, movement of any native resident or migratory fish or wildlife species, wildlife corridors, or local policies or ordinances protecting biological resources. The lack of suitable habitat within the planning area and the relatively developed nature of the planning area made impacts to biological resources less than significant (City of Montclair, 2006).

3.3.3 Thresholds of Significance

The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). It was concluded in the Initial Study, that there were no new impacts/no impacts for the following significance criteria. Therefore, the following significance criteria are not included as part of this EIR.

B. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. No New Impact/No Impact

D. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. No New Impact/No Impact

E. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. No New Impact/No Impact

F. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No New Impact/No Impact

The following significance criteria, included for analysis in this EIR, are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and will be used to determine the significance of potential impacts to biological resources. Impacts to biological resources would be significant if the proposed project would:

A. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

C. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

3.3.4 Impacts Analysis

A. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less than Significant Impact with New Mitigation Incorporated. The 2006 NMDSP EIR found that there were no sensitive species in evidence on or adjacent to the planning area that would be impacted by future development under the 2006 specific plan. As discussed in Section 3.3.1, Existing Conditions, the CNDDB project vicinity species occurrence report (see Appendix C) that was generated for the Proposed Amendment area found several sensitive species that has been historically sighted on, or within a five-mile radius of, the Proposed Amendment area including the following:

Sensitive Wildlife Species

- Swainson's Hawk *Buteo swainsoni*
- Burrowing Owl *Athene cunicularia*

- Coastal California Gnatcatcher *Polioptila californica californica*
- Western Yellow Bat *Lasiurus xanthinus*
- Pallid bat *Antrozous pallidus*
- Western mastiff bat *Eumops perotis californicus*
- Big free-tailed bat *Nyctinomops macrotis*
- Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*
- San Diego desert woodrat *Neotoma lepida intermedia*
- Coast horned lizard *Phrynosoma blainvillii*
- Two-striped gartersnake *Thamnophis hammondii*

Sensitive Plant Species

- White rabbit-tobacco *Pseudonagphalium leucocephalum*
- San Bernardino aster *Symphyotrichum defoliatum*
- Rigid fringepod *Thysanocarpus rigidus*
- Salt Spring checkerbloom *Sidalcea neomexicana*
- Slender-horned spineflower *Dodecahema leptoceras*
- Prostrate vernal pool navarretia *Navarretia prostrata*
- Mesa horkelia *Horkelia cuneate* var. *puberula*
- California saw-grass *Cladium californicum*

While sensitive wildlife and plant species are known to occur on or within the general vicinity of the Proposed Amendment area, the area is developed with commercial structures, residences and surface parking lots. Planters with ornamental trees, shrubs, and grasses are scattered sparsely throughout the surface parking lots. The planning area is almost entirely covered with impervious surfaces with the exception of the planters, street trees and four vacant dirt lots. The two largest vacant properties are located at the southeastern and southwestern corners of Arrow Highway and Fremont Avenue. These vacant areas are highly disturbed, and support minimal amounts of low growing vegetation. The vegetation on the vacant lots are largely seasonal weeds that have been cut down fairly routinely due to aesthetic and fire concerns. Therefore, while the planning area contains some vegetation and small amounts of unpaved areas, the vegetation is ornamental or disturbed in nature, and the Proposed Amendment area is entirely

surrounded by urban development. Nonetheless, there is some potential for occurrence of burrowing owl and nesting birds.

However, based on the disturbed and developed condition of the NMDSP area and the relative lack of suitable habitat, the potential for sensitive species to occur in the planning area is anticipated to be low, except for burrowing owl. Nesting birds include common species that are protected under the MBTA and could nest in almost any vegetation available and some common species also nest on the ground, such as killdeer (*Charadrius vociferus*).

Implementation of the Proposed Amendment is not expected to result in the removal of sensitive species except for a potential for the occurrence of burrowing owl and nesting birds if project implementation occurs during the nesting season. Impacts to either the burrowing owl or nesting birds are considered a significant impact. Although highly unlikely, there is the possibility that burrowing owl could occur within the undeveloped areas within the Proposed Amendment area, and therefore, pre-construction surveys for burrowing owl should be conducted prior to construction activities as per mitigation measure **MM-BIO-1.** As described in mitigation measure **MM-BIO-1**, a pre-construction survey will be required prior to the onset of ground disturbance activity. Although highly unlikely, there is the possibility that the existing ornamental landscaping or areas of undeveloped land may provide nesting for some species; therefore, in order to comply with the MBTA, preconstruction nesting bird surveys should be conducted prior to any construction activities, as directed in mitigation measure **MM-BIO-2**. With the implementation of **MM-BIO-1** and **MM-BIO-2**, impacts to sensitive species or species protected under the MBTA are considered **less than significant with new mitigation incorporated**.

C. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant Impact with New Mitigation Incorporated. The 2006 Plan EIR found that there were no wetlands in evidence on, or adjacent to, the planning area that would be impacted by future development under the 2006 specific plan.

While the majority of the Proposed Amendment area has been developed for approximately 40 years, review of aerial photography indicates that the San Antonio Creek Channel is present within the Proposed Amendment area and other jurisdictional resources may also be present. Because this is a large area and the delineation of wetlands without specific

project design is not feasible, it is assumed that each individual project will conduct the site-specific studies that are required to determine if wetland resources are present at the site. Impacts to this creek or other features that are under the jurisdiction of the wetland permitting agencies are considered a significant impact. If federally protected wetlands are discovered in the Proposed Amendment area, implementation of the Proposed Amendment may cause significant impacts, and mitigation in the form of buffers or other measures to protect the wetlands would be required.

In addition, the San Antonio Creek Channel runs through a portion of the planning area, but it is a former natural channel that is now a concrete-lined drainage. Two water storage basins associated with the San Antonio Wash are located west and north of the NMDSP area. One water storage basin is located approximately 100 feet north of the northern edge of the NMDSP area and is separated from the area by the Pacific Electric Inland Empire Trail. The other water storage basin is located immediately adjacent to the western edge of the proposed new NMDSP boundary area. These basins are mapped as freshwater ponds by the U.S. Fish and Wildlife Service National Wetland Inventory. They are also mapped as being diked/impounded or excavated; indicating that the ponds are substantially modified and/or created by artificial means (USFWS 2016). Therefore, the water course and the water storage basins are modified in nature and surrounding by urban development. Despite this, the Proposed Amendment does include the expansion of the NMDSP westerly boundary to the west directly adjacent to the basin areas that could contain federally protected wetland areas. While the majority of the Proposed Amendment area is separated from the water storage basins and from the San Antonio Channel by roadways, residential and commercial development, there is a portion of the area that is located adjacent to the channel and the basins. Thus, there is the potential for indirect or direct impacts to occur on any wetlands located within the basins, which will be addressed on a project-specific basis.

Additionally, despite the sandy nature of the soils in the Proposed Amendment area, the area does include four vacant areas that could contain federally protected wetland areas. Thus, there is the potential for direct impacts to occur on any wetlands located within these areas.

In order to avoid direct or indirect impacts to federally protected wetlands, new mitigation is required. With the implementation of **MM-BIO-3**, impacts to federally protected wetlands are considered **less than significant with new mitigation incorporated**.

3.3.5 Cumulative Impacts

Cumulative impacts to biological resources consider whether impacts of the Proposed Amendment together with other related past, present, and future projects, when taken as a whole,

substantially affect an ecosystem or one of its members beyond the Proposed Amendment area limits and on a regional scale. As discussed above, the implementation of the Proposed Amendment is not expected to result in the removal of sensitive species and is not expected to directly impact sensitive species, since none are expected to be present in the planning area. Nonetheless, a search of the CNDDB identified eleven special-status wildlife species and eight special-status plant species that have been observed within the Proposed Amendment area. With the implementation of new mitigation measures outlined in Section 3.3.6 below, impacts to sensitive species are considered to be less than significant. In addition, implementation of the Proposed Amendment may have direct or indirect impacts to federally protected wetlands; however with implementation of the new mitigation measure outlined in Section 3.3.6, impacts to wetlands are considered less than significant. It is anticipated that biological resources that are potentially affected by related projects would also be subject to the same requirements of CEQA as the Proposed Amendment and any impacts would be mitigated, as applicable.

Although the surrounding area is also mostly developed and within an urbanized setting, projects surrounding the project area could also provide habitat for the same nesting bird species, such as within the ornamental landscaped and vacant areas. Similarly, there may be jurisdictional resources that are federally protected wetlands within surrounding areas. However, it is anticipated that species or federally protected wetlands that are potentially affected by related projects would also be subject to the same requirements of CEQA (e.g., compliance with the MBTA and Clean Water Act) as future projects under the Proposed Amendment.

These determinations would be made on a case-by-case basis, and the effects of the cumulative development on sensitive species or federally protected wetlands would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, the Proposed Amendment would not contribute to any potential cumulative impacts, and cumulative impacts to sensitive species or federally protected wetlands after mitigation is implemented are considered less than significant. Impacts are considered **less than significant with new mitigation incorporated**.

3.3.6 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. New mitigation measures for the Proposed Amendment are described below:

MM-BIO-1 Prior to initiating construction activities in any areas of the North Montclair Downton Specific Plan Amendment area with suitable nesting habitat for burrowing owl and, if grading or construction occurs during the breeding season for burrowing owl (January 15 through July 31), the project developer(s) within

the City's jurisdiction, as appropriate, shall retain a qualified biologist, who shall be approved by the City, to conduct a pre-construction survey within all suitable habitat prior to any grading activities. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the City for review and approval. If an active nest is detected during the breeding season of January 15 to July 31, construction setbacks of 300 feet from occupied nests or burrows shall be implemented until the young are completely independent of the nest. If an active burrow or nest is found outside of the breeding season, or after an active nest is determined to no longer be active by a qualified biologist, the burrowing owl would be passively relocated according to the guidelines provided by California Department of Fish and Game (CDFG) (1995) and in coordination with CDFG. A bio-monitor shall be present on-site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City detailing observations made during field inspections. The bio-monitor shall also notify the City immediately if clearing is done outside of the permitted project footprint.

MM-BIO-2 If grading or construction occurs in any areas of the North Montclair Downton Specific Plan Amendment area during the breeding season for migratory birds (January 15 through August 31), the project developer(s) shall retain a qualified biologist, who shall be approved by the City, to conduct a pre-construction survey for nesting migratory bird. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the City for review and approval. If active nests are present, the City will consult with United States Fish and Wildlife Service (USFWS) and CDFG to determine the appropriate construction setback distance. Construction setbacks of 300 feet shall be implemented until the young are completely independent of the nest or relocated with the approval of the USFWS and CDFG. The bio-monitor shall be present on-site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring

letter report to the City detailing observations made during field inspections. The bio-monitor shall also notify the City immediately if clearing is done outside of the permitted project footprint.

MM-BIO-3 Prior to construction in any areas of the North Montclair Downton Specific Plan Amendment area with the potential for federally protected wetlands, the project developer(s) within the City's jurisdiction, as appropriate, shall retain a qualified biologist, who shall be approved by the City, to conduct a jurisdictional delineation of the project area prior to any grading activities. The jurisdictional delineation must be conducted prior to the start of construction, the results of which must be submitted to the City for review and approval. If any federally protected wetlands are detected on or near the project site and the project design will impact these wetlands, the project applicant shall mitigate for permanent or temporary impacts to jurisdictional waters at the following ratios: 1:1 for all permanent impacts to non-wetland waters of the U.S.; 4:1 for impacts to wetlands; and 1:1 for all temporary impacts.

Prior to the commencement of grading activities for any projects that impact USACE, CDFG or jurisdictional water, the developer(s) shall prepare and initiate implementation of a restoration plan detailing the measures needed to achieve the necessary mitigation. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, and monitoring and maintenance practices; and shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or the start of the growing season. The City shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the City in consultation with the regulatory agencies.

3.3.7 Significance After Mitigation

Implementation of the Proposed Amendment is not expected to result in the removal of sensitive species and is not expected to directly impact sensitive species, since none are expected to be present in the planning area. Nonetheless, this impact is considered to be a potentially significant impact because the CNDDB database review has identified a number of sensitive plant and wildlife species that have the potential to occur on or within the general vicinity of the Proposed Amendment area. As such, impacts are considered more impactful than what was studied in the 2006 EIR and mitigation measures **MM-BIO-1** and **MM-BIO-2** shall be required of any new development allowed under the Proposed Amendment. With the implementation of mitigation measures **MM-BIO-1** and **MM-BIO-2**, impacts to sensitive species are considered to be less than significant. Mitigation measure **MM-BIO-1** will require avoidance of burrowing owl if observed during a pre-construction survey. Mitigation measure **MM-BIO-2** will require that nesting bird surveys be conducted prior to construction so that impacts to nests are avoided until nesting is completed.

Implementation of the Proposed Amendment may have direct or indirect impacts to federal or state protected wetlands or waters. As such, impacts to wetlands are considered more impactful than what was studied in the 2006 EIR and mitigation measure **MM-BIO-3** will be required of any new development allowed under the Proposed Amendment. With the implementation of mitigation measure **MM-BIO-3**, impacts to federally protected wetlands are considered to be less than significant. Mitigation measure **MM-BIO-3** requires permits to be obtained for impacts that are anticipated to occur to federal or state protected wetlands or waters. The permits will require no net loss of wetland and will require that mitigation is provided.

Cumulative impacts are considered **less than significant with new mitigation incorporated**. With the implementation of new mitigation measures, outlined in Section 3.3.6 above, impacts to sensitive species are considered to be less than significant. In addition, implementation of the Proposed Amendment may have direct or indirect impacts to federally protected wetlands; however, with the implementation of the new mitigation measure (**MM-BIO-3**) outlined in Section 3.3.6, impacts to wetlands are considered less than significant. It is anticipated that biological resources that are potentially affected by related projects would also be subject to the same requirements of CEQA as future projects under the Proposed Amendment and any impacts would be mitigated, as applicable. Although the surrounding area is also mostly developed and within an urbanized setting, projects surrounding the planning area could also provide habitat for the same nesting bird species, such as within the ornamental landscaped and vacant areas. Similarly, there may be jurisdictional resources that are federally protected wetlands within surrounding areas. However, it is anticipated that species or federally project wetlands that are potentially affected by related projects would also be subject to the same requirements of CEQA (e.g., compliance with the MBTA and Clean Water Act) as the future projects under the

Proposed Amendment. These determinations would be made on a case-by-case basis, and the effects of the cumulative development on sensitive species or federally protected wetlands would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, the Proposed Amendment would not contribute to any potential cumulative impacts, and cumulative impacts to sensitive species or federally protected wetlands after mitigation is implemented are considered less than significant.

3.3.8 References

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed October 2016. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

City of Montclair. 2004. *City of Montclair Tree Policy*. Approved by the City Council on January 5, 2004. Accessed October, 2016. www.cityofmontclair.org/civica/filebank/blobdload.asp?BlobID=2428.

City of Montclair. 2006. *North Montclair Downtown Specific Plan*. Adopted May 2006.

CDFW (California Department of Fish and Wildlife). 2014. *California Regional Conservation Plans* [map]. March 2014. Accessed November 3, 2014. https://www.wildlife.ca.gov/Conservation/Planning/NCCP/Plans.

Montclair Municipal Code. Section 11.28.100 – Landscaping requirements.

USFWS (United States Fish and Wildlife Service). 2016. National Wetlands Inventory, *Wetlands Mapper*, Search by Address. Accessed October 3, 2016. https://www.fws.gov/wetlands/data/mapper.HTML

3.4 CULTURAL RESOURCES

This section describes existing cultural resources conditions on the proposed North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) site and within the Proposed Amendment's general vicinity. The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following issues as they relate to cultural resources: archaeological resources; paleontological resources; human remains, including those interred outside formal cemeteries; and tribal cultural resources. It was concluded in the Initial Study, that there were less than significant impacts with new mitigation required for these issues. Therefore, these issues are included as part of this EIR, along with an analysis of potential impacts related to implementation of the Proposed Amendment as it relates to historical resources.

3.4.1 Existing Conditions

California Historical Resources Information System (CHRIS) Records Search

Staff of the South Central Coastal Information Center (SCCIC) conducted a records search for the Proposed Amendment area and a one-quarter mile radius surrounding the Proposed Amendment area. Thirteen previous cultural resource studies have been conducted within one quarter mile of the Proposed Amendment area (Table 3.4-1), only one of which (listed in bold) covers a portion of the Proposed Amendment area.

Table 3.4-1
Previous Cultural Resource Studies within
One-Quarter Mile of the Proposed Amendment Area

Report No.	Year	Title	Author
LA-04426	1979	Exhibit F Historic Property Survey Arrow Highway-indian Hill Boulevard to San Bernardino County Line	L.A. Road Department
LA-10641	2010	Preliminary Historical/Archaeological Resources Study, San Bernardino Line Positive Train Control Project, Southern California Regional Rail Authority, Counties of Los Angeles and San Bernardino	Tang, Bai "Tom"
SB-02851	1993	A Cultural Resources Survey for the Chino Basin Groundwater Storage Program, San Bernardino County, CA	Landis, Daniel G.
SB-03559	2000	Cultural Resource Assessment for PBW Facility CM 236-01, County of San Bernardino, CA	Lapin, Phillipe
SB-04096	2004	Cultural Resource Assessment: Cingular Wireless Facility No. SB 279-01, Upland, San Bernardino County, CA	Harper, Caprice D.
SB-04098	2003	Cultural Records Search Results and Site Visit for Sprint Telecommunications Facility LA35XC935H (Tree Top), 9185 Monte Vista Ave, Montclair, San Bernardino County, CA	Dice, Michael
SB-04197	2001	Verizon Site: Claremont	Budinger, Fred E.

Table 3.4-1
Previous Cultural Resource Studies within
One-Quarter Mile of the Proposed Amendment Area

Report No.	Year	Title	Author
SB-04503	2004	An Archaeological Resources Evaluation & Paleontological Records Search for the College Park Project, Monte Vista Ave & West Arrow Route, City of Upland, San Bernardino County, CA.	Dice, Michael
SB-05229	2006	Cingular Montclair Plaza LA-0700C.	Billat, Lorna
SB-05726	2006	Cultural Resource Records Search Results and Site Visit for T-Mobile Telecommunications Facility Candidate IE04920C (Laird Properties), 4701 Arrow Highway, Montclair, San Bernardino County, California.	Bonner, Wayne H. and Marnie Aislin-Kay
SB-05876	2007	Identification and Evaluation of Historic Properties: San Antonio Channel (West Edison) Recycled Water Pipeline Project Addiction in the Cities of Ontario and Montclair, San Bernardino County, California.	Bodmer, Clarence, Daniel Ballester, and Melissa Hernandez
SB-06787	2008	Historical/Archaeological Resources Survey Report: Chino Groundwater Basin Dry-Year Yield Program Expansion, Los Angeles, Riverside and San Bernardino Counties, California.	Tang, Bai "Tom", Deirdre Encarnacion, and Daniel Ballester
SB-07084	**2010**	**Preliminary Historical/Archaeological Resources Study, San Bernardino Line Positive Train Control Project, Southern California Regional Rail Authority, Counties of Los Angeles and San Bernardino.**	**Tang, Bai "Tom"**

Four previously recorded cultural resources are located within one-quarter mile of the Proposed Amendment area (Table 3.4-2), including one historic resource (P-36-024507) located within the Proposed Amendment area (listed in bold). The previously recorded resource within the Proposed Amendment area is a hipped roof light industrial building with an exposed board-poured concrete foundation and exterior cladding of corrugated metal. The building was formerly used as a packing house, and is currently used by the Inland Pacific Ballet.

Table 3.4-2
Previously Recorded Cultural Resources within
One-Quarter Mile of the Proposed Amendment Area

Trinomial	Primary No.	Age	Description	In/Out of APE
CA-SBR-007794H	P-36-007794	Historic	Historical trash and walls	Out
—	**P-36-024507**	**Historic**	**Hipped roof, industrial light building; Inland Pacific Ballet**	**In**
—	P-19-180776	Historic	Historic single family homes; The Russian Village	Out
—	P-19-186058	Historic	Buildings and structures associated with the Claremont Colleges	Out

Historic Aerial Photograph and Map Review

The following years of aerial photographs were reviewed in order to assess the potential for previously unevaluated historical resources within the Proposed Amendment area: 1938, 1948, 1959, 1964, 1965, 1966, 1972, 1978, 1979, 1980, 1994, 2002, 2003, 2005, 2009, 2010, and 2012.

Historical Overview

The first township established in the area of present-day Montclair was known as Marquette, and was founded by a man named Edward Fraser in the 1880s. Fraser began advertising weekend train excursions for $2 roundtrip with the hope of enticing buyers from Los Angeles. But land sales in the region wouldn't pick up until 1907 when land speculator Emil Firth purchased 1,000 acres and subdivided the land into 10-acre lots. He called the tract Monte Vista and offered the land for purchase. Firth also began the process of constructing reservoirs for irrigation and prepared the land for the cultivation of citrus orchards. (The Reeder Heritage Foundation 2010). Historic aerial photographs of the Proposed Amendment area from 1938 to 1948 show that the region was almost entirely agricultural, with a perfect grid pattern of roads already structured between the fields (NETR 2011). As advertised by Firth in a local newspaper: "Holt Avenue, lined with beautiful homes, and the main thoroughfare between Ontario and Pomona, is one block to the north. The land adjoins some of the best citrus orchards in the valley, such as the famed groves of the Crawford Brothers, with their large packing house and other well-known properties" (The Reeder Heritage Foundation 2010).

The first settlement within the tract became known as Narod, and soon Narod had its own dry goods store, hotel, citrus packing house, and church. George H. Reeder was the son of one of the first naval orange growers and lived his entire life at the Reeder grove on Holt Boulevard. The Reeders provided the local citrus packing houses with some of the best navel oranges. The entire region remained dedicated to citrus production until the industry was hit hard following World War II. As the story goes throughout much of southern California, the need for family housing following World War II resulted in a residential development boom that replaced most of the citrus orchards with single-family housing tracts (City of Montclair 2005). Historic aerial photographs of the Proposed Amendment area from 1959 show newly paved roads running throughout the area, with the San Bernardino Freeway (present day Interstate 10) in place, along with numerous residential developments on all sides (NETR 2011).

Incorporation of the City of Monte Vista was approved on April 25, 1956. The federal government refused to grant the new city its own post office because a town by the name of Monte Vista already existed in northern California. On April 8, 1958 residents fixed this issue by voting to change the town's name to Montclair, and just a few months later a post office was opened (City of Montclair 2005). Throughout the 1960s residential development began to occur in the southern portion of the plan area, but other portions remained largely agricultural/undeveloped (NETR 2011).

In the City's early years of inception, Montclair struggled to find a tax base to pay for services offered to its residents. An answer to these revenue concerns came in 1964 when land developers approached the City with a possible solution: a shopping center. The City ran with the idea, and building permits were issued in 1967. On August 3, 1968, approximately 15,000 people attended the Preview Ball for the opening of the new Montclair Plaza shopping mall, the first indoor shopping mall in San Bernardino County, boasting three major department stores (JC Penney, The Broadway, and May Company), 64 shops, and 5,000 parking spaces. In its first year of operation, the Mall increased the City's sales tax revenue by over 30% (City of Montclair 2005).

Prehistoric Overview

Numerous chronological sequences have been devised to aid in understanding cultural changes within southern California. Building on early studies and focusing on data synthesis, Wallace (1955, 1978) developed a prehistoric chronology for the southern California coastal region that is still widely used today and is applicable to near-coastal and many inland areas. Four periods are presented in Wallace's prehistoric sequence: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Although Wallace's (1955) synthesis initially lacked chronological precision due to a paucity of absolute dates (Moratto 1984), this situation has been alleviated by the availability of thousands of radiocarbon dates that have been obtained by southern California researchers in the last three decades (Byrd and Raab 2007:217). Several revisions have been made to Wallace's (1955) synthesis using radiocarbon dates and projectile point assemblages (e.g., Koerper and Drover 1983; Koerper et al. 2002; Mason and Peterson 1994).

Horizon I–Early Man (ca. 10,000–6,000 B.C.)

When Wallace defined the Horizon I (Early Man) period in the mid-1950s, there was little evidence of human presence on the southern California coast prior to 6000 B.C. Archaeological work in the intervening years has identified numerous pre-8000 B.C. sites, both on the mainland coast and the Channel Islands (e.g., Erlandson 1991; Johnson et al. 2002; Moratto 1984; Rick et al. 2001). The earliest accepted dates for occupation are from two of the northern Channel Islands, located off the coast of Santa Barbara. On San Miguel Island, Daisy Cave clearly establishes the presence of people in this area about 10,000 years ago (Erlandson 1991). On Santa Rosa Island, human remains have been dated from the Arlington Springs site to approximately 13,000 years ago (Johnson et al. 2002). Present-day Orange and San Diego counties contain several sites dating to 9,000 to 10,000 years ago (Byrd and Raab 2007; Macko 1998a; Mason and Peterson 1994; Sawyer and Koerper 2006). Known sites dating to the Early Man period are rare in western Riverside County. One exception is the Elsinore site (CA-RIV-2798-B), which has deposits dating as early as 6630 calibrated B.C. (Grenda 1997).

Recent data from Horizon I sites indicate that the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas (e.g., Jones et al. 2002) and on Pleistocene lakeshores in eastern San Diego County (see Moratto 1984). Although few Clovis-like or Folsom-like fluted points have been found in southern California (e.g., Dillon 2002; Erlandson et al. 1987), it is generally thought that the emphasis on hunting may have been greater during Horizon I than in later periods. Common elements in many sites from this period, for example, include leaf-shaped bifacial projectile points and knives, stemmed or shouldered projectile points, scrapers, engraving tools, and crescents (Wallace 1978). Subsistence patterns shifted around 6000 B.C. coincident with the gradual desiccation associated with the onset of the Altithermal climatic regime, a warm and dry period that lasted for about 3,000 years. After 6000 B.C., a greater emphasis was placed on plant foods and small animals.

Horizon II–Milling Stone (6000–3000 B.C.)

The Milling Stone Horizon of Wallace (1955, 1978) and Encinitas Tradition of Warren (1968) (6000–3000 B.C.) are characterized by subsistence strategies centered on collecting plant foods and small animals. Food procurement activities included hunting small and large terrestrial mammals, sea mammals, and birds; collecting shellfish and other shore species; near-shore fishing with barbs or gorges; the processing of yucca and agave; and the extensive use of seed and plant products (Kowta 1969). The importance of the seed processing is apparent in the dominance of stone grinding implements in contemporary archaeological assemblages, namely milling stones (metates and slabs) and handstones (manos and mullers). Milling stones occur in large numbers for the first time during this period, and are more numerous still near the end of this period. Recent research indicates that Milling Stone Horizon food procurement strategies varied in both time and space, reflecting divergent responses to variable coastal and inland environmental conditions (Byrd and Raab 2007).

Milling Stone Horizon sites are common in the southern California coastal region between Santa Barbara and San Diego, and at many inland locations, including the Prado Basin in western Riverside County and the Pauma Valley in northeastern San Diego County (e.g., Herring 1968; Langenwalter and Brock 1985; Sawyer and Brock 1999; Sutton 1993; True 1958). Wallace (1955, 1978) and Warren (1968) relied on several key coastal sites to characterize the Milling Stone period and Encinitas Tradition, respectively. These include the Oak Grove Complex in the Santa Barbara region, Little Sycamore in southwestern Ventura County, Topanga Canyon in the Santa Monica Mountains, and La Jolla in San Diego County. The well-known Irvine site (CA-ORA-64) has occupation levels dating between ca. 6000 and 4000 B.C. (Drover et al. 1983; Macko 1998b).

Stone chopping, scraping, and cutting tools made from locally available raw material are abundant in Milling Stone/Encinitas deposits. Less common are projectile points, which are typically large and leaf-shaped, and bone tools such as awls. Items made from shell, including

beads, pendants, and abalone dishes, are generally rare. Evidence of weaving or basketry is present at a few sites. Kowta (1969) attributes the presence of numerous scraper-planes in Milling Stone sites to the preparation of agave or yucca for food or fiber. The mortar and pestle, associated with pounding foods such as acorns, were first used during the Milling Stone Horizon (Wallace 1955, 1978; Warren 1968).

Cogged stones and discoidals are diagnostic Milling Stone period artifacts, and most specimens have been found within sites dating between 4000 and 1000 B.C. (Moratto 1984). The cogged stone is a ground stone object with gear-like teeth on its perimeter. Discoidals are similar to cogged stones, differing primarily in their lack of edge modification. Discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals are often purposefully buried, and are found mainly in sites along the coastal drainages from southern Ventura County southward, with a few specimens inland at Cajon Pass, and heavily in Orange County (Dixon 1968; Moratto 1984). These artifacts are often interpreted as ritual objects (Eberhart 1961; Dixon 1968), although alternative interpretations (such as gaming stones) have also been put forward (e.g., Moriarty and Broms 1971).

Characteristic mortuary practices of the Milling Stone period or Encinitas Tradition include extended and loosely flexed burials, some with red ochre, and few grave goods such as shell beads and milling stones interred beneath cobble or milling stone cairns. “Killed” milling stones, exhibiting holes, may occur in the cairns. Reburials are common in the Los Angeles County area, with north-oriented flexed burials common in Orange and San Diego counties (Wallace 1955, 1978; Warren 1968).

Koerper and Drover (1983) suggest that Milling Stone period sites represent evidence of migratory hunters and gatherers who used marine resources in the winter and inland resources for the remainder of the year. Subsequent research indicates greater sedentism than previously recognized. Evidence of wattle-and-daub structures and walls has been identified at several sites in the San Joaquin Hills and Newport Coast area (Mason et al. 1991, 1992, 1993; Koerper 1995; Strudwick 2005; Sawyer 2006), while numerous early house pits have been discovered on San Clemente Island (Byrd and Raab 2007). This architectural evidence and seasonality studies suggest semi-permanent residential base camps that were relocated seasonally (de Barros 1996; Koerper et al. 2002; Mason et al. 1997) or permanent villages from which a portion of the population left at certain times of the year to exploit available resources (Cottrell and Del Chario 1981).

Horizon III–Intermediate (3000 B.C.–A.D. 500)

Following the Milling Stone Horizon, Wallace’s Intermediate Horizon and Warren’s Campbell Tradition in Santa Barbara, Ventura, and parts of Los Angeles counties, date from approximately 3000 B.C. to A.D. 500 and are characterized by a shift toward a hunting and maritime

subsistence strategy, along with a wider use of plant foods. The Campbell Tradition (Warren 1968) incorporates David B. Rogers' (1929) Hunting Culture and related expressions along the Santa Barbara coast. In the San Diego region, the Encinitas Tradition (Warren 1968) and the La Jolla Culture (Moriarty 1966; Rogers 1939, 1945) persist with little change during this time.

During the Intermediate Horizon and Campbell Tradition, there was a pronounced trend toward greater adaptation to regional or local resources. For example, an increasing variety and abundance of fish, land mammal, and sea mammal remains are found in sites along the California coast during this period. Related chipped stone tools suitable for hunting are more abundant and diversified, and shell fishhooks become part of the tool kit during this period. Larger knives, a variety of flake scrapers, and drill-like implements are common during this period. Projectile points include large side-notched, stemmed, and lanceolate or leaf-shaped forms. Koerper and Drover (1983) consider Gypsum Cave and Elko series points, which have a wide distribution in the Great Basin and Mojave deserts between ca. 2000 B.C. and A.D. 500, to be diagnostic of this period. Bone tools, including awls, were more numerous than in the preceding period, and the use of asphaltum adhesive was common.

Mortars and pestles became more common during this period, gradually replacing manos and metates as the dominant milling equipment. Hopper mortars and stone bowls, including steatite vessels, appeared in the tool kit at this time as well. This shift appears to correlate with the diversification in subsistence resources. Many archaeologists believe this change in milling stones signals a shift away from the processing and consuming of hard seed resources to the increasing importance of the acorn (e.g., Glassow et al. 1988; True 1993). It has been argued that mortars and pestles may have been used initially to process roots (e.g., tubers, bulbs, and corms associated with marshland plants), with acorn processing beginning at a later point in prehistory (Glassow 1997) and continuing to European contact.

Characteristic mortuary practices during the Intermediate Horizon and Campbell Tradition included fully flexed burials, placed facedown or faceup, and oriented toward the north or west (Warren 1968). Red ochre was common, and abalone shell dishes were infrequent. Interments sometimes occurred beneath cairns or broken artifacts. Shell, bone, and stone ornaments, including charmstones, were more common than in the preceding Encinitas Tradition. Some later sites include Olivella shell and steatite beads, mortars with flat bases and flaring sides, and a few small points. The broad distribution of steatite from the Channel Islands and obsidian from distant inland regions, among other items, attest to the growth of trade, particularly during the latter part of this period. Recently, Raab and others (Byrd and Raab 2007) have argued that the distribution of Olivella grooved rectangle (OGR) beads marks "a discrete sphere of trade and interaction between the Mojave Desert and the southern Channel Islands."

Horizon IV–Late Prehistoric (A.D. 500–Historic Contact)

In the Late Prehistoric Horizon (Wallace 1955, 1978), which lasted from the end of the Intermediate (ca. A.D. 500) until European contact, there was an increase in the use of plant food resources in addition to an increase in land and sea mammal hunting. There was a concomitant increase in the diversity and complexity of material culture during the Late Prehistoric, demonstrated by more classes of artifacts. The recovery of a greater number of small, finely chipped projectile points, usually stemless with convex or concave bases, suggests an increased usage of the bow and arrow rather than the atlatl (spear thrower) and dart for hunting. Other items include steatite cooking vessels and containers, the increased presence of smaller bone and shell circular fishhooks, perforated stones, arrow shaft straighteners made of steatite, a variety of bone tools, and personal ornaments made from shell, bone, and stone. There is also an increased use of asphalt for waterproofing and as an adhesive.

Many Late Prehistoric sites contain beautiful and complex objects of utility, art, and decoration. Ornaments include drilled whole venus clam (Chione spp.) and drilled abalone (Haliotis spp.). Steatite effigies become more common, with scallop (Pecten spp. and Argopecten spp.) shell rattles common in middens. Mortuary customs are elaborate and include cremation and interment with abundant grave goods. By A.D. 1000, fired clay smoking pipes and ceramic vessels began to appear at some sites (Drover 1971, 1975; Meighan 1954; Warren and True 1984). The scarcity of pottery in coastal and near-coastal sites implies ceramic technology was not well developed in that area, or that ceramics were obtained by trade with neighboring groups to the south and east. The lack of widespread pottery manufacture is usually attributed to the high quality of tightly woven and watertight basketry that functioned in the same capacity as ceramic vessels.

Another feature typical of Late Prehistoric period occupation is an increase in the frequency of obsidian imported from the Obsidian Butte source in Imperial County, California. Obsidian Butte was exploited after ca. A.D. 1000 when it was exposed by the receding waters of Holocene Lake Cahuilla (Wilke 1978). A Late Prehistoric period component of the Elsinore site (CA-RIV-2798-A) produced two flakes that originated from Obsidian Butte (Grenda 1997; Towner et al. 1997). Although about 16 percent of the debitage at the Peppertree site (CA-RIV-463) at Perris Reservoir is obsidian, no sourcing study was done (Wilke 1974). The site contains a late Intermediate to Late Prehistoric period component, and it is assumed that most of the obsidian originated from Obsidian Butte. In the earlier Milling Stone and Intermediate periods, most of the obsidian found at sites within Riverside County came from northern sources, primarily the Coso volcanic field. This appears to be the case within Prado Basin and other interior sites that have yielded obsidian (e.g., Grenda 1995; Taşkiran 1997). The presence of Grimes Canyon (Ventura County) fused shale at southern California archaeological sites is also thought to be typical of the Late Prehistoric period (Demcak 1981; Hall 1988).

During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages (Wallace 1955). Large populations and, in places, high population densities are characteristic, with some coastal and near-coastal settlements containing as many as 1,500 people. Many of the larger settlements were permanent villages in which people resided year-round. The populations of these villages may have also increased seasonally.

In Warren's (1968) cultural ecological scheme, the period between A.D. 500 and European contact is divided into three regional patterns. The Chumash Tradition is present mainly in the region of Santa Barbara and Ventura counties; the Takic or Numic Tradition is present in the Los Angeles, Orange, and western Riverside counties region; and the Yuman Tradition is present in the San Diego region. The seemingly abrupt changes in material culture, burial practices, and subsistence focus at the beginning of the Late Prehistoric period are thought to be the result of a migration to the coast of peoples from inland desert regions to the east. In addition to the small triangular and triangular side-notched points similar to those found in the desert regions in the Great Basin and Lower Colorado River, Colorado River pottery and the introduction of cremation in the archaeological record are diagnostic of the Yuman Tradition in the San Diego region. This combination certainly suggests a strong influence from the Colorado Desert region.

In Los Angeles, Orange, and western Riverside counties, similar changes (introduction of cremation, pottery, and small triangular arrow points) are thought to be the result of a Takic migration to the coast from inland desert regions. This Takic or Numic Tradition was formerly referred to as the "Shoshonean wedge" or "Shoshonean intrusion" (Warren 1968). This terminology, used originally to describe a Uto-Aztecan language group, is generally no longer used to avoid confusion with ethnohistoric and modern Shoshonean groups who spoke Numic languages (Heizer 1978; Shipley 1978). Modern Gabrielino/Tongva, Juaneño, and Luiseño in this region are considered the descendants of the prehistoric Uto-Aztecan, Takic-speaking populations that settled along the California coast during this period or perhaps somewhat earlier.

Ethnographic Overview

The Proposed Amendment area is in an area historically occupied by the Gabrielino. The archaeological record indicates that the Gabrielino arrived in the Los Angeles Basin around 500 B.C. Many contemporary Gabrielino identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and adjacent areas and use the native term Tongva to describe themselves (King 1994). This term is used in the remainder of this section to refer to the pre-contact inhabitants of the Los Angeles Basin and their descendants. Surrounding native groups included the Chumash and Tataviam to the northwest, the Serrano and Cahuilla to the northeast, and the Juaneño and Luiseño to the southeast.

The name "Gabrielino" denotes those people who were administered by the Spanish from the San Gabriel Mission, which included people from the Gabrielino area proper as well as other social groups (Bean and Smith 1978; Kroeber 1925). Therefore, in the post-Contact period, the name does not necessarily identify a specific ethnic or tribal group. The names by which Native Americans in southern California identified themselves have, for the most part, been lost. Many modern Gabrielino identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and refer to themselves as the Tongva (King 1994). This term is used in the remainder of this section to refer to the pre-Contact inhabitants of the Los Angeles Basin and their descendants.

Tongva lands encompassed the greater Los Angeles Basin and three Channel Islands, San Clemente, San Nicolas, and Santa Catalina. The Tongva established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978), but recent ethnohistoric work suggests a number approaching 10,000 (O'Neil 2002). Houses constructed by the Tongva were large, circular, domed structures made of willow poles thatched with tule that could hold up to 50 people (Bean and Smith 1978). Other structures served as sweathouses, menstrual huts, ceremonial enclosures, and probably communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Tongva villages (McCawley 1996). Archaeological sites composed of villages with various sized structures have been identified.

The Gabrielino community of Siutcanga is believed to have been located at Rancho El Encino, a 4,461 acre tract of land granted to three ex-mission Indians named Ramón, Francisco, and Roque. When the Portolá expedition passed through the San Fernando Valley in 1769, the explorers stopped at a large freshwater pool located near "a populous Indian village" (McCawley 1996: 38). It is believed that the Spanish explorers stopped in an area near present-day Encino, and historians have suggested that the village observed by the Spaniards was in fact Siutcanga. In the mid-1980s, archaeological investigations in Encino at the intersection of Ventura and Balboa Boulevards revealed evidence of a large village site (CA-LAN-43) that may have been Siutcanga. The site is situated on an ancient streambed and included a cemetery with both human and animal burials. Radiocarbon testing dated the site to as early as 5,000 B.C. Most of this site has since been destroyed by development (McCawley 1996).

The Tongva subsistence economy was centered on gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal eco-niches. Like that of most native Californians, acorns were the staple food (an established industry by the time of the early Intermediate Period). Acorns were supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., islay, cactus, yucca, sages, and agave). Fresh water and saltwater fish, shellfish, birds, reptiles,

and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978:546; Kroeber 1925; McCawley 1996).

A wide variety of tools and implements were used by the Tongva to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Groups residing near the ocean used oceangoing plank canoes and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands (McCawley 1996).

Tongva people processed food with a variety of tools, including hammerstones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks. Food was consumed from a variety of vessels. Catalina Island steatite was used to make ollas and cooking vessels (Blackburn 1963; Kroeber 1925; McCawley 1996).

At the time of Spanish contact, the basis of Tongva religious life was the Chinigchinich cult, centered on the last of a series of heroic mythological figures. Chinigchinich gave instruction on laws and institutions, and also taught the people how to dance, the primary religious act for this society. He later withdrew into heaven, where he rewarded the faithful and punished those who disobeyed his laws (Kroeber 1925). The Chinigchinich religion seems to have been relatively new when the Spanish arrived. It was spreading south into the Southern Takic groups even as Christian missions were being built and may represent a mixture of native and Christian belief and practices (McCawley 1996).

Deceased Tongva were either buried or cremated, with inhumation more common on the Channel Islands and the neighboring mainland coast and cremation predominating on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996). Cremation ashes have been found in archaeological contexts buried within stone bowls and in shell dishes (Ashby and Winterbourne 1966), as well as scattered among broken ground stone implements (Cleland et al. 2007). Archaeological data such as these correspond with ethnographic descriptions of an elaborate mourning ceremony that included a wide variety of offerings, including seeds, stone grinding tools, otter skins, baskets, wood tools, shell beads, bone and shell ornaments, and projectile points and knives. Offerings varied with the sex and status of the deceased (Johnston 1962; McCawley 1996; Reid 1926). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996).

Paleontological Context

The Proposed Amendment area is located in the San Gabriel Valley, which is filled with sediments derived from the San Gabriel Mountains to the north, and transported by the San Antonio Creek to the west (Dibblee and Minch 2002; McLeod 2016). The entire Proposed Amendment area is mapped as surficial Quaternary alluvium, consisting of alluvial sand and

gravel, according to published mapping by Dibblee and Minch (2002). These Holocene, or Recent, deposits presumably overlie older, Pleistocene, or "Ice-Age" deposits at an unknown depth (McLeod 2016; Dibblee and Minch (2002). The younger, alluvial deposits have a low paleontological resource sensitivity. However, older, Pleistocene age deposits in this area have produced scientifically significant vertebrates and have a moderate to high paleontological resource sensitivity (McLeod 2016).

Past excavation and trenching activities in the area surrounding the Proposed Amendment area have encountered paleontological resources in older Quaternary alluvial deposits. According to the records search results received from the Natural History Museum of Los Angeles County (LACM), the closest fossil locality to the Proposed Amendment area within Quaternary alluvial deposits is located in English Canyon, southwest of the City of Chino (LACM 1728; McLeod 2016). This locality yielded Pleistocene age mammals, including extinct horse (Equus) and camel (Camelops) remains at depths between 15 and 20 feet below the ground surface (bgs) (McLeod, 2016). Additional localities to the south also yielded specimens of fossil horse (LACM 7268 and 7271, McLeod 2016). West-southwest of these localities, within Soquel Canyon, fossil specimens of ground sloth (Northrotheriops), and horse (Equus giganteus) were discovered (LACM 7508).

3.4.2 Regulatory Setting

State

California Register of Historical Resources (CRHR)

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." (Pub. Resources Code section 5020.1(j).) In 1992, the California legislature established the CRHR "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." (Pub. Resources Code section 5024.1(a).) The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP, enumerated below. According to Pub. Resources Code Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than fifty years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see Cal. Code Regs., tit. 14, section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- Public Resources Code Section 21083.2(g) defines "unique archaeological resource."
- Public Resources Code Section 21084.1 and CEQA Guidelines section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource;" it also defines the circumstances when a project would materially impair the significance of an historical resource.
- Public Resources Code Section 21074(a) defines "tribal cultural resources."
- Public Resources Code Section 5097.98 and CEQA Guidelines section 15064.5(e): Set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- Public Resources Code Section 21083.2(b)-(c) and CEQA Guidelines section 15126.4: Provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the

archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource." (Pub. Resources Code section 21084.1; State CEQA Guidelines section 15064.5(b).) If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA. (Pub. Resources Code section 21084.1; State CEQA Guidelines section 15064.5(a).) The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption. (Pub. Resources Code section 21084.1; State CEQA Guidelines section 15064.5(a).)

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired." (State CEQA Guidelines section 15064.5(b)(1); Pub. Resources Code section 5020.1(q).) In turn, the significance of an historical resource is materially impaired when a project:

(1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

(2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

(State CEQA Guidelines section 15064.5(b)(2).) Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates

whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Pub. Resources Code Section 21083.2[a], [b], and [c]).

Public Resources Code Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (Pub. Resources Code section 21083.2(a); State CEQA Guidelines section 15064.5(c)(4).) However, if a non-unique archaeological resource qualifies as a tribal cultural resource (Pub. Resources Code section 21074(c); 21083.2(h)), further consideration of significant impacts is required.

State CEQA Guidelines section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in Public Resources Code Section 5097.98.

Public Resources Code Section 21074 defines tribal cultural resources.

(a) "Tribal cultural resources" are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

The consultation process is detailed in Public Resources Code Section 21080.3.2.

Senate Bill 18

SB 18 requires local (city and county) governments to consult with California Native American tribes to aid in the protection of traditional tribal cultural places ("cultural places") through local land use planning. SB 18 also requires the Governor's Office of Planning and Research (OPR) to include in the General Plan Guidelines advice to local governments for how to conduct these consultations. The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places. The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level land use decisions are made by a local government.

SB 18 established responsibilities for local governments to contact, provide notice to, refer plans to, and consult with tribes. The provisions of SB 18 apply only to city and county governments and not to other public agencies. The following list briefly identifies the contact and notification responsibilities of local governments, in sequential order of their occurrence.

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or

mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code §65352.3).6

- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county's jurisdiction. The referral must allow a 45 day comment period (Government Code §65352). Notice must be sent regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.7
- Local governments must send notice of a public hearing, at least 10 days prior to the hearing, to tribes who have filed a written request for such notice (Government Code §65092).8

Under SB 18, local governments must consult with tribes under two circumstances:

- On or after March 1, 2005, local governments must consult with tribes that have requested consultation in accordance with Government Code §65352.3. The purpose of this consultation is to preserve, or mitigate impacts to, cultural places that may be affected by a general plan or specific plan amendment or adoption.
- On or after March 1, 2005, local governments must consult with tribes before designating open space, if the affected land contains a cultural place and if the affected tribe has requested public notice under Government Code §65092. The purpose of this consultation is to protect the identity of the cultural place and to develop treatment with appropriate dignity of the cultural place in any corresponding management plan (Government Code §65562.5).

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (section 7050.5b). Public Resources Code Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California Native American Heritage Commission (NAHC) within 24 hours (section 7050.5c). The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must

be completed within 48 hours of notification of the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

Local

City of Montclair Historic Preservation Ordinance (Chapter 11.56)

The full text of the City of Montclair's Historic Preservation Ordinance can be found in Title 11, Zoning and Development; Division III, Development Standards; Chapter 11.56, Historic Preservation. Pertinent sections of this ordinance are copied below:

> 11.56.010 - Purpose.
>
> This chapter is created for the purpose of recognizing the desirability of establishing guidelines for the preservation, restoration and protection of historic and cultural resources within the City. The guidelines are considered necessary in order for the public and the City to work together in preserving those elements of Montclair's heritage which may now, or in the future, be endangered. The purpose of this chapter is to:
>
> A. Encourage public knowledge, understanding and appreciation of the City's past;
>
> B. Strengthen civic and neighborhood pride in the beauty and architecture of the past;
>
> C. Preserve diverse architectural styles and designs reflecting phases of the City's heritage;
>
> D. Promote the enjoyment and use of cultural resources appropriate for the education and restoration of the City;
>
> E. Encourage new construction and exterior modification of historical buildings that are compatible with the historical character of such buildings;
>
> F. Protect and enhance property values and to provide possible added benefits to the City and its inhabitants through the exploration of creative financial incentives for preservation;
>
> G. Encourage the adaptive recycling or reuse of existing historic landmarks.
>
> (Ord. 99-791 Exh. A (part); prior code § 9-10.101)

11.56.060 - Landmark designation—Criteria.

A building or structure may be designated a historic landmark if it is found that one or more of the following conditions exist with reference to such building or structure:

A. The proposed landmark is particularly representative of a historical period, type, style, region or way of life;

B. The proposed landmark is an example of a type of building which was once common but is now rare;

C. The proposed landmark is one of the best remaining examples of a particular architectural type or style in the area;

D. The proposed landmark is identified with persons or events significant in local, State or national history;

E. The proposed landmark is representative of the notable work of a builder, designer or architect.

(Prior code § 9-10.107)

1999 Montclair General Plan (Conservation Element)

Chapter 4 (Environmental Resources) of the City's 1999 General Plan addresses Cultural Resources under the Conservation Element section. The Conservation Element is included in the General Plan in order to monitor the use and extraction of the earth's natural resources in addition to preserving prehistoric, historic, and cultural resources. This attempt is directed toward recognizing the finite supply of certain resources as well as the protection of the quality of other resources.

Cultural Resources

Cultural resources in the City of Montclair have not yet been considered as a significant resource, primarily due to the relative age of the community and its structures and other points of interest. As such, a minimum of effort has gone into the documentation and designation of potential cultural resource sites.

- The Russian Village bordering the Claremont corporate limits contains homes of unique historic and aesthetic value.
- The San Antonio Wash was the location for numerous prehistoric Native American camp sites. Little is known about these ancient civilizations due to limited archaeological documentation.

- There are some remaining ranch houses and some limited grove, areas which represent the area's history from pre-incorporation (prior to 1956). Preservation of these properties offers the ability to preserve the City's history.
- The Montclair Foundation for History and Art was founded in 1986, and accomplished several projects including the historical Union Pacific caboose placement, the establishment of Freedom Plaza and its public sculpture, and the Youth Art Program. The foundation has been inactive for several years.
- The City has adopted a Historic Preservation Ordinance, providing the mechanism for the protection of historic structures in the community. The provisions of the ordinance have not been utilized, due to a lack of eligible structures and interested property owners.
- The City has adopted a program in support of Public Art in the community. The program encourages and in some cases mandates the placement of public art in significant commercial developments. The placement of public art has also included other locations such as Freedom Plaza and the Montclair Transcenter.

Conservation Implementation Policies

Conservation Goals

CO-1.0.0. To promote the conservation of natural and cultural resources with economic or public significance in a manner which will ensure their productivity and utility for present and future generations.

Conservation Objectives (of relevance to cultural resources)

CO-1.3.0. To promote the conservation of significant cultural and historic resources located in or presumed to be located in the City of Montclair.

Conservation Implementing Policies (relevant to cultural resources)

CO-1.1.6. Promote the maintenance and recognition of the city's significant historic and prehistoric cultures.

CO-1.1.7. Require the investigation of historic and prehistoric resources to occur prior to issuance of building permits in an attempt to measure historic significance and advise appropriate mitigation for future planning activities.

CO-1.1.10. Improve efforts to maintain and preserve significant historic and architectural structures and points of interest.

CO-1.1.11. Maintain the Montclair Foundation for History and Art as a focus for the community's cultural activities and conscience.

CO-1.1.12. Continue and expand the public art program with a goal of providing increasing visibility of various art in the community, on both private and public sites.

CO-1.1.13. Encourage and nurture efforts to stimulate and preserve the arts, possibly including the following: (1) Establishment of a Performing Arts Center; (2) Establishment of a historical or other museum; and (3) Cultural, ethnic, and arts-related fairs, exhibits, and events.

3.4.3 Thresholds of Significance

The following significance criterion, included for analysis in this Supplemental EIR, is based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and will be used to determine the significance of potential cultural resources impacts. Impacts to cultural resources would be significant if the Proposed Amendment would:

A. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines.

B. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

C. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

D. Would the project disturb any human remains, including those interred outside of formal cemeteries?

E. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Pub. Resources Code, § 21074?

3.4.4 Impacts Analysis

A. Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?

New Significant and Unavoidable Impact. No historical resources were identified within the Proposed Amendment area as a result of the CHRIS records search (see discussion under Section 3.4.1). One historic-age building was previously recorded, but does not appear to have been formally evaluated for CRHR or local landmark designation: the Inland Pacific Ballet building located at 5050 E. Arrow Highway was constructed c. 1951

and was recorded by Myra Frank & Associates/Jones & Stokes in 2004 as part of the Gold Line Phase II project. The evaluation form (i.e., Building, Structure, and Object Record) provided by the SCCIC indicates that the significance of the building was in the process of being researched, and no findings of eligibility are presented.

In an effort to identify areas within the Proposed Amendment area that appear to contain buildings and structures that are at least 45 years old, a review of available historic aerial photographs was conducted. Areas within the Proposed Amendment area that have the potential to contain previously unevaluated resources constructed over 45 years ago are identified in Figure 3.4-1. These areas include:

- The residential/industrial area in the northwest corner of the proposed NMDSP Regulating Plan; bounded by Huntington Drive to the north, the railroad right-of-way to the south, industrial to the east, and residential to the west (c. 1950s-1960s).
- The San Antonio Creek Channel (channelized between 1948 and 1959).
- The Atchinson, Topeka, and Santa Fe Railroad segment (c. pre-1875).
- The Southern California Edison property located on the northeast corner of E. Arrow Highway and Monte Vista Avenue (c. 1966-1972).
- The Inland Pacific Ballet building located at 5050 E. Arrow Highway (c. 1951).
- Commercial/industrial properties along E. Arrow Highway, west of Fremont Avenue (c. 1966-1972).
- Commercial buildings on the northeast corner of Fremont Avenue and Moreno Street (c. 1966-1972).

It is important to note that Figure 3.4-1 does not necessarily capture all potential historical resources within the Proposed Amendment area. However, it does provide an overview of specific areas that should be carefully reviewed for the presence of historical buildings and structures prior to any specific project activities that could result in impacts to historical resources.

Because there are numerous buildings and structures over 45 years old that have not been previously evaluated, and because the details of future projects within the Proposed Amendment area are not yet known, the Proposed Amendment has the potential to result in significant impacts to historical resources under CEQA. Mitigation is provided to lower the potential for significant impacts to historical resources (mitigation measure **MM-CUL-1**); however, because this mitigation measure does not guarantee the protection of historical resources in consideration of specific project activities, impacts to historical resources are considered a **new significant and unavoidable impact**.

B. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less Than Significant Impact with New Mitigation Required. The 2006 NMDSP EIR found that the records search yielded only one site of historical significance within the planning area, known as the "Kite Shaped Track." Since the NMDSP did not propose destruction of this site, but rather made it a focal point, impacts were considered less than significant.

A CHRIS records search of the Proposed Amendment area and a one-quarter-mile radius was conducted by the staff at the SCCIC on May 31, 2016. The records search results indicate that no previously recorded archaeological resources are located within the Proposed Amendment area. Four previously recorded cultural resources were identified within one-quarter-mile of the Proposed Amendment area; however, only one of these resources is an archaeological resource: CA-SBR-7794H is a historic refuse deposit with rock wall features located approximately one-quarter-mile north of the Proposed Amendment area.

On May 24, 2016, the California Native American Heritage Commission (NAHC) was contacted and a Sacred Lands File search of the Proposed Amendment area was requested. The NAHC emailed a response on May 27, 2016. The Sacred Lands File search was negative, and therefore, did not identify any Native American cultural resources in the immediate Proposed Amendment area. The NAHC also provided a list of four Native American individuals/organizations that may have knowledge of cultural resources within and around the Proposed Amendment area. Letters to each of the four contacts were mailed on June 8, 2016 requesting any additional information concerning cultural resources within or around the Proposed Amendment area. One response was received via email on July 8, 2016 from Andrew Salas, Chairman of the Gabrieleno Band of Mission Indians – Kizh Nation. The response states that the Proposed Amendment area is located in an area where the ancestral and traditional territories of the Kizh Gabrieleno villages adjoined and overlapped each other during the Late Prehistoric and Protohistoric Periods. The Tribe recommends the presence of one of their Native American monitors, as well as an archaeological monitor, during any ground disturbing activities occurring within the Proposed Amendment area. As such, mitigation measure **MM-CUL-2** has been identified below for future development under the Proposed Amendment. No other responses have been received to date from any of the NAHC-provided contacts.

Most of the Proposed Amendment area is developed and all portions have been subject to previous disturbance as a result of past agricultural activities and more recent development. While no archaeological resources were identified within the Proposed Amendment area as a result of the records search, NAHC Sacred Lands File search, or

Native American coordination efforts, there is still the possibility of encountering previously undiscovered archaeological resources at subsurface levels during ground-disturbing activities associated with future development under the Proposed Amendment. In the event that archaeological resources are encountered during construction activities under the Proposed Amendment, mitigation measure **MM-CUL-3** shall be implemented to ensure that impacts to archaeological resources are reduced to less than significant levels. Therefore, impacts are **less than significant with new mitigation required**.

C. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact with New Mitigation Required. The 2006 NMDSP EIR found impacts associated with paleontological or unique geological features to be less than significant.

The Proposed Amendment area is not known to be associated with any paleontological resources or unique geologic features. The Proposed Amendment area is underlain by Quaternary aged young alluvial fan deposits and is therefore unlikely to result in the loss of any unique geologic feature or paleontological resource. However, the possibility of a paleontological discovery cannot be discounted. In the event that paleontological resources are inadvertently encountered during construction activities of future projects under the Proposed Amendment, mitigation measure **MM-CUL-4** shall be implemented to ensure that impacts to paleontological resources or unique geological features are reduced to less than significant levels. Thus, impacts would be **less than significant with new mitigation required.**

D. Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact with New Mitigation Required. The 2006 NMDSP EIR found that the implementation of the NMDSP may result in human remains being encountered.

There is no indication that human remains are present within the boundaries of the Proposed Amendment area. In the unlikely event that excavation activities during the implementation of future projects under the Proposed Amendment inadvertently discover buried human remains, implementation of **MM-CUL-5** would reduce potential impacts to less than significant levels. Therefore, the impacts would be **less than significant with new mitigation required**.

E. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC § 21074?

Less Than Significant Impact with New Mitigation Required. The 2006 NMDSP EIR did not analyze this threshold.

As the CEQA lead agency, the City provided notification of the Proposed Amendment to tribes pursuant to the requirements of Assembly Bill (AB) 52. With respect to the confidentiality of this government-to-government process (which is currently on-going), all records related to AB 52 are on file with the City. Should any potential impacts to tribal cultural resources be identified as a result of the AB 52 process, in addition to the implementation of mitigation measures **MM-CUL-2** and **MM-CUL-5**, appropriate mitigation will be developed in consultation with all applicable tribal representatives. However, given the heavily developed nature of the Proposed Amendment area, it is unlikely that any tribal cultural resources are located within its boundaries. Therefore, impacts would be **less than significant with new mitigation required.** No further mitigation is required.

3.4.5 Cumulative Impacts

Cumulative impacts to cultural resources consider whether impacts of the proposed project together with other related projects, when taken as a whole, substantially diminish the number of historic or archeological resources within the same or similar context or property type. However, impacts to cultural resources, if any exist, tend to be site-specific. It is anticipated that cultural resources that are potentially affected by related projects would also be subject to the same requirements of CEQA as the proposed project and any impacts would be mitigated through mitigation measures **MM-CUL-1** through **MM-CUL-5**, as applicable. As such, cumulative impacts to archaeological resources, paleontological resources, human remains, and tribal cultural resources (if found) are considered **less than significant with new mitigation incorporated**.

These determinations would be made on a case-by-case basis, and the effects of cumulative development on historic resources would be mitigated (with mitigation measure **MM-CUL-1)** to the extent feasible in accordance with CEQA and other applicable legal requirements. However, as with future development under the Proposed Amendment, mitigation for other related development also does not guarantee protection of historical resources. As such, cumulative impacts to historical resources are considered a **new significant and unavoidable impact**.

3.4.6 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. New mitigation measures for the Proposed Amendment are described below:

MM-CUL-1 In accordance with the requirements of CEQA, prior to undertaking any specific projects within the Proposed Amendment area that proposes impacts to buildings, structures, and objects constructed at least 45 years ago, the resources shall be recorded and evaluated on the appropriate State of California Department of Parks and Recreation Series 523 Forms (DPR forms). The evaluation must include consideration of the City of Montclair's historic landmark designation criteria and the California Register of Historical Resources designation criteria and integrity requirements. All documentation must conform to the standards of the California Office of Historic Preservation. Evaluations shall be completed by a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards for architectural history (36 CFR Part 61). Upon completion of the evaluation(s), a project-specific impacts assessment must be prepared to determine if the project will result in significant impacts to historical resources. If historical resources are identified within a project area, all feasible mitigation must be considered to avoid, minimize, or substantially reduce project-related impacts.

MM-CUL-2 A qualified archaeologist and Native American monitor from a tribe that is traditionally and culturally affiliated with the geographic location of the project site shall be present for all initial ground disturbing activities associated with future development under the Proposed Amendment. The archaeologist shall be responsible for the identification of cultural resources that may be impacted by project activities. The archaeological monitor should work under the direction of a qualified principal investigator (i.e., an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards). The monitor(s) may stop ground disturbing activities in order to assess any discoveries in the field. Monitoring may be discontinued when the depth of grading and soil conditions no longer retain the potential to contain cultural deposits. The project archaeologist shall be responsible for determining the duration and frequency of monitoring.

MM-CUL-3 In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Proposed Amendment, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall evaluate the significance of the find and determine whether or not

additional study is warranted. Depending upon the significance of the find as determined by the archaeologist, the archaeologist may decide to record the find and allow work to continue. If the discovery proves significant under CEQA, additional work such as preparation of an archaeological treatment plan, additional testing, or data recovery may be warranted. Preservation in place shall be the preferred means of mitigation, if determined to be feasible by the archaeologist and the City.

MM-CUL-4 In the event that paleontological resources (fossil materials) are exposed during construction activities for the Proposed Amendment, all construction work occurring within 50 feet of the find shall immediately stop until a qualified paleontologist, as defined by the Society of Vertebrate Paleontology, can assess the nature and importance of the find. Depending upon the significance of the find, the paleontologist may record the find and allow work to continue, or may recommend salvage and recovery of the resource. All recommendations shall be made in accordance with the Society of Vertebrate Paleontology's 1995 guidelines and shall be subject to review and approval by the City. Work in the area of the find may only resume upon approval of a qualified paleontologist.

MM-CUL-5 In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be notified within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are or are believed to be Native American, s/he shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

3.4.7 Significance After Mitigation

Implementation of mitigation measure **MM-CUL-1** only ensures that historical resources are appropriately recorded, evaluated, and that impacts are adequately assessed in consideration of project-specific activities. However, this mitigation measure does not guarantee protection of historical resources or that impacts will be mitigated below a level of significance. Therefore,

even after implementation of mitigation measure **MM-CUL-1**, project-specific impacts to historic resources are considered a new significant and unavoidable impact.

Implementation of mitigation measures **MM-CUL-2** through **MM-CUL-5** ensures that potential impacts to archaeological resources, paleontological resources, human remains, and tribal cultural resources (if found) are minimized or avoided through the following requirements: on-site monitoring during construction activities; halting of work in the event of a potential find; notification of appropriate authorities in the event of a potential find; preparation of additional studies, a treatment plan, testing, or data recovery in the event of a discovery of a potentially significant resource; and preservation in place, salvage or recovery of the find as deemed appropriate and feasible. As such, after the implementation of mitigation measures **MM-CUL-**1 through **MM-CUL-5,** impacts to archaeological resources, paleontological resources, human remains, and tribal cultural resources (if found) are considered less than significant with new mitigation incorporated.

3.4.8 References

Ashby, G. E., and J. W. Winterbourne. 1966. A Study of Primitive Man in Orange County and Some of its Coastal Areas. Pacific Coast Archaeological Society Quarterly 2(1):3-52.

Bean, Lowell J., and Charles R. Smith. 1978. Gabrielino. In California, edited by Robert F. Heizer, pp. 538–549. Handbook of North American Indians, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Blackburn, Thomas. 1963. Ethnohistoric Descriptions of Gabrielino Material Culture. Annual Report, Archaeological Survey. University of California, Los Angeles.

Byrd, Brian F., and L. Mark Raab. 2007. Prehistory of the Southern Bight: Models for a New Millennium. In California Prehistory, edited by Terry L. Jones and Kathryn A. Klar, pp. 215-228. Altimira Press, New York.

Cleland, James H., Andrew L. York, and Lorraine M. Willey. 2007. Piecing Together the Prehistory of Landing Hill: A Place Remembered. EDAW Cultural Publications No. 3. EDAW, Inc., San Diego.

City of Montclair. 2005. *Images of America, Montclair.* Arcadia Publishing. Charleston, South Carolina.

Cottrell, Marie, and Kathleen Del Chario. 1981. Archaeological Investigations of the Tomato Springs Sites. Report on file, South Central Coastal Information Center, California State University, Fullerton.

de Barros, Philip. 1996. San Joaquin Hills Transportation Corridor: Results of Testing and Data Recovery at CA-ORA-1357. Report on file, South Central Coastal Information Center, California State University, Fullerton.

Demcak, Carol R. 1981. Fused Shale As a Time Marker in Southern California: Re¬view and Hy-pothesis. Unpublished Master's Thesis, Department of Anthropology, Califor¬nia State University, Long Beach.

Dibblee, T.W. and Minch, J.A., 2002. Geologic map of the San Dimas and Ontario quadrangles, San Bernardino County, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-91, scale 1:24,000.

Dillon, Brian D. 2002. California Paleo-Indians: Lack of Evidence, or Evidence of a Lack? In Essays in California Archaeology: A Memorial to Franklin Fenenga, edited by William J. Wallace and Francis A. Riddell, pp. 110–128. Contributions of the University of California Archaeological Research Facility, No. 60, Berkeley.

Dixon, E. James. 1968. Cogged Stones and Other Ceremonial Cache Artifacts in Stratigraphic Context at ORA-58, a Site in the Lower Santa Ana River Drainage, Orange County. Pacific Coast Archaeological Society Quarterly 4(3):57–68.

Drover, Christopher E.1971. Three Fired-Clay Figurines from 4-Ora-64, Orange County, California. Pacific Coast Archaeological Society Quarterly 7(4):73–86.

Drover, Christopher E. 1975. Early Ceramics from Southern California. The Journal of California Anthropology 2(1):101–107.

Drover, Christopher E., Henry C. Koerper, and Paul E. Langenwalter II. 1983. Early Holocene Adaptation on the Southern California Coast: A Summary Report of Investigations at the Irvine Site (CA-ORA-64), Newport Bay, Orange County, California. Pacific Coast Archaeological Society Quarterly 19(2, 3):1–84.

Eberhart, Hal. 1961. The Cogged Stones of Southern California. American Antiquity 26:361–370.

Erlandson, Jon M. 1991. Early Maritime Adaptations on the Northern Channel Islands. In Hunter-Gatherers of Early Holocene Coastal California, edited by J. M. Erlandson and R. Colten. Perspectives in California Archaeology, Vol. 1. Institute of Archaeology, University of California, Los Angeles.

Erlandson, Jon M., Theodore Cooley, and Richard Carrico. 1987. A Fluted Projectile Point Fragment from the Southern California Coast: Chronology and Context at CA-SBA-1951. Journal of California and Great Basin Anthropology 9:120–128.

Glassow, Michael A. 1997. Middle Holocene Cultural Development in the Central Santa Barbara Channel Region. In Archaeology of the California Coast during the Middle Holocene, edited by J. M. Erlandson and M. A. Glassow, pp.73–90. Perspectives in California Archaeology, Vol. 4. Institute of Archaeology, University of California, Los Angeles.

Glassow, Michael A., L. Wilcoxen, and J. M. Erlandson. 1988. Cultural and Environmental Change during the Early Period of Santa Barbara Channel Prehistory. In The Archaeology of Prehistoric Coastlines, edited by G. Bailey and J. Parkington pp. 64–77. Cambridge University Press, Cambridge.

Grenda, Donn R. 1995. Prehistoric Game Monitoring on the Banks of Mill Creek: Data Recovery at CA-RIV-2804, Prado Basin, Riverside County, California. Statistical Research Technical Series No. 52. Statistical Research, Inc., Tucson, Arizona.

Grenda, Donn R. 1997. Continuity and Change: 8,500 Years of Lacustrine Adaptation on the Shores of Lake Elsinore. Statistical Research Technical Series No. 59. Statistical Research, Inc., Tucson, Arizona.

Hall, Matthew C. 1988. For the Record: Notes and Comments on "Obsidian Ex¬change in Prehistoric Orange County." Pacific Coast Ar¬chaeological Society Quarterly 24(4):34–48.

Harrington, John P. 1942. Culture Element Distributions: XIX, Central California Coast. Anthropological Records 7:1. University of California Press: Berkeley.

Heizer, Robert F. 1978. Introduction. In California, edited by Robert F. Heizer, pp. 1–6. Handbook of North American Indians, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

Herring, Alika. 1968. Surface Collections from ORA-83, A Cogged Stone Site at Bolsa Chica, Orange County, California. Pacific Coast Archaeological Society Quarterly 4(3):3–37.

Johnson, J. R., T. W. Stafford, Jr., H. O. Ajie, and D. P. Morris. 2002. Arlington Springs Revisited. In Proceedings of the Fifth California Islands Symposium, edited by D. Browne, K. Mitchell, and H. Chaney, pp. 541–545. USDI Minerals Management Service and The Santa Barbara Museum of Natural History, Santa Barbara, California.

Johnston, Bernice E. 1962. California's Gabrielino Indians. Frederick Webb Hodge Anniversary Publication Fund 8, Southwest Museum, Los Angeles.

Jones, Terry L., Richard T. Fitzgerald, Douglas J. Kennett, Charles Miksicek, John L. Fagan, John Sharp, and Jon M. Erlandson. 2002. The Cross Creek Site and Its Implications for New World Colonization. American Antiquity 67:213–230.

King, Chester D. 1994. Native American Placenames in the Santa Monica Mountains National Recreation Area, Agoura Hills. Topanga Anthropological Consultants, California.

Koerper, Henry C. 1995. The Christ College Project: Archaeological Investigations at CA-ORA-378, Turtle Rock, Irvine, California, Volume II. Report on file, South Central Coastal Information Center, California State University, Fullerton.

Koerper, Henry C., and Christopher E. Drover.1983. Chronology Building for Coastal Orange County: The Case from CA-ORA-119-A. Pacific Coast Archaeological Society Quarterly 19(2):1–34.

Koerper, Henry C., Roger D. Mason, and Mark L. Peterson. 2002. Complexity, Demography, and Change in Late Holocene Orange County. In Catalysts to Complexity: Late Holocene Societies of the California Coast, edited by Jon M. Erlandson and Terry L. Jones, pp. 63–81. Perspectives in California Archaeology, Vol. 6, Costen Institute of Archaeology, University of California, Los Angeles.

Kowta, Makoto. 1969. The Sayles Complex, A Late Milling Stone Assemblage from the Cajon Pass and the Ecological Implications of its Scraper Planes. University of California Publications in Anthropology 6:35–69. Berkeley, California.

Kroeber, Alfred J. 1925. Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Dover Publications, Inc., New York.

Langenwalter, Paul E., II, and James Brock. 1985. Phase II Archaeological Studies of the Prado Basin and the Lower Santa Ana River. Report on file, U.S. Army Corps of Engineers, Los Angeles District.

Macko, Michael E. 1998a. The Muddy Canyon Archaeological Project: Results of Phase II Test Excavations and Phase III Data Recovery Excavations at Archaeological Sites within the Crystal Cove Planned Community, Phase IV, Tentative Tract 15447, San Joaquin Hills, Orange County, California. Report on file, South Central Coastal Information Center, California State University, Fullerton.

Macko, Michael E. 1998b. Neolithic Newport. In Executive Summary: Results of Implementing Mitigation Measures Specified in the Operation Plan and Research Design for the Proposed Newporter North Residential Development at ORA-64. Report on file, South Central Coastal Information Center, California State University, Fullerton.

Mason, Roger E., Brant A. Brechbiel, Mark L. Peterson, Clay A. Singer, Paul E. Langenwalter II, and Robert O. Gibson. 1991. Newport Coast Archaeological Project: Results of Data Recovery at the Late Small Rockshelters, CA-ORA-674, CA-ORA-677, CA-ORA-678, CA-ORA-1206, CA-ORA-1210, CA-ORA-676, CA-ORA-682, CA-ORA-679, and CA-ORA-1204. Report on file, South Central Coastal Information Center, California State University, Fullerton.

Mason, Roger D., Brant A. Brechbiel, Clay A. Singer, Patricia A. Singer, Wayne H. Bonner, Robert O. Gibson, Mark L. Peterson, and Lisa Panet Klug. 1992. Newport Coast Archaeological Project: Results of Data Recovery at the French Flat Complex Sites, CA-ORA-232, CA-ORA-233, CA-ORA-671, CA-ORA-672, and CA-ORA-1205. Report on file, South Central Coastal Information Center, California State University, Fullerton.

Mason, Roger D., Brant A. Brechbiel, Clay A. Singer, Mark L. Peterson, Linda Panet Klug, Wayne H. Bonner, Robert O. Gibson, and Patricia A. Singer. 1993. Newport Coast Archaeological Project: Results of Data Recovery at the Pelican Hills Sites, CA-ORA-662, CA-ORA-677, CA-ORA-678, CA-ORA-1206, CA-ORA-1210, CA-ORA-676 and CA-ORA-1203, Volume 1. Report on file, South Central Coastal Information Center, California State University, Fullerton.

Mason, Roger D., and Mark L. Peterson. 1994. Newport Coast Archaeological Project: Newport Coast Settlement Systems–Analysis and Discussion, Volume 1, part 1 of 2. Prepared by The Keith Companies. On file, South Central Coastal Information Center, California State University, Fullerton.

Mason, Roger D., Henry C. Koerper, and Paul E. Lagenwalter II. 1997. Middle Holocene adaptations on the Newport Coast of Orange County. In Archaeology of the California Coast during the Middle Holocene, edited by Jon M. Erlandson and Michael A. Glassow, pp. 35–60. UCLA Institute of Archaeology, Los Angeles, California.

McCawley, W. 1996. The First Angelinos: The Gabrielino Indians of Los Angeles. Malki Museum Press, Banning California and Ballena Press, Novato, California.

McLeod, S.A., 2016. Vertebrate Paleontology Records Check for Paleontological Resources for the Proposed North Montclair Downtown Specific Plan (NMDSP) Project, Dudek Project Number 9633, in the City of Montclair, San Bernardino County, Project Area. Unpublished Records Search Results Letter from the Natural History Museum of Los Angeles County, Los Angeles, California.

Meighan, Clement W. 1954. A Late Complex in Southern California Prehistory. Southwestern Journal of Anthropology 10(2):215–227.

Moratto, Michael J. 1984. California Archaeology. Academic Press, New York.

Moriarty, James R., III. 1966. Cultural Phase Divisions Suggested by Typological Change Coordinated with Stratigraphically Controlled Radiocarbon Dating in San Diego. The Anthropological Journal of Canada 4(4):20–30.

Moriarty, James R., III, and Robert S.D. Broms. 1971. The Antiquity and Inferred Use of Stone Discoidals in the Southwest. The Anthropological Journal of Canada 9(1):16–36.

Nationwide Environmental Title Research (NETR). 2011. Historic Aerials. Accessed November 1, 2016. http://www.historicaerials.com/.

O'Neil, Stephen. 2002. The Acjachemen in the Franciscan Mission System: Demographic Collapse and Social Change. Masters thesis, Department of Anthropology, California State University, Fullerton.

The Reeder Heritage Foundation. 2010. "Montclair History." Accessed December 18, 2014.

Reid, Hugo. 1926. The Indians of Los Angeles County. Privately printed, Los Angeles.

Rick, Torben C., Jon M. Erlandson, and René Vellanoweth. 2001. Paleocoastal Marine Fishing on the Pacific Coast of the Americas: Perspectives from Daisy Cave, California. American Antiquity 66:595–613.

Rogers, David B. 1929. Prehistoric Man of the Santa Barbara Coast. Santa Barbara Museum of Natural History, Santa Barbara, California. Edited by Richard F. Pourade. Union Tribune Publishing Company, San Diego, California.

Rogers, Malcom J. 1939. Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas. San Diego Museum of Man Papers 3.

Rogers, Malcom J. 1945. An Outline of Yuman Prehistory. Southwestern Journal of Anthropology 1(2):167–198.

Sawyer, William A. 2006. Report of Testing and Data Recovery at Sites within the Muddy Canyon Archaeological District, San Joaquin Hills, Orange County, California (provisional title). LSA Associates, Inc., Irvine, California.

Sawyer, William A., and James Brock. 1999. Archaeology of Foothill Ranch, El Toro, California. Report on file, South Central Coastal Information Center, California State University, Fullerton.

Sawyer, William A., and Henry C. Koerper. 2006. The San Joaquin Hills Venus: A Ceramic Figurine from CA-ORA-1405-B. In Contributions from Orange County Presented in Remembrance of John Peabody Harrington, edited by Henry C. Koerper, pp. 13–34. Coyote Press Archives of California Prehistory, Number 53. Coyote Press, Salinas, California.

Shipley, William F. 1978. Native Languages of California. In California, edited by Robert F. Heizer, pp. 80–90. Handbook of North American Indians, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. 11 p. Available; http://vertpaleo.org/PDFS/68/68c554bb-86f1-442f-a0dc-25299762d36c.pdf.

Strudwick, Ivan H. 2005. The Use of Fired Clay Daub from CA-ORA-269 in the Identification of Prehistoric Dwelling Construction Methods, San Joaquin Hills, Orange County, California. Proceedings of the Society for California Archaeology 18:219-237.

Sutton, Mark Q. 1993. On the Subsistence Ecology of the "Late Inland Millingstone Horizon" in Southern California. Journal of California and Great Basin Anthropology 15(1):134–140.

Taşkiran, Ayşe. 1997. Lithic Analysis. In Hunting the Hunters: Archaeological Testing at CA-RIV-653 and CA-RIV-1098, Riverside County, California, edited by Donn R. Grenda and Deborah W. Gray, pp. 41–53. Statistical Research Technical Series No. 65. Statistical Research, Inc., Tucson, Arizona.

Towner, Ronald H., Keith B. Knoblock, and Alex V. Benitez. 1997. Flaked and Ground Stone Analyses. In Continuity and Change: 8,500 Years of Lacustrine Adaptation on the Shores of Lake Elsinore, edited by Donn R. Grenda, pp. 167–248. Statistical Research Technical Series No. 59. Statistical Research, Inc., Tucson, Arizona.

True, Delbert L. 1958. An Early Complex in San Diego County, California. American Anti¬qui¬ty 23:255–263.

True, Delbert L. 1993. Bedrock Milling Elements as Indicators of Subsistence and Settlement Patterns in Northern San Diego County, California. Pacific Coast Archaeological Society Quarterly 29(2):1–26.

Wallace, William.1955. Suggested Chronology for Southern California Coastal Archaeology. Southwestern Journal of Anthropology 11:214–230.

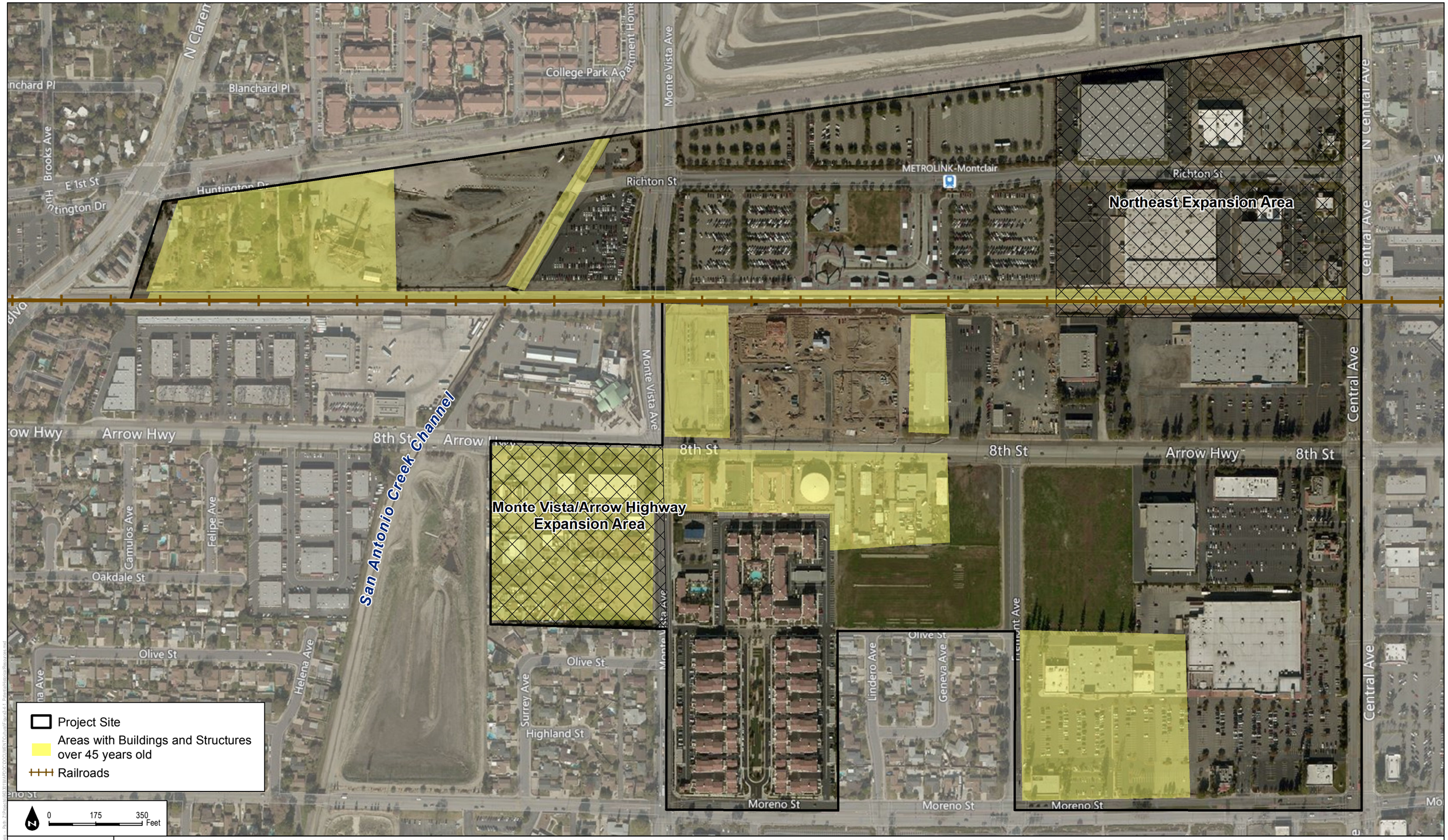
Wallace, William.1978. Post-Pleistocene Archaeology, 9000 to 2000 B.C. In California, edited by Robert F. Heizer, pp. 25–36. Handbook of North American Indians, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

Warren, Claude N. 1968. Cultural Tradition and Ecological Adaptation on the Southern California Coast. In Archaic Prehistory in the Western United States, edited by Cynthia Irwin-Williams, pp. 1–14. Eastern New Mexico University Contributions in Anthropology No. 1. Portales.

Wilke, Philip J. 1974. The Peppertree Site (4-Riv-463). In Perris Reservoir Archeology: Late Prehistoric Demographic Changes in Southeastern California, edited by James F. O'Connell, Philip J. Wilke, Thomas F. King, and Carol L. Mix, pp. 49–63. California Department of Parks and Recreation Archeology Reports 14.

Wilke, Philip J. 1978. Late Prehistoric Human Ecology at Lake Cahuilla, Coachella Valley, California. Contributions of the University of California Archaeological Research Facility No. 38.

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan 07/13/2016.

DUDEK

FIGURE 3.4-1

Potential Historical Resource Areas

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK

3.5 GREENHOUSE GAS EMISSIONS

This section describes the existing setting of the North Montclair Downtown Specific Plan (NMDSP) Amendment Project (Proposed Amendment) site related to greenhouse gas (GHG) emissions and climate change, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the Proposed Amendment. The October 2016 Initial Study (Appendix A) for the Proposed Amendment did not identify the potential impacts of the Proposed Amendment on the creation of greenhouse gas emissions. Therefore, this section evaluates the project's potential greenhouse gas emissions associated with future development under the Proposed Amendment as follows: would future projects generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and would future projects conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. GHG modeling data and associated information has been included as part of Appendix B.

3.5.1 Existing Conditions

3.5.1.1 The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth.

The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the temperature of the Earth would be about 0°F (−18°C) instead of its present 57°F (14°C). If the atmospheric concentrations of GHGs rise, the average temperature of the lower atmosphere will gradually increase. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect.

3.5.1.2 Greenhouse Gases

GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor, hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human

activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.[1]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans, volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of coal, oil, natural gas, and wood.

Methane. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and the use of N_2O as a propellant (such as in rockets, racecars, aerosol sprays).

Fluorinated Gases. Fluorinated gases are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Several prevalent fluorinated gases include the following:

- ***Hydrofluorocarbons:*** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- ***Hydrochlorofluorocarbons:*** HCFCs are compounds containing hydrogen, fluorine, chlorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to ozone depleting substances (chlorofluorocarbons (CFCs)).
- ***Chlorofluorocarbons:*** CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

[1] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's "Glossary of Terms Used in GHG Inventories" (2015), and the U.S. Environmental Protection Agency's (EPA's) "Glossary of Climate Change Terms" (2016a).

- ***Perfluorocarbons:*** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, along with HFCs, to the ozone depleting substances. The two main sources of PFCs are primarily aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- ***Sulfur Hexafluoride:*** SF_6 is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- ***Nitrogen trifluoride:*** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are also TACs that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from CARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, the CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014a).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both from natural sources and from human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

3.5.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2016b). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2E).

The current version of the California Emissions Estimator Model (CalEEMod) (version 2016.3.1) assumes that the GWP for CH_4 is 25 (which means that emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the Proposed Amendment.

3.5.1.4 Contributions to Greenhouse Gas Emissions

Per the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014* (2016c), total United States GHG emissions were approximately 6,870.5 million metric tons (MMT) CO_2E in 2014. The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 80.9% of total GHG emissions (5,556.0 MMT CO_2E). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.7% of CO_2 emissions in 2014 (5,208.2 MMT CO_2E). Total GHG emissions in the United States have increased by 7.4% from 1990 to 2014, and emissions increased from 2013 to 2014 by 1.0% (70.5 MMT CO_2E). Since 1990, United States GHG emissions have increased at an average annual rate of 0.3%; however, overall, net emissions in 2014 were 8.6% below 2005 levels (EPA 2016c).

According to California's 2000–2014 GHG emissions inventory (2016 edition), California emitted 441.5 MMT CO_2E in 2014, including emissions resulting from out-of-state electrical generation (CARB 2016a). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and

commercial activities, agriculture, high global-warming potential substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2014 are presented in Table 3.5-1.

Table 3.5-1
GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2E)	Percent of Total[a]
Transportation	159.53	36%
Industrial uses	93.32	21%
Electricity generation[b]	88.24	20%
Residential and commercial uses	38.34	9%
Agriculture	36.11	8%
High global-warming potential substances	17.15	4%
Recycling and waste	8.85	2%
Totals	**441.54**	**100%**

Source: CARB 2016a.
Notes: Emissions reflect the 2014 California GHG inventory.
MMT CO_2E = million metric tons of carbon dioxide equivalent per year
[a] Percentage of total has been rounded, and total may not sum due to rounding.
[b] Includes emissions associated with imported electricity, which account for 36.51 MMT CO_2E annually.

During the 2000 to 2014 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 13.9 MT per person to 11.4 MT per person in 2014, representing an 18% decrease. In addition, total GHG emissions in 2014 were 2.8 MMT CO_2E less than 2013 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California is on track to meet the 2020 target of 431 MMT CO_2E (CARB 2016a).

The City has established a goal to reduce its community-wide GHG emissions to a level that is 20% below its 2008 GHG emissions level by 2020 (SANBAG 2013). The City's community-wide GHG emissions inventory for baseline year 2008 is presented in Table 3.5-2.

Table 3.5-2
City of Montclair Baseline (Year 2008) Community-Wide GHG Emissions Inventory

Community Sector	Total MT CO_2E/year	CO_2E (%)
Building energy	87,088	32%
On-road transportation	144,013	54%
Off-road equipment	16,474	6%
Solid waste management	10,108	4%
Wastewater Treatment	1,455	1%
Water Conveyance	9,687	3%
Total	**268,825**	**100%**

Source: SANBAG 2013.
Note: GHG = greenhouse gas; MT CO_2E = metric tons of carbon dioxide equivalent per year
[1] Total May be slightly off due to rounding.

As shown on Table 3.5-2, approximately 54% of the City's GHG emissions in 2008 were attributed to on-road transportation. Building energy accounted for approximately 32%. Off-road equipment accounted for approximately 6%, solid waste management accounted for 4%, water conveyance accounted for 3%, and wastewater treatment made up the remaining 1% of the City's GHG emissions in 2008.

3.5.1.5 Potential Effects of Human Activity on Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 *Intergovernmental Panel on Climate Change Synthesis Report* indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice have, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2012). The primary effect of global climate change has been a 0.2°C rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010a).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1 to

8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California and much of the State's water supply, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in Central and, most notably, Southern California. By late-century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

Wildfire risk in California will increase as a result of climate change. Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. However, human activities will continue to be the biggest factor in ignition risk. It is estimated that the long-term increase in fire occurrence associated with a higher emissions scenario is substantial, with increases in the number of large fires statewide ranging from 58% to 128% above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57% to 169%, depending on the location (CCCC 2012).

Reduction in the suitability of agricultural lands for traditional crop types may occur. While effects may occur, adaptation could allow farmers and ranchers to minimize potential negative effects on agricultural outcomes by adjusting timing of plantings or harvesting and changing crop types.

Public health-related effects of increased temperatures and prolonged temperature extremes, including heat stroke, heat exhaustion, and exacerbation of existing medical conditions, could be particular problems for the elderly, infants, and those who lack access to air conditioning or cooled spaces (CNRA 2009a).

A summary of current and future climate change impacts to resource areas in California, as discussed in the *Safeguarding California: Reducing Climate Risk* (CNRA 2014), is provided below.

Agriculture. The impacts of climate change on the agricultural sector are far more severe than the typical variability in weather and precipitation patterns that occur year to year. Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought, to destructive storm events; significant shifts in water availably and

water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production. These challenges and associated short-term and long-term impacts can have both positive and negative effects on agricultural production. Nonetheless, it is predicted that current crop and livestock production will suffer long-term negative effects resulting in a substantial decrease in the agricultural sector if not managed or mitigated (CNRA 2014).

Biodiversity and Habitat. The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurs). Habitat restoration, conservation, and resource management across California and through collaborative efforts amongst public, private and nonprofit agencies has assisted in the effort to fight climate change impacts on biodiversity and habitat. One of the key measures in these efforts is ensuring species' ability to relocate as temperature and water availability fluctuate as a result of climate change, based on geographic region.

Energy. The energy sector provides California residents with a supply of reliable and affordable energy through a complex integrated system. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events and sea level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures. Natural gas infrastructure in coastal California is threatened by sea level rise and extreme storm events (CNRA 2014).

Forestry. Forests occupy approximately 33% of California's 100 million acres and provide key benefits such as wildlife habitat, absorption of carbon dioxide, renewable energy and building materials. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in a greater number of large scale tree mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat and decreased carbon absorption. Climate change may result in increased establishment of non-native species,

particularly in rangelands where invasive species are already a problem. Invasive species may be able to exploit temperature or precipitation changes, or quickly occupy areas denuded by fire, insect mortality or other climate change effects on vegetation (CNRA 2014).

Ocean and Coastal Ecosystems and Resources. Sea level rise, changing ocean conditions and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea level rise in addition to more frequent and severe coastal storms and erosion are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands. Water quality and ocean acidification threaten the abundance of seafood and other plant and wildlife habitats throughout California and globally (CNRA 2014).

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the twenty-first Century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat related illness as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness such as asthma and allergies. Additional health impacts that may be impacted by climate change include cardiovascular disease, vector-borne diseases, mental health impacts, and malnutrition injuries. Increased frequency of these ailments is likely to subsequently increase the direct risk of injury and/or mortality (CNRA 2014).

Transportation. Residents of California rely on airports, seaports, public transportation and an extensive roadway network to gain access to destinations, goods and services. While the transportation industry is a source of GHG emissions it is also vulnerable to climate change risks. Particularly, sea level rise and erosion threaten many coastal California roadways, airports, seaports, transit systems, bridge supports and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure which can impair movement of peoples and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety (CNRA 2014).

Water. Water resources in California support residences, plants, wildlife, farmland, landscapes and ecosystems and bring trillions of dollars in economic activity. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter time. Increased risk of flooding has a variety of public health concerns including water quality, public safety, property damage, displacement and post-disaster mental health problems. Prolonged and intensified droughts can also negatively groundwater reserves and result in increased overdraft and subsidence. Droughts can also negatively impact agriculture and farmland throughout the state. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality. Water temperatures are also prone to increase, which can negatively impact wildlife that rely on a specific range of temperatures for suitable habitat (CNRA 2014).

3.5.2 Regulatory Setting

3.5.2.1 Federal

Massachusetts vs. EPA. On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the federal Clean Air Act. On December 7, 2009, the Administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act. On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the Act would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
2. Set a target of 35 miles per gallon (mpg) for the combined fleet of cars and light trucks by model year 2020 and direct NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed previously, the Bush Administration issued Executive Order 13432 in 2007 directing the EPA, the Department of Transportation (DOT), and the Department of Energy (DOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Obama issued a memorandum directing the DOT, DOE, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described previously, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans and all types of sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

Climate Action Plan. In June 2013, President Obama issued a national Climate Action Plan (Plan) that consisted of a wide variety of executive actions and had three pillars: (1) cut carbon in America, (2) prepare the U.S. for impacts of climate change, and (3) lead international efforts to combat global climate change and prepare for its impacts (EOP 2013).

The Plan outlines 75 goals within the three main pillars.

1. ***Cut Carbon in America*** – The Plan consists of actions to help cut carbon by deploying clean energy, such as cutting carbon from power plants, promoting renewable energy, and unlocking long-term investment in clean energy innovation. In addition, the Plan includes actions designed to help build a 21st century transportation sector; cut energy waste in homes, businesses, and factories; and reduce other GHG emissions, such as HFCs and methane. The Plan commits to lead in clean energy and energy efficiency at the federal level.
2. ***Prepare the U.S. for Impacts of Climate Change*** – The Plan consists of actions to help prepare for the impacts of climate change through building stronger and safer communities and infrastructure, supporting climate resilient investments, supporting communities and tribal areas as they prepare for impacts, and boosting resilience of building and infrastructure; protecting the economy and natural resources by identifying vulnerabilities, promoting insurance leadership, conserving land and water resources, managing drought, reducing wildfire risks, and preparing for future floods; and using sound science to manage climate impacts.
3. ***Lead International Efforts*** – The Plan consists of actions to help the U.S. lead international efforts through working with other countries to take action by enhancing multilateral engagements with major economies, expanding bilateral cooperation with major emerging economies, combating short-lived climate pollutants, reducing deforestation and degradation, expanding clean energy use and cutting energy waste, global free trade in environmental goods and services, and phasing out subsidies that encourage wasteful use of fossil fuels and by leading efforts to address climate change through international negotiations.

In June 2014, the Center for Climate and Energy Solutions (C2ES) published a 1-year review of progress in implementation of the Plan (C2ES 2014). The C2ES found that the administration had made marked progress in its initial implementation. The administration made at least some progress on most of the Plan's 75 goals, and many of the specific tasks outlined had been completed. Notable areas of progress included steps to limit carbon pollution from power plants; improve energy efficiency; reduce CH_4 and HFC emissions; help communities and industry become more resilient to climate change impacts; and end U.S. lending for coal-fired power plants overseas.

U.N. Framework Convention on Climate Change Pledge. On March 31, 2015, the State Department submitted the U.S. target to cut net GHG emissions to the United Nations Framework Convention on Climate Change. The submission, referred to as an Intended Nationally Determined Contribution, is a formal statement of the U.S. target, announced in China last year, to reduce our emissions by 26%–28% below 2005 levels by 2025, and to make best efforts to reduce by 28% (C2ES 2016).

The target reflects a planning process that examined opportunities under existing regulatory authorities to reduce emissions in 2025 of all GHGs from all sources in every economic sector. Several U.S. laws, as well as existing and proposed regulations thereunder, are relevant to the implementation of the U.S. target, including the Clean Air Act (42 U.S.C. 7401 et seq.), the Energy Policy Act (42 U.S.C. 13201 et seq.), and the Energy Independence and Security Act (42 U.S.C. 17001 et seq.).

Clean Power Plan and New Source Performance Standards for Electric Generating Units. On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. Implementation of the Clean Power Plan has been stayed by the U.S. Supreme Court pending resolution of several lawsuits.

3.5.2.2 State

State Climate Change Targets

Executive Order (EO) S-3-05. EO S-3-05 (June 2005) established the following goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050. Under EO S-3-05, the California Environmental Protection Agency is directed to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued the *2006 Climate Action Team Report* to *Governor Schwarzenegger and the Legislature* (CAT 2006).

The *2009 Climate Action Team Biennial Report* (CAT 2010b) expands on the policy outlined in the 2006 assessment. The 2009 report identifies the need for additional research in several different aspects that affect climate change to support effective climate change strategies. Subsequently, the *2010 Climate Action Team Report to Governor Schwarzenegger and the California Legislature* (CAT 2010a) reviews past climate action milestones including voluntary reporting programs, GHG standards for passenger vehicles, the Low Carbon Fuel Standard, a statewide renewable energy standard, and the cap-and-trade program.

Assembly Bill (AB) 32. In furtherance of the goals established in EO S-3-05, the legislature enacted AB 32 (Núñez and Pavley), the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020, representing a reduction of approximately 15% below emissions expected under a "business-as-usual" (BAU) scenario (i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations).

CARB has been assigned responsibility for carrying out and developing the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 also authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted. These efforts target GHG emission reductions from cars and trucks, electricity production, fuels, and other sources. The full implementation of AB 32 will help mitigate risks associated with climate

change while improving energy efficiency, expanding the use of renewable energy resources and cleaner transportation, and reducing waste.

Of relevance to this analysis, in 2007, CARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2E). CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for the large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California.

Further, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan) in accordance with Health and Safety Code, Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The 2020 emissions limit was set at 427 MMT of CO_2E. The Scoping Plan establishes an overall framework for a suite of measures that will be adopted to sharply reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33%
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

In the Scoping Plan, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise projected

2020 BAU emissions level. For example, in further explaining CARB's BAU methodology, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the BAU conditions. When the 2020 emissions level projection also was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewable Portfolio Standard (12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the BAU conditions.

Most recently, in 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (First Update; CARB 2014). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050." The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In the First Update, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050" (CARB 2014). Those six areas are: (1) energy, (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure), (3) agriculture, (4) water, (5) waste management, and (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of Executive Order S-3-05's 2050 reduction goal.

Based on CARB's research efforts presented in the First Update, CARB has a "strong sense of the mix of technologies needed to reduce emissions through 2050." Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies.

As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2E) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the BAU conditions. The update also recommends that a statewide mid-term target and mid-term and long-term sector targets be established toward meeting the 2050 goal established by EO S-3-05 (i.e., reduce California's GHG emissions to 80% below 1990 levels), although no specific recommendations are made.

CARB is currently undertaking a second update to the Scoping Plan in order to reflect the 2030 target established in Executive Order B-30-115. To date, CARB has held a number of public workshops in the Natural and Working Lands, Agriculture, Energy and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016b).

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2E. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction threshold. It is important to note that EO B-30-15 was not adopted by a public agency through a public review process that requires analysis pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15064.4, and that it has not been subsequently validated by a statute as an official GHG reduction target of California. EO B-30-15 itself states it is "not intended to create, and does not, create any rights of benefits, whether substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person."

Senate Bill (SB) 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets; make changes to CARB's membership, and increase legislative oversight of CARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. SB 32 codified the 2030 emissions reduction goal of Executive Order B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three

members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and, requires CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

EO B-18-12. EO B-18-12 (April 2012) directs state agencies, departments, and other entities under the governor's executive authority to take action to reduce entity-wide GHG emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline. EO B-18-12 also established goals for existing state buildings for reducing grid-based energy purchases and water use.

SB 605. SB 605 (September 2014) required CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means "an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide" (SB 605). SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, the CARB must complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data, identify research needs to address any data gaps, identify existing and potential new control measures to reduce emissions, and prioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other criteria air pollutants that impact community health and benefit disadvantaged communities. The *Proposed Short-Lived Climate Pollution Reduction Strategy* released by CARB in April 2016 focuses on CH_4, black carbon, and fluorinated gases, particularly HFCs, as important short-lived climate pollutants (CARB 2016c). The strategy recognizes emission reduction efforts implemented under AB 32 (e.g., refrigerant management programs) and other regulatory programs (e.g., in-use diesel engines, solid waste diversion) along with additional measures to be developed.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The California Energy Commission (CEC) is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these

standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The current Title 24 standards are the 2013 standards, which became effective on July 1, 2014. Buildings constructed in accordance with the 2013 standards will use 25% less energy for lighting, heating, cooling, ventilation, and water heating than the 2008 standards (CEC 2012).

The 2016 Title 24 building energy efficiency standards, which will be effective January 1, 2017, will further reduce energy used and associated GHG emissions. In general, single-family homes built to the 2016 standards are anticipated to use about 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015). Development under the Proposed Amendment would be required to comply with 2016 (or future) Title 24 standards because its building construction phase would commence after January 1, 2017.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards will become effective January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance
- 65% of construction and demolition waste must be diverted from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 65% diversion of nonhazardous construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs.

The California Public Utilities Commission (CPUC), CEC, and CARB also have a shared, established goal of achieving zero net energy for new construction in California. The key policy timelines include: (1) all new residential construction in California will be zero net energy by 2020, and (2) all new commercial construction in California will be zero net energy by 2030.[2]

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains the following three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Mobile Sources

AB 1493. In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 (Pavley) was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal

[2] See CPUC's California's Zero Net Energy Policies and Initiatives (Sept. 18, 2013) (http://www.cpuc.ca.gov/NR/rdonlyres/C27FC108-A1FD-4D67-AA59- 7EA82011B257/0/3.pdf). It is expected that achievement of the zero net energy goal will occur via revisions to the Title 24 standards.

transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2E grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The Low Carbon Fuel Standard is anticipated to lead to the replacement of 20% of the fuel used in motor vehicles with alternative fuels by 2020.

SB 375. SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans, was enacted into law. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations are then responsible for preparing a Sustainable Communities Strategy within their Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), a sustainable communities strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for the Southern California Association of Governments (SCAG) are an 8% reduction in emissions per capita by 2020 and a 13% reduction by 2035.

SCAG prepared its RTP/SCS, which was adopted by the SCAG Regional Council on April 4, 2012. The plan quantified a 9% reduction by 2020 and a 16% reduction by 2035. On June 4, 2012, the CARB executive officer issued an executive order accepting SCAG's quantification of GHG reductions and the determination that the SCS would achieve the GHG emission reduction targets established by CARB. On April 7, 2016, SCAG adopted the 2016-2040 RTP/SCS which looks to build on the success of the 2012-20135 RTP/SCS. Targets for SCAG region in the updated plan includes an 8% per capita reduction in GHG emissions from automobiles and light trucks by 2020, an 18% reduction by 2035, and a 21% reduction by 2040 compared with 2005 levels (SCAG 2016).

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2012). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The zero-emission vehicle program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of zero-emission vehicles and plug-in hybrid electric vehicles in the 2018 to 2025 model years. The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

EO B-16-12. EO B-16-12 (March 2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution of zero-emission vehicles. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050.

Renewable Energy and Energy Procurement

Senate Bill (SB) 1078. SB 1078 (Sher) (September 2002) established the Renewable Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the

utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated by SB 107 (2006), requiring utilities to obtain 20% of their power from renewable sources by 2010.

SB 1368. In September 2006, Governor Schwarzenegger signed SB 1368, which requires the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the CPUC. This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

EO S-14-08. EO S-14-08 (November 2008) focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO requires that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the EO directs state agencies to take appropriate actions to facilitate reaching this target. The CNRA, through collaboration with the CEC and California Department of Fish and Wildlife (formerly the California Department of Fish and Game), is directed to lead this effort. Pursuant to a Memorandum of Understanding between the CEC and California Department of Fish and Wildlife regarding creating the Renewable Energy Action Team, these agencies will create a “one-stop” process for permitting renewable energy power plants.

EO S-21-09. EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB is further directed to work with the CPUC and CEC to ensure that the regulation builds upon the RPS program and is applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB is to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB adopted regulations to implement a Renewable Electricity Standard, which would achieve the goal of the EO with the following intermediate and final goals: 20% for 2012–2014, 24% for 2015–2017, 28% for 2018–2019, and 33% for 2020 and beyond. Under the regulation, wind; solar; geothermal; small hydroelectric; biomass; ocean wave, thermal, and tidal; landfill and digester gas; and biodiesel would be considered sources of renewable energy. The regulation would apply to investor-owned utilities and public (municipal) utilities.

SB X1 2. SB X1 2 (April 2011) expanded the RPS by establishing a goal of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers covered by SB 107, SB X1 2 adds local, publicly owned electric utilities to the RPS. By January 1, 2012, the CPUC is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers to achieve targets of 20% by December 31, 2013; 25% by December 31, 2016; and 33% by December 31, 2020. The statute also requires that the governing boards for local, publicly owned electric utilities establish the same targets, and the governing boards would be responsible for ensuring compliance with these targets. The CPUC will be responsible for enforcement of the RPS for retail sellers, while the CEC and CARB will enforce the requirements for local publicly owned electric utilities.

SB 350. SB 350 (October 2015) expands the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the California Independent System Operator into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the California Independent System Operator to those markets, pursuant to a specified process.

Water

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code Section 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 (Chapter 476, Statutes of 2011 (Chesbro)) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle conducted several general stakeholder workshops and several focused workshops and in August 2015 published a discussion document titled *AB 341 Report to the Legislature*, which identifies five priority strategies that CalRecycle believes would assist the state in reaching the 75% goal by 2020, legislative and regulatory recommendations, and an evaluation of program effectiveness.

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by (1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials; and (2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle 2015). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO_2 and CH_4) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

Other State Regulations and Goals

EO S-13-08. EO Order S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. It directs state agencies to take specified actions to assess and plan for such impacts. It directs the CNRA, in cooperation with the California Department of Water Resources, CEC, California's coastal management agencies, and the Ocean Protection Council, to request that the National Academy of Sciences prepare a Sea Level Rise Assessment Report by December 1, 2010. The Ocean Protection Council, California Department of Water Resources, and CEC, in cooperation with other state agencies, are required to conduct a public workshop to gather information relevant to the Sea Level Rise Assessment Report. The Business, Transportation, and Housing Agency was ordered to assess

within 90 days of issuance of the EO the vulnerability of the state's transportation systems to sea-level rise. The Governor's Office of Planning and Research and the CNRA are required to provide land use planning guidance related to sea-level rise and other climate change impacts. The EO also required the other state agencies to develop adaptation strategies by June 9, 2009, to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. A discussion draft adaptation strategies report was released in August 2009, and the final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (CNRA 2009a). An update to the 2009 report, *Safeguarding California: Reducing Climate Risk*, was issued in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water.

2015 State of the State Address. In January 2015, Governor Brown in his inaugural address and annual report to the Legislature established supplementary goals which would further reduce GHG emissions over the next 15 years. These goals include an increase in California's renewable energy portfolio from 33% to 50%, a reduction in vehicle petroleum use for cars and trucks by up to 50%, measures to double the efficiency of existing buildings, and decreasing emissions associated with heating fuels.

2016 State of the State Address. In his January 2016 address, Governor Brown established a statewide goal to bring per capita GHG emission down to 2 tons per person, which reflects the goal of the Global Climate Leadership Memorandum of Understanding (Under 2 MOU; OPR 2016) to limit global warming to less than 2°C by 2050. The Under 2 MOU agreement pursues emission reductions of 80% to 95% below 1990 levels by 2050 and/or reach a per capita annual emissions goal of less than two metric tons by 2050. A total of 135 jurisdictions representing 32 countries and 6 continents, including California, have signed or endorsed the Under 2 MOU (OPR 2016).

3.5.2.3 Local

City of Montclair

The City of Montclair General Plan (City of Montclair 1999) includes various policies related to reducing GHGs (both directly and indirectly). Applicable policies include the following:

Circulation Element

Policy CE-1.1.1 Ensure the construction of a variety of street types, each designated to serve a specific circulation function and to thus provide for adequate service to the community. These routes include freeways (including on- and off-ramps),

divided arterial, arterial, major, secondary, enhanced collector, industrial collector, collector and local streets.

Policy CE-1.1.2 Protect street traffic capacities by controlling access points from adjoining land and by restricting on-street parking when and where necessary.

Policy CE-1.1.8 Continue promotion of the construction of sidewalks in residential areas to provide safe pedestrian circulation.

Policy CE-1.1.9 Ensure, where possible, the development and maintenance of adequate, efficient, safe and attractive pedestrian walkways between major pedestrian generators.

Policy CE-1.1.10 Promote the provision of public modes of transportation between strategic locations such as the Montclair Plaza Shopping Center, and other traffic generators such as the Montclair Transcenter and potential Metrolink station on the Riverside Line.

Policy CE-1.1.14 Develop a more detailed bicycle route plan. Develop a zoning standard to require bicycle racks at public facilities as well as at commercial centers. Where a bicycle route is proposed along a roadway, consider striping for safety purposes, where possible.

Housing Element

Policy HE-1.1.27 Develop housing in a manner which will allow the maximum use of alternative energy sources (e.g. solar, wind, cogeneration).

Air Quality Element

Policy AQ-2.1.1 Encourage and facilitate mixed use and self-sufficient development which are pedestrian and transit-oriented. The areas north of the Montclair Plaza and within the Montclair Transcenter have been identified by the "North Montclair Specific Plan" as viable sites for such developments.

Policy AQ-2.1.2 Encourage trip reduction through programs such as compressed work weeks, flex schedules, carpooling, and telecommunication.

Policy AQ-2.3.1 Provide on-going participation in the CMP process within San Bernardino County.

Policy AQ-2.3.2 Require interconnected signal control systems for all primary arterials including those which cross interjurisdictional boundaries.

Policy AQ-2.4.2 Develop a City shuttle between regional land uses, park-n-ride facilities, and neighborhoods, in conjunction with Omnitrans existing service.

Policy AQ-2.4.3 Provide bicycle and pedestrian pathways and facilities to encourage non-motorized trips.

Policy AQ-2.5.1 Provide incentives for ridesharing and non-single occupancy vehicles for those vehicles who use public parking lots.

Policy AQ-2.6.1 Purchase vehicles which use clean fuels for use as part of the City fleet.

Policy AQ-3.1.1 Prepare and annually update a Capital Improvement Plan (CIP) to include state mandated air quality requirements.

Conservation Element

Policy CO-1.1.2 Encourage and promote programs to conserve water and minimize consumption.

Policy CO-1.1.5 Promote the use of native plant materials for their water-conserving capabilities as well as to reestablish plant materials indigenous to the area.

Policy CO-1.1.9 Maintain and expand recycling programs to result in continued diversion of materials to landfill, reuse of materials and conservation of natural resources.

3.5.3 Thresholds of Significance

Office of Planning and Research's Guidance

The Office of Planning and Research's Technical Advisory titled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review* (2008) states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to "a significant, cumulative climate change impact." Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice" (OPR 2008).

Section 15064.4 of the CEQA Guidelines, Determining the Significance of Impacts from Greenhouse Gas Emissions, states the following:

A. The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

   i. Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

   ii. Rely on a qualitative analysis or performance based standards.

B. A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

   i. The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

   ii. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

   iii. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR [environmental impact report] must be prepared for the project (14 CCR 15064.4).

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project in the SCAB, such as the Proposed Amendment, would be considered a cumulatively considerable contribution to global climate change.

While future projects under the Proposed Amendment would result in emissions of GHGs during construction and operation, no guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. However, it is generally believed that an individual project is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory since scientific uncertainty regarding the significance of a project's individual and cumulative effects on global climate change remains.

Thus, GHG impacts are recognized exclusively as cumulative impacts; there are no noncumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). This approach is consistent with that recommended by the CNRA, which noted in its public notice for the proposed CEQA amendments that the evidence before it indicates that, in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact rather than a project-level impact (CNRA 2009b). Similarly, the *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97* (CNRA 2009c) confirm that an environmental impact report or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable. Accordingly, further discussion of the GHG emissions from future development under the Proposed Amendment and its impact on global climate change are addressed in this section.

CEQA Guidelines

The CNRA adopted amendments to the CEQA Guidelines on December 30, 2009, which became effective on March 18, 2010. With respect to GHG emissions, the CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (14 CCR 15000 et seq.). Section 15064.4(b) provides that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). Similarly, Appendix G, *Environmental Checklist Form*, which is often used as a basis for lead agencies' selection of significance thresholds, do not prescribe specific thresholds. Rather, the CEQA Guidelines include two CEQA thresholds related to GHGs, and these will therefore, be used to discuss significance of project impacts:

A. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

B. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Accordingly, the CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009c).

Status of Proposed SCAQMD Thresholds

The South Coast Air Quality Management District (SCAQMD) has not adopted recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects. In October 2008, the SCAQMD presented to the Governing Board the *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (2008). The guidance document was not adopted or approved by the Governing Board. This document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association (CAPCOA), explored various approaches for establishing a significance threshold for GHG emissions.

The SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. In December 2008, the SCAQMD adopted an interim 10,000 MT CO_2E per year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency. From December 2008 to September 2010, the SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. The SCAQMD has continued to consider adoption of significance thresholds for residential and general land use development

projects. The most recent proposal, issued in September 2010, uses the following tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010):

Tier 1 Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.

Tier 2 Consider whether or not the proposed project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.

Tier 3 Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2E per year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2E per year), commercial projects (1,400 MT CO_2E per year), and mixed-use projects (3,000 MT CO_2E per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2E per year would be used for all non-industrial projects. If the project generates emissions in excess of the applicable screening threshold, move to Tier 4.

Tier 4 Consider whether the project generates GHG emissions in excess of applicable performance standards for the project service population (population plus employment). The 2020 efficiency targets were established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2E per service population for project level analyses and 6.6 MT CO_2E per service population for plan level analyses. The 2035 efficiency targets are 3.0 MT CO_2E per service population for project level analyses and 4.1 MT CO_2E per service population for plan level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.

Tier 5 Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

The SCAQMD *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (2009) recommends that "construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies." This impact analysis, therefore, adds amortized construction emissions to the estimated annual operational emissions. The threshold applied to

determine the significance of the Proposed Amendment is the proposed SCAQMD 2035 efficiency target of 3.0 MT CO_2E per service population.[3]

3.5.4 Impacts Analysis

A. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

New Significant and Unavoidable Impact. The 2006 EIR did not address climate change or estimate GHG emissions associated with the NMDSP, though it did consider air quality impacts from other criteria pollutants.

Construction Emissions

The Proposed Amendment would allow for increased land for mixed-use development which may increase GHG emissions in the City. Construction of future projects under the Proposed Amendment would result in GHG emissions that are primarily associated with the use of off-road construction equipment and on-road construction, vendor (delivery) trucks, and worker vehicles. The SCAQMD has not proposed or adopted relevant quantitative GHG thresholds for construction-generated emissions. Nonetheless, GHG emissions generated during future construction of projects under the Proposed Amendment are included in this assessment for disclosure purposes.

The California Emissions Estimator Model (CalEEMod) (version 2016.3.1) was used to calculate the annual GHG emissions based on the construction scenario described in Section 3.1, Air Quality. Table 3.5-3, presents construction GHG emissions for the Proposed Amendment from 2017 to 2034. Construction emissions presented herein are estimates based on the buildout of the Proposed Amendment which is the cumulative result of hundreds of separate projects to which the level of detail is not known.

Table 3.5-3
Estimated Annual Construction Greenhouse Gas Emissions

Construction Year	CO_2	CH_4	N_2O	CO_2E
	Metric Tons per Year			
2017	514.25	0.13	0.00	517.48
2018	647.65	0.18	0.00	652.25
2019	752.22	0.23	0.00	757.99

[3] Although the Proposed Amendment is to a Specific Plan, the project-level efficiency threshold was used for this analysis since the Bay Area Air Quality Management District (BAAQMD) notes that the plan-level efficiency threshold should be applied to general plans only and that specific plans should be compared to the project-level efficiency threshold (BAAQMD 2010).

Table 3.5-3
Estimated Annual Construction Greenhouse Gas Emissions

Construction Year	CO_2	CH_4	N_2O	CO_2E
	Metric Tons per Year			
2020	7634.95	0.45	0.00	7646.12
2021	10843.41	0.52	0.00	10856.53
2022	10534.09	0.49	0.00	10546.44
2023	10189.44	0.43	0.00	10200.09
2024	10065.28	0.42	0.00	10075.67
2025	9770.84	0.40	0.00	9780.83
2026	9544.53	0.39	0.00	9554.21
2027	9345.63	0.38	0.00	9355.01
2028	9136.37	0.36	0.00	9145.45
2029	9018.74	0.35	0.00	9027.60
2030	8924.94	0.29	0.00	8932.13
2031	8825.11	0.28	0.00	8832.10
2032	7954.52	0.25	0.00	7960.73
2033	326.47	0.01	0.00	326.84
2034	662.91	0.01	0.00	663.24
2035	900.06	0.01	0.00	900.33
Total Emissions	**125,591.40**	**5.59**	**0.00**	**125,731.05**

Notes: See Appendix B for detailed results.
CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2E = carbon dioxide equivalent

As shown in Table 3.5-3, the Proposed Amendment would generate a total of approximately 125,731 MT CO_2E during construction of future projects under the Proposed Amendment over 18 years, which would be 4,191 MT CO_2E when amortized over a 30-year period. Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis below.

Operational Emissions

The Proposed Amendment would result in the development of 4,910 apartment units, 1,016 condo/townhome units, 1,322,695 square feet of office uses, and 565,946 square feet of retail uses, as well as the potential demolition of the – 9 single-family houses and 207,356 square feet in industrial uses currently in operation in the Proposed Amendment area. Operation of future projects under the Proposed Amendment would result in GHG emissions that are generated through motor vehicle trips to the Proposed Amendment area, energy use (natural gas and generation of electricity consumed by future projects), generation of electricity associated with water supply, treatment, and distribution and wastewater treatment, and GHGs generated by solid waste disposal. The existing uses to be demolished also result in the generation of GHGs from these sources.

The Proposed Amendment would result in GHG emissions associated with vehicular traffic generated by future projects under the Proposed Amendment. According to the Proposed Amendment's traffic study (Stantec 2016), total daily traffic generated by future projects is estimated to be 75,335 daily trips, which results in the addition of 52,119 daily trips in contrast with existing land uses that are being replaced. Existing land uses that would be demolished under the Proposed Amendment are estimated to generate 23,216 daily trips. CalEEMod default mobile source data, including temperature, trip characteristics, variable start information, emission factors, and trip distances, were conservatively used for the model inputs. Buildout of the Proposed Amendment is expected to occur by 2035, therefore, GHG emission estimates were prepared for 2035.

CalEEMod was also used to estimate emissions from the Proposed Amendment's and the existing land uses' area sources, which includes operation of gasoline-powered landscape maintenance equipment, which produce minimal GHG emissions.

The estimation of operational energy emissions was based on CalEEMod land use defaults and units or total area (i.e., square footage) of the Proposed Amendment. Annual natural gas (non-hearth) and electricity emissions were estimated in CalEEMod using the emissions factors for Southern California Edison (SCE), which would be the energy source provider for the Proposed Amendment area. The Proposed Amendment would meet the 2016 California Building Energy Efficiency Standards (Title 24, Part 6, of the California Code of Regulations). The default energy input ratios for Title 24 natural gas and electricity consumption as provided in CalEEMod were revised for the Proposed Amendment to meet 2016 Title 24 standards. For the existing land uses, default values generated from CalEEMod was assumed.

Supply, conveyance, treatment, and distribution of water for future projects under the Proposed Amendment require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the Proposed Amendment requires the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment. Water consumption estimates for both indoor and outdoor water use were estimated using the default CalEEMod values for both the Proposed Amendment and the existing land uses to be replaced. In addition, electricity consumption from water use and wastewater generation were estimated using CalEEMod default values.

CalEEMod was also used to estimate GHG emissions from the Proposed Amendment's area sources and solid waste generation. Area sources include operation of gasoline-powered landscape maintenance equipment. Solid waste would result in CO_2E emissions associated with landfill off-gassing. CalEEMod default values were used for area sources

and solid waste generation for both the Proposed Amendment and the existing land uses to be demolished.

The emission reductions described below were used to adjust the Proposed Amendment inventory to determine emissions with adopted regulations applied.

The following discussion describes the state regulations that result in emission reductions within the City of Montclair. For details regarding the reduction estimates, see the calculations in Appendix B.

Motor Vehicles. Pavley I and LEV III. Regulations reducing motor vehicle emissions include Pavley I and LEV III, which reduce emissions from light duty cars and trucks. Pavley I applies to vehicles sold between 2009 and 2016. LEV III, also known as the Advanced Clean Cars Program, applies to vehicles sold between 2017 and 2025. Reductions from Pavley I are incorporated into the mobile source modeling assumptions in CARB's EMFAC2014. LEV III reductions have not been incorporated into the EMFAC model and are estimated based on CARB analysis accomplished to support adoption of the regulation. These regulations provide an incremental improvement as older, less efficient vehicles are retired and new more efficient vehicles meeting the new standards are purchased. For this reason, reductions will continue to accrue well after 2025 even if new regulations are not adopted in the future.

Low Carbon Fuel Standard (LCFS). The LCFS mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020. The LCFS is not incorporated into CalEEMod and is reflected in the modeling results by reducing the emissions output by 10%. The LCFS provides reductions for all vehicle classifications.

Energy Generation and Efficiency Regulations. The state has adopted regulations that result in GHG reductions from the utilities on the production side and from consumers on the demand side. The following regulations are included in the assessment.

- **Renewable Portfolio Standard (RPS).** The RPS requires utilities to increase the amount of power generated from renewable sources to 33% by 2020. SCE reported its renewable power sales at 24% in 2014 and would be expected to meet the 50% mandate by 2030.
- **Title 24 Energy, Part 6. Efficiency Regulation.** Title 24 reduces emissions through energy conservation in new and remodeled buildings. The latest version of Title 24 (2016) provides a 28% reduction in residential energy consumption and a 5% reduction in non-residential energy consumption relative to 2013 Title 24 standards.

- **Title 24, Part 11. California Green Building Code Standards**. The Green Building Code Standards include measures requiring mandatory water conservation measures and other measures not addressed under Title 24, Part 6.
- **Title 20 Appliance Efficiency Standards.** Title 20 requires certain appliances to meet energy efficiency standards. No reductions are included below because a methodology to capture the reductions has not been identified.

Area Sources. SCAQMD Rule 445 prohibits installation of wood burning devices into any new development. Therefore, it can be assumed that new developments constructed under the Proposed Amendment would not include wood burning devices.

Model Water Conservation Mandate. EO-29-15 requires a 25% reduction in urban water use.

Waste. AB 375 requires the mandatory diversion of 75% waste by 2020. Individual development as a result of the proposed project will participate in City programs designed to achieve the mandated reductions.

Additional Policies or Regulations Related to Greenhouse Gas Emissions

In addition to the above regulatory measures, future projects under the Proposed Amendment would be required to comply with the following federal and statewide measures that would further reduce GHG emissions; however, emission reductions resulting from compliance with these measures are not quantifiable and could not be incorporated into CalEEMod.

- EPA and NHTSA GHG and CAFE standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles (75 FR 25324–25728 and 77 FR 62624–63200) and for medium- and heavy-duty vehicles (76 FR 57106–57513)
- Advanced Clean Cars Program (California Code of Regulations, Title 13, Division 3, Chapter 1, Articles 1, 2, 6 (parts); Chapter 2, Articles 1, 2.1, 2.3, 2.4 (parts); Chapter 4.4 (parts); Chapter 8 (parts).
- Under Inflated Vehicle Tires (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 8, Section 95550 et seq.)
- Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 1, Section 95300 et seq.)
- Management of High Global Warming Potential Refrigerants for Stationary Sources (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5.1, Section 95380 et seq.)

- Small Containers of Automotive Refrigerant (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5, Section 95360 et seq.)
- High-Global Warming Potential Greenhouse Gases in Consumer Products (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 8.5, Article 2)
- CALGreen Code as Adopted by the Building Standards Commission (California Code of Regulations, Title 24, Part 11 Emergency Building Standard DSA-SS EF-02/15)

Many of the regulations provide cumulative reductions that accrue each year. For example, new vehicles compliant with Low Emission Vehicle (LEV) III standards replace older higher emitting vehicles each year until most older vehicles are no longer in service. Once most or all older vehicles have been retired, reductions become flat and growth begins to offset the reductions achieved. Additional GHG reductions would be based on implementation of the LCFS, RPS, and the Title 24 Energy Efficiency Regulation. The proposed project's emissions for buildout in 2035, which include reductions accounting for these state regulations, are presented in Table 3.5–4. Table 3.5-4 includes full buildout operational emissions of the proposed project in addition to the annualized construction emissions.

Table 3.5-4
Operational Year 2035 Buildout
Estimated Annual Operational Plus Construction Proposed Amendment
Greenhouse Gas Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2E
	Metric Tons per Year			
Proposed Project				
Area	99.87	0.10	0.00	102.25
Energy	14,723.67	0.73	0.22	14,808.65
Mobile	88,863.80	3.98	0.00	88,635.66
Water Supply and Wastewater	230.92	13.65	0.00	572.09
Solid Waste	2,147.89	16.34	0.41	2,678.36
Amortized Construction Emissions	–	–	–	4,191
Total	**106,066.20**	**34.80**	**0.63**	**110,988.01**
Existing Land Uses to be Replaced				
Area	140.05	0.14	0.00	144.54
Energy	3,994.70	0.17	0.04	4,011.90
Mobile	48,257.51	3.19	0.00	48,337.26
Water Supply and Wastewater	189.18	11.18	0.00	468.68
Solid Waste	556.15	3.56	0.09	671.67
Total	**53,137.59**	**18.24**	**0.13**	**53,634.05**

Table 3.5-4
Operational Year 2035 Buildout
Estimated Annual Operational Plus Construction Proposed Amendment
Greenhouse Gas Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2E
	Metric Tons per Year			
Net Project Emissions				
Proposed Project	106,066.20	34.80	0.63	111,300.00
Existing Land Uses	53,137.59	18.24	0.13	53,634.05
Net Change in Total Emissions	**52,928.61**	**16.56**	**0.50**	**57,535.96**

Notes: See Appendix B for detailed results.
Low-Carbon Fuel Standards are not included in CalEEMod, therefore, mobile emissions were reduced by 10% to account for the reduction.
CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2E = carbon dioxide equivalent

As shown in Table 3.5-4, estimated annual future project-generated GHG emissions for the Proposed Amendment in 2035 would be approximately 110,988 MT CO_2E per year. The existing land uses to be replaced are estimated to generate approximately 53,634 MT CO_2E per year. Development under the Proposed Amendment would, therefore, result in a net increase of 57,535 MT CO_2E. The Proposed Amendment was also determined to result in 6.4 MT CO_2E per service population per year (assuming a service population of 17,240 persons: 9,677 generated from the new residential development and 7,563 generated from the new non-residential development) which would exceed the 2035 SCAQMD efficiency threshold of 3.0 MT CO_2E per service population per year. Therefore, even with the implementation of mitigation measure **MM-GHG-1**, development under the Proposed Amendment would result in GHG emissions that would have a significant and unavoidable impact on the environment. Impacts are considered to be a **new significant and unavoidable impact**.

B. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

New Significant and Unavoidable Impact. At this time, the City of Montclair has not adopted a Climate Action Plan or likewise similar GHG reduction strategy that would be applicable to the Proposed Amendment. At this time, no mandatory GHG plans, policies, or regulations or finalized agency guidelines would apply to implementation of future projects under the Proposed Amendment. However, a discussion of consistency with the City's General Plan, the Scoping Plan, and the SCAG 2016 RTP/SCS is included below.

The Proposed Amendment sets the City on a course of action for redeveloping downtown, which would promote walkability and use of public transportation which would serve to reduce GHG impacts. In addition, the General Plan contains the following

policies that the Proposed Amendment would comply with in order to help the City reduce GHG emissions:

- Policies related to motor vehicle emissions, encouraging infill development and increasing pedestrian, transit, and bicycle usage: CE-1.1.1, CE-1.1.2, CE-1.1.8, CE-1.1.9, CE-1.1.10, CE-1.1.14, AQ-2.1.1, AQ-2.1.2, AQ-2.3.1, AQ-2.3.2, AQ-2.4.2, AQ-2.4.3, AQ-2.5.1, AQ-2.6.1, and AQ-3.1.1.
- Policies related to electricity and natural gas emissions, energy efficiency and green building: HE-1.1.27.
- Policies to reduce water usage thereby reducing energy required to transport and treat water and increase recycling: CO-1.1.2, CO-1.1.5, and CO-1.1.9.

As discussed in Section 3.5.2, the Scoping Plan, approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Relatedly, in the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the CNRA observed that "[t]he [Scoping Plan] may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009c). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. Table 3.5-5 highlights measures that have been, or will be, developed under the Scoping Plan and the project's consistency with Scoping Plan measures. To the extent that these regulations are applicable to the Proposed Amendment, its inhabitants, or uses, the Proposed Amendment would comply will all regulations adopted in furtherance of the Scoping Plan to the extent required by law.

Table 3.5-5
Proposed Amendment Consistency with
Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Amendment Consistency
Transportation Sector		
Advanced Clean Cars	T-1	The Proposed Amendment's residents and employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Low Carbon Fuel Standard	T-2	This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure goes into effect, the standard would be applicable to the fuel used by vehicles that would access the Proposed Amendment area.
Regional Transportation-Related GHG Targets	T-3	The Proposed Amendment would allow for the construction of mixed-use transited oriented development and encourages alternative modes of travel and result in shorter trip lengths, which would reduce GHG emissions.
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low Friction Oil 4. Solar Reflective Automotive Paint and Window Glazing	T-4	Motor vehicles driven by the Proposed Amendment's future projects' employees and visitors would maintain proper tire pressure when their vehicles are serviced. The Proposed Amendment's future projects' employees and visitors would replace tires in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase. Motor vehicles driven by the Proposed Amendment's future projects' employees and visitors would use low friction oils when their vehicles are serviced. The Proposed Amendment's future projects' employees and visitors would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Ship Electrification at Ports (Shore Power)	T-5	Not applicable.
Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction	T-6	The Proposed Amendment does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
Heavy-Duty Vehicle GHG Emission Reduction 1. Tractor-Trailer GHG Regulation 2. Heavy Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	Heavy-duty trucks associated with accessing the Proposed Amendment area would be in compliance with CARB standards that are in effect at the time of purchase.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Project	T-8	This is a statewide measure that cannot be implemented by a project applicant or lead agency. The standards phase-in over

Table 3.5-5
Proposed Amendment Consistency with
Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Amendment Consistency
		model years 2016 through 2019 are applicable to the vehicles that access the Proposed Amendment area.
High-Speed Rail	T-9	Not applicable.
Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	The Proposed Amendment will comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for electrical appliances and other devices at the time of building construction.
Energy Efficiency (Natural Gas)	CR-1	The Proposed Amendment will comply with energy efficiency standards for natural gas appliances and other devices at the time of building construction.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	The Proposed Amendment would allow for active solar energy systems and promotes renewable energy technologies.
Combined Heat and Power	E-2	Not applicable.
Renewable Portfolios Standard (33% by 2020)	E-3	This is a statewide measure that cannot be implemented by a project applicant or lead agency. Southern California Edison is required to increase its percent of power supply from renewable sources to 33% by the year 2020, and 50% by the year 2030 pursuant to various regulations. The electricity used by future projects under the Proposed Amendment will benefit from reduced GHG emissions resulting from the offset of energy consumption through use of renewable energy sources.
Senate Bill 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and earlier solar programs	E-4	This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs. Future development under the Proposed Amendment would allow for the use of solar.
Water Sector		
Water Use Efficiency	W-1	The Proposed Amendment would comply with Green Building Code regulations and would implement water conservation features.
Water Recycling	W-2	Potable and recycled water are provided by the Monte Vista Water District to most of the Proposed Amendment area.
Water System Energy Efficiency	W-3	This is applicable for the transmission and treatment of water, but it is not applicable to the Proposed Amendment area.
Reuse Urban Runoff	W-4	The Proposed Amendment may require increased stormwater collection lines and/or line sizes, and may require new or expanded recharge infrastructure.
Renewable Energy Production	W-5	Wastewater facilities within the Proposed Amendment area are owned and maintained by the City of Montclair which complies with Title 22 regulations.

Table 3.5-5
Proposed Amendment Consistency with
Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Amendment Consistency
Green Buildings		
1. State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	The Proposed Amendment would be required to be constructed in compliance with state or local green building standards in effect at the time of building construction.
2. Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	The Proposed Amendment's future buildings would meet green building standards that are in effect at the time of design and construction.
3. Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	The Proposed Amendment would be required to be constructed in compliance with local green building standards in effect at the time of building construction.
4. Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	Not applicable for the Proposed Amendment, applicable for existing buildings only.
Industry Sector		
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	This measure would apply to the direct greenhouse gas emissions at major industrial facilities emitting more than 500,000 $MTCO_2e$ per year. The Proposed Amendment does not include an industrial land use.
Oil and Gas Extraction GHG Emission Reduction	I-2	Not applicable.
GHG Emissions Reduction from Natural Gas Transmission and Distribution	I-3	Not applicable.
Refinery Flare Recovery Process Improvements	I-4	Not applicable.
Work with the local air districts to evaluate amendments to their existing leak detection and repair rules for industrial facilities to include methane leaks.	I-5	Not applicable.
Recycling and Waste Management Sector		
Landfill Methane Control Measure	RW-1	Applicable for certain municipal solid waste landfills. Not applicable for the Proposed Amendment.
Increasing the Efficiency of Landfill Methane Capture	RW-2	Applicable for certain municipal solid waste landfills. Not applicable for the Proposed Amendment.
Mandatory Commercial Recycling	RW-3	During both construction and operation of future projects, the Proposed Amendment would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act as amended. During construction, all waste would be recycled to the maximum extent possible. The Proposed Amendment would also utilize the City of Montclair recycling services.
Increase Production and Markets for Compost and Other Organics	RW-3	Not applicable.
Anaerobic/Aerobic Digestion	RW-3	Not applicable.
Extended Producer Responsibility	RW-3	Not applicable (applicable to product designer and producers).

Table 3.5-5
Proposed Amendment Consistency with
Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Amendment Consistency
Environmentally Preferable Purchasing	RW-3	Not applicable (applicable to product designer and producers).
Forests Sector		
Sustainable Forest Target	F-1	Not applicable.
High GWP Gases Sector		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-professional Servicing	H-1	The Proposed Amendment's future residents and employees would be prohibited from performing air conditioning repairs and would be required to use professional servicing.
SF_6 Limits in Non-utility and Non-semiconductor Applications	H-2	Not applicable.
Reduction of Perfluorocarbons in Semiconductor Manufacturing	H-3	Not applicable.
Limit High GWP Use in Consumer Products	H-4	The Proposed Amendment would use consumer products that would comply with the regulations that are in effect at the time of manufacture.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	Motor vehicles driven by the Proposed Amendment's future residents and employees would comply with the leak test requirements during smog checks.
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	Not applicable.
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	Not applicable.
SF_6 Leak Reduction Gas Insulated Switchgear	H-6	Not applicable.
Agriculture Sector		
Methane Capture at Large Dairies	A-1	Not applicable.

Source: CARB 2010.
Notes: CARB = California Air Resources Board; CCR = California Code of Regulations; GHG = greenhouse gas; GWP = global warming potential; PV = photovoltaics; SB = Senate Bill; SF6 = sulfur hexafluoride

As depicted in Table 3.5-5, the Proposed Amendment would be consistent with the applicable strategies and measures in the Scoping Plan.

The SCAG 2016 RTP/SCS, adopted April 2016, is a regional growth-management strategy that targets per capita GHG reduction from passenger vehicles and light-duty trucks in the Southern California region. The 2016 RTP/SCS incorporates local land use projections and contains improvements to the regional multimodal transportation system including the following: active transportation (non-motorized transportation—biking and walking); transportation demand management; transportation system management; transit; passenger and high-speed rail; goods movement; aviation and airport ground

access; highways; arterials; and operations and maintenance. The RTP/SCS is not directly applicable to the Proposed Amendment because the underlying purpose of the RTP/SCS is to provide direction and guidance by making the best transportation and land use choices for future development, though the Proposed Amendment would support the goals and policies of the RTP/SCS. Additionally, development under the Proposed Amendment would support the overarching intent of the 2016 RTP/SCS by avoiding sprawl and the inclusion of transit-oriented development (TOD). As discussed in Section 3.8, Population and Housing, the Proposed Amendment is estimated to generate approximately 17,240 new City residents (9,677 generated from the new residential development and 7,563 generated from the new non-residential development). This population estimate is a conservative worst-case estimate, as it assumes that all of the new employees for the development allowed under the Proposed Amendment currently live outside of the City, that all of these employees would move into the City upon obtaining a job in the planning area, and that all of the new employees would bring a household consisting of two or more persons each. While this scenario would have the potential to occur, it would be very unlikely, particularly considering the urbanized and built-out nature of the region in which the City is located. Although buildout of the Proposed Amendment would include more compact development achieved by increasing development density, as well as provide a land use pattern and transportation infrastructure more supportive of alternative methods of transportation including public transit, walking, and bicycling, the Proposed Amendment would result in additional growth in population and employment to the City which would exceed the growth projections of SCAG. Therefore, the Proposed Amendment could conflict with the 2016 RTP/SCS.

In regards to consistency with Senate Bill (SB) 32 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and Executive Order S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future year analysis. However, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014). As discussed above, the Proposed Amendment is consistent with the GHG emission reduction measures in the Scoping Plan and would not conflict with the state's trajectory toward future GHG reductions. In addition, since the specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the Proposed Amendment would be speculative and cannot be identified at this time. With respect to future GHG targets under SB 32 and Executive Order S-3-05, CARB has also made clear its legal interpretation that it has the

requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet the reduction targets in 2030 and in 2050.

Although the Proposed Amendment would be consistent with the City General Plan and Scoping Plan, the increase in population and employment would exceed the SCAG growth projections. Therefore, the Proposed Amendment would conflict with the 2016 RTP/SCS. Additionally, the Proposed Amendment would result in GHG emissions that would exceed the SCAQMD 2035 efficiency threshold, as discussed for Impact "A" above. The SCAQMD 2035 efficiency threshold was determined based on a 40% reduction applied to the 2020 efficiency threshold, consistent with the SCAQMD estimate of GHG reduction trajectory by the SB 375 target date of 2035. As such, since the Proposed Amendment would exceed the 2035 quantitative threshold, it could also hinder an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, even with the implementation of mitigation measure **MM-GHG-1**, this impact is considered to be a **new significant and unavoidable impact**.

3.5.5 Cumulative Impacts

GHG impacts are by their nature cumulative impacts. Localized impacts of climate change are the result of the cumulative impact of global emissions. The combined benefits of reductions achieved by all levels of government help to slow or reverse the growth in GHG emissions. In the absence of comprehensive international agreements on appropriate levels of reductions achieved by each country, another measure of cumulative contribution is required. California has defined reductions required by the state in AB 32 (1990 emission levels by 2020). This serves to define California's share of the reductions regardless of the activities or lack of activities of other areas of the U.S. or the world. Therefore, a cumulative threshold based on consistency with state targets and actions to reduce GHGs is an appropriate standard of comparison for significance determinations at the program level of analysis.

The cumulative impacts of implementing future projects under the Proposed Amendment after 2020 has a comprehensive state target of 40% below 1990 levels by 2030. The regional targets adopted to comply with SB 375 only apply to a fraction the mobile source inventory in 2035. Finally, in preliminary assessments of options to achieve the 2050 goal, the state concluded that reliance on technical advancements and accelerated market penetration of new technologies would be required. Developing a community 2050 target without an adopted state strategy would be highly speculative. The City's General Plan will likely be updated several times before 2050, additionally it would be likely that the City would implement a GHG reduction plan or equivalent strategy. Each update will provide an opportunity to identify community targets to coincide with state targets and to adjust the strategy to ensure that the City does its part in achieving GHG reductions.

The City's General Plan policies will continue to provide GHG reductions beyond 2020 since they apply to all development that will occur between adoption and buildout unless superseded by new policies. The actual amount of local reductions needed beyond 2030 is uncertain pending adoption of state targets for later years. In addition, the long-term effectiveness of the General Plan policies and programs that avoid, reduce, or minimize GHG emissions is not known. Therefore, even with the implementation of mitigation measure **MM-GHG-1**, cumulative impacts related to the growth under the proposed project are considered to be a **new significant and unavoidable impact**.

3.5.6 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. New mitigation measures for the Proposed Amendment are described below:

MM-GHG-1 **Greenhouse Gas Emissions Reduction Measures.** The following GHG emissions reduction measures shall be implemented for future projects under the Proposed Amendment:

- Provide preferential parking for carpool, shared, electric, and hydrogen vehicles.
- Require builders to install broadband infrastructure or other communication technologies that encourage telecommuting and working from home.
- Integrate traffic calming measures into the circulation network to promote reduced speeds and encourage pedestrian and bicycle trips.
- Provide sidewalks and crosswalks at all streets (along with general pedestrian connectivity throughout the proposed project) to encourage pedestrian traffic and offer an alternative to vehicle trips.
- Implement energy-efficient design practices such as high-performance glazing, Energy Star compliant systems and appliances, radiant heat roof barriers, insulation on all pipes, programmable thermostats, solar access, and sealed ducts.
- Prohibit use of chlorofluorocarbon refrigerants in commercial buildings.
- Ensure recycling of construction debris and waste through administration by an on-site recycling coordinator and presence of recycling/separation areas.
- Use native species and drought tolerant species for a minimum of 75% of the ornamental plant palette in non-turf areas for all commercial, common and public area landscaping to minimize water demand.

- Minimize turf areas and encourage alternative ground covers.
- Design irrigation systems to conform to the hydrozones of the landscape design plan and optimize water efficiency by matching plant type, utilizing drip or subsurface irrigation wherever possible, and applying water at agronomic rates.
- Require "smart" controllers, such as weather-based irrigation controllers or other self-adjusting irrigation controllers, for all irrigation systems that will accommodate all aspects of the landscape and irrigation design plans.

3.5.7 Significance After Mitigation

Incorporation of mitigation measure **MM-GHG-1** would help reduce GHG emissions from motor vehicles, energy, water, and solid waste. Emission reductions as a result of mitigation are not quantifiable and/or the extent to which some measures would apply to to future development under the Proposed Amendment is currently unknown; therefore, emission reductions associated with the measures listed as part of mitigation measure **MM-GHG-1** were not quantified within CalEEMod. Additionally, as discussed in section 3.5.4, the Proposed Amendment would meet emission reductions associated with federal, statewide, and local regulatory measures such as Pavley motor vehicle standards which are incorporated into CalEEMod; however, the LCFS would need to be implemented by reducing mobile emissions by 10%. Adjustments were also made to the CO_2 intensity factors for generation of electricity to reflect the requirements of SB X1 2 and SB 350, which require increasing levels of renewable energy in utility energy supplies; accordingly, the GHG emissions would decrease with each deadline in these statutes. The Proposed Amendment would also comply with SCAQMD Rule 445, which prohibits new development to install wood burning fireplaces; all heating would be performed with natural gas burning devices, which would result in substantially lower GHG emissions. Although, implementation of mitigation would help reduce the Proposed Amendment's GHG emissions, the GHG contribution of future projects under the Proposed Amendment would still be cumulatively considerable. As such, this impact is considered to be a **new significant and unavoidable impact**.

3.5.8 References

24 CCR Part 11. 2013 California Green Building Standards Code (CALGreen). Sacramento, California: California Building Standards Commission. July 2013. ISBN 978-1-60983-462-3. http://codes.iccsafe.org/app/book/toc/2015/california/2013%20california%20green%20building% 20standards,%20supplement%20july%202015/index.html.

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

42 U.S.C. 13201–13574. Title 42: The Public Health and Welfare; Chapter 134: Energy Policy.

42 U.S.C. 17001–17386. Title 42: The Public Health and Welfare; Chapter 152: Energy Independence and Security.

42 U.S.C. 7401–7671q. Title 42: The Public Health and Welfare; Chapter 85: Air Pollution Prevention and Control.

BAAQMD (Bay Area Air Quality Management District). 2010. *California Environmental Quality Act Air Quality Guidelines*. May 2010. Accessed November 2016. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/draft_baaqmd_ceqa_guidelines_may_2010_final.pdf?la=en.

C2ES (Center for Climate and Energy Solutions). 2014. *President Obama's Climate Action Plan: One Year Later*. June 2014. Accessed October 2016. http://www.c2es.org/docUploads/climate-action-plan-one-year-later-7-15-14.pdf.

C2ES. 2016. *Achieving the United States' Intended Nationally Determined Contribution*. July 2016. Accessed October 2016. http://www.c2es.org/docUploads/achieving-us-indc.pdf.

CalRecycle (California Department of Resources, Recycling and Recovery). 2015. *AB 341 Report to the Legislature*. August 2015.

CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January 2008.

CARB (California Air Resources Board). 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Sacramento, California. October 24, 2008.

CARB. 2012. "News Release: California Air Resources Board Approves Advanced Clean Car Rules." January 27, 2012. Accessed October 2016. https://www.arb.ca.gov/newsrel/newsrelease.php?id=282.

CARB. 2014. *First Update to the Climate Change Scoping Plan Building on the Framework Pursuant to AB 32 – The California Global Warming Solutions Act of 2006*. May 2014. Accessed August 2014. http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

CARB. 2015. "Glossary of Terms Used in Greenhouse Gas Inventories." May 6, 2015. Accessed August 2016. http://www.arb.ca.gov/cc/inventory/faq/ghg_inventory_glossary.htm.

CARB. 2016a. "California Greenhouse Gas Inventory – 2016 Edition." June 17, 2016. Accessed October 2016. http://www.arb.ca.gov/cc/inventory/data/data.htm.

CARB. 2016b. *Public Workshop on the Transportation Sector to Inform Development of the 2030 Target Scoping Plan Update*. PowerPoint slides. September 14, 2016. Accessed October 2016. https://www.arb.ca.gov/cc/scopingplan/meetings/091316/ FINAL%20Scoping %20Plan%20Transport%20Workshop.pdf.

CAT (California Climate Action Team). 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*. Sacramento, California: California Environmental Protection Agency, California Climate Action Team. March 2006. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.

CAT. 2010a. *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. Sacramento, California: California Environmental Protection Agency, California Climate Action Team. December 2010. Accessed February 2014. http://www.energy.ca.gov/ 2010publications/CAT-1000-2010-005/CAT-1000-2010-005.PDF.

CAT. 2010b. *Climate Action Team Biennial Report*. Sacramento, California: California Environmental Protection Agency, California Climate Action Team. April 2010. Accessed February 2014. http://www.energy.ca.gov/2010publications/ CAT-1000-2010-004/CAT-1000-2010-004.PDF.

CCCC. 2012. *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California*. July 2012. Accessed August 2016. http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf.

CEC (California Energy Commission). 2012. "Building Energy Efficiency Standards: Frequently Asked Questions." May 2012. Accessed August 2016. http://www.energy.ca.gov/ title24/2013standards/rulemaking/documents/2013_Building_Energy_Efficiency _Standards_FAQ.pdf.

CEC. 2015. "2016 Building Efficiency Standards Frequently Asked Questions." Accessed August 2016. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/ 2016_Building_Energy_Efficiency_Standards_FAQ.pdf.

City of Montclair. 1999. City of Montclair General Plan.

CNRA (California Natural Resources Agency). 2009a. *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008.* Accessed August 2016. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.

CNRA. 2009b. "Notice of Public Hearings and Notice of Proposed Amendment of Regulations Implementing the California Environmental Quality Act. Sacramento, California: CNRA." Accessed August 2016. http://www.ceres.ca.gov/ceqa/docs/Notice_of_Proposed_Action.pdf.

CNRA. 2009c. *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97*. December 2009.

CNRA. 2014. *Safeguarding California: Reducing Climate Risk: An Update to the 2009 California Climate Adaptation Strategy*. July 2014. Accessed October 2016. http://resources.ca.gov/docs/climate/Final_Safeguarding_CA_Plan_July_31_2014.pdf.

EOP (Executive Office of the President). 2013. *The President's Climate Action Plan*. June. https://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf.

EPA. 2016a. "Glossary of Climate Change Terms." August 9, 2016. Accessed August 2016. https://www3.epa.gov/climatechange/glossary.html.

EPA. 2016b. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014* EPA 430-R-16-002. Washington, D.C.: EPA. April 15, 2016. Accessed August 2016. https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Main-Text.pdf.

EPA and NHTSA (Department of Transportation's National Highway Traffic Safety Administration). 2016. "Regulations and Standards: Heavy-Duty. EPA and DOT Finalize Greenhouse Gas and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles." Last updated November 4, 2016. https://www3.epa.gov/otaq/climate/regs-heavy-duty.htm.

IPCC (Intergovernmental Panel on Climate Change). 1995. *IPCC Second Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the U.N. Framework Convention on Climate Change*.

IPCC. 2007. *IPCC Fourth Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the U.N. Framework Convention on Climate Change*.

IPCC. 2014. *Climate Change 2014 Synthesis Report: A Report of the Intergovernmental Panel on Climate Change.* Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Accessed August 2016. http://www.ipcc.ch/report/ar5/syr/.

OPR (Governor's Office of Planning and Research). 2016. *Global Climate Leadership Memorandum of Understanding (MOU).* Accessed October 2016. http://under2mou.org/wp-content/uploads/2015/04/Under-2-MOU-English.pdf.

San Bernardino Associated Governments (SANBAG). 2013. Regional Greenhouse Gas Reduction Plan.

SCAG (Southern California Association of Governments). 2016. 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx

SCAQMD. 2008. *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*. October 2008.

SCAQMD. 2010. "Greenhouse Gases CEQA Significance Thresholds Working Group Meeting No. 15." September 28, 2010. Accessed August 2016. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2.

Stantec Consulting Services Inc (Stantec). 2016. North Montclair DowntownSpecific Plan Amendment Project Traffic Study.

3.6 HYDROLOGY AND WATER QUALITY

This section describes the hydrologic and water quality setting of the proposed North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) site and within the Proposed Amendment's general vicinity. The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following issues as they relate to hydrology and water quality: violation of water quality standards or waste discharge requirements; depletion of groundwater supplies or substantial interference with groundwater recharge; alteration of the existing drainage pattern of the site or area; substantial alteration of the existing drainage pattern of the site or area; creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; substantial degradation of water quality; placement of housing within a 100-year flood hazard area; placement of structures within a 100-year flood hazard area which would impede or redirect flood flows; and inundation by seiche, tsunami, or mudflow. It was concluded in the Initial Study that there were no new impacts/no impacts for these issues. Therefore, these issues are not included as part of this EIR. As such, analysis within this section identifies associated regulatory requirements and identifies the potential impacts of exposing people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam as it relates to implementation of the Proposed Amendment.

3.6.1 Existing Conditions

Regional Watershed

The Proposed Amendment area is located in the northwest portion of the Santa Ana River Basin, which consists of 2,780 square miles, drained primarily by the Santa Ana and San Jacinto rivers. Several streams and tributaries also traverse the Santa Ana River Basin. Most of the water in the basin consists of runoff from the San Gabriel Mountains, located to the north of the City of Montclair, although sheet flow also occurs as a result of direct precipitation.

Topography and Drainage

The topography of the Proposed Amendment area is generally flat, but slopes gently toward the south-southwest, at an average gradient of 2 percent. Surface water resources in the planning area are limited, as there are no large standing bodies of water and no streams with continuous flows. The southwesterly-flowing San Antonio Wash, which originates in the San Bernardino Mountains to the north, traverses the western portion of the Proposed Amendment area. The San Antonio Wash is a former natural channel that is now a concrete-lined drainage, which empties into the Santa Ana River and eventually into the Pacific Ocean (City of Montclair 1999).

Surface Water Quality

Based on the 2006 NMDSP EIR, existing land uses in the Proposed Amendment area include a mix of vacant and active major retail and limited industrial, single-family housing, and transit-related facilities. Approximately 58 percent of the Proposed Amendment area is developed with urban uses, including impermeable surfaces such as roads, parking lots, and buildings. As a result, the Proposed Amendment area is a source of pollution from vehicle oils and other chemicals that can be conveyed by storm and landscape irrigation flows. The impermeable surfaces prevent polluted surface waters from absorbing into the ground surface.

Flood Hazards

Flooding occurs in the Santa Ana River Basin as a result of both sheet flow and concentrated flows emerging from the San Gabriel Mountains; however, the latter presents the most serious flooding. Damage by flooding occurs every few years within the basin. Major floods have been produced by winter storms that typically occur from December through March. These storms typically produce moderate to heavy rainfall over a period of hours or days. A series of storms or a prolonged single storm is capable of producing a large flood in many portions of the Santa Ana River Basin (City of Montclair 1999).

However, the Proposed Amendment area is not located within a 100-year flood hazard zone, as determined by the Federal Emergency Management Agency (FEMA). Based on the City of Montclair General Plan, Public Health and Safety Element, and the County of San Bernardino Land Use Plan, General Plan Hazard Overlays map, the entire City of Montclair is classified by FEMA as Zone C, which is a zone protected from 100-year flood hazards (City of Montclair 1999, County of San Bernardino 2007). A 100-year flood is defined as a flood having a one percent chance of being equal or exceeded in any given year.

Based on the 2006 NMDSP EIR, localized sheet flow may occur and cause blockage or failure of local drain pipes or structures throughout the Proposed Amendment area. However, maintenance and effective emergency response are the primary means of addressing localized flooding from areas of high flow or blockage. The City Public Works Department currently provides this service. In addition, the existing drainage system generally provides effective surface water dispersal and is adequate to protect life and property.

Based on the 2006 NMDSP EIR, during times of heavy runoff from the San Gabriel Mountains, water released from the San Antonio Dam, along with downstream runoff, may be discharged into the upstream Prado Reservoir to avoid flooding in downstream areas. The San Bernardino County Flood Control District, in conjunction with the U.S. Army Corps of Engineers, is responsible for addressing flood-related issues throughout the basin.

Dam Failure

There are more than 87,000 dams in the United States and approximately one-third of those dams pose a high or significant hazard to life and property if failure occurs. Intense storms may produce a flood in a few hours or even minutes for locations downstream of the dam. Flash floods occur within six hours of the beginning of heavy rainfall and dam failure may occur within hours of the first signs of breaching. Other failures and breaches can take days and weeks to occur because of debris jams or the accumulation of melting snow (FEMA 2016).

Dams can fail for one or a combination of reasons, including overtopping caused by floods that exceed the capacity of the dam; structural failure of materials used in dam construction; movement and/or failure of the foundation supporting the dam; settlement and cracking of concrete or embankment dams; piping and internal erosion of soils in embankment dams; and inadequate maintenance and upkeep. A series of dam failures in the 1970s, which killed at least 175 people and destroyed thousands of structures, resulted in a national focus on inspecting and regulating dams (FEMA 2016).

Based on the County of San Bernardino Land Use Plan, General Plan Hazard Overlays map (County of San Bernardino 2007) and a geologic hazards report prepared for the City (Wilson Geoscience, Inc. 2005), the entire City of Montclair lies within an area that would be inundated in the event of failure of the earthen-filled San Antonio Dam, located five miles north of the City. The majority of the project site is located within the 15-minute floodwater arrival zone, which means that if the dam were to fail, most of the project site would be at risk of inundation within 15 minutes. This scenario is based on models prepared by the U.S. Army Corps of Engineers prior to the construction of the depressed section of State Route 210, which is located north and hydrologically upgradient of the project site. This depressed area of freeway should reduce the risk of flooding downstream of the freeway. Based on the U.S. Army Corps of Engineers models, water depths of 4 to 5 feet were expected as far south as Interstate 10, located along the southern portion of the project site. The depressed area created by State Route 210 would likely reduce those projected water depths; however, existing structures in the planning area are considered at risk.

3.6.2 Regulatory Setting

Federal

Federal Guidelines for Emergency Action, FEMA Publication No. 64

These guidelines provide guidance to help dam owners, in coordination with emergency management authorities, effectively develop and exercise Emergency Action Plans for dams. The guidelines encourage (1) the development of comprehensive and consistent emergency

action planning to protect lives and reduce property damage and (2) the participation of emergency management authorities and dam owners in emergency action planning.

Federal Guidelines for Dam Safety Risk Management, FEMA Publication No. 1025

These guidelines enable Federal agencies to use the general principles of risk management to make risk-informed decisions. The agencies work to develop and maintain consistent application of risk analysis, risk assessment, risk management, and risk communication, using equivalent procedures and tools. Risk estimates typically reflect the risk at a given dam at the snapshot in time when the risk analysis is performed. Risk management includes structural and nonstructural actions on a given dam, as well as activities such as routine and special inspections, instrumented monitoring, structural analyses, site investigations, development and testing of emergency action plans, and many other activities.

State

California Water Code, Division 3. Dams and Reservoirs, Sections 6101-6102

These regulations require dam owners to maintain records of, and to report on, maintenance, operation, staffing, and engineering and geologic investigations and to issue orders as necessary to secure maintenance and operations to safeguard life and property. The owner of a dam, or his agent, shall fully and promptly advise the Department of Water Resources of any sudden or unprecedented flood or unusual or alarming circumstance or occurrence affecting the dam or reservoir. These regulations require the Department of Water Resources to periodically inspect dams and reservoirs for the purpose of determining their safety. If required, the dam owner shall perform work necessary to secure maintenance and operation that will safeguard life and property.

Governor's Office of Emergency Services, California Code of Regulations, Title 19 - Public Safety, Division 2 – Office of Emergency Services, Chapter 2 – Emergencies and Major Disaster, Subchapter 4 – Dam Inundation Mapping Procedures.

These regulations were adopted to implement the provisions of Government Code Section 8589.5, which provide the standards for producing and submitting an inundation map, acquiring a waiver from the inundation mapping requirement, and administering the program. These regulations are not applicable to those structures identified as Debris Basins in Department of Water Resources Division of Safety and Dams Bulletin 17-00, dated July 2000. However, these regulations are not intended to limit the authority of the Governor's Office of Emergency Services, or any appropriate public agency, to act under the police power of the state, when necessary, to protect life and property from a threatened or actual dam failure.

Local

Montclair General Plan

The City of Montclair General Plan includes goals and policies that address flooding hazards. All future projects under the Proposed Amendment would be required to be consistent with these goals and policies. Applicable goals and policies include, but are not limited to:

- **SE-2.0.0:** To provide an adequate level of emergency services to the community in the event of a catastrophic situation.
- **SE-2.1.0:** To maintain procedures which will safeguard the public from structural failure associated with flood hazards.
- **SE-2.2.0:** To promote public awareness of potential flood dangers.
- **SE-2.3.0:** To provide for public safety prior, during, and after hazardous floods.
- **SE-2.4.0:** To promote interagency assistance for persons affected by hazardous floods.
- **SE-2.5.0:** To recognize and consider state-of-the-art advancements relating to flood control.
- **SE-2.6.0:** To promote local and regional programs directed toward developing a regional system to respond to emergencies in cooperation with the county and neighboring communities.

Montclair Municipal Code

Chapter 9.26 – Flood Plain Regulation and Management, Article I. – Title, Statutory Authorization, Statement of Purpose, and Methods of Reducing Flood Losses

Article 9.26.120 indicates that "the flood hazard areas of the City of Montclair are subject to periodic inundation, which results in loss of life and property, health, and safety hazards; disruption of commerce and governmental services; extraordinary public expenditures for flood protection and relief; and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare".

3.6.3 Thresholds of Significance

The October 2016 Initial Study (Appendix A) for the proposed project included an analysis of the following significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). It was concluded in the Initial Study that there were no new impacts/no impacts for the following significance criteria. Therefore, the following significance criteria are not included as part of this EIR.

A. Would the project violate any water quality standards or waste discharge requirements? No New Impact/No Impact

B. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)? No New Impact/No Impact

C. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? No New Impact/No Impact

D. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? No New Impact/No Impact

E. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? No New Impact/No Impact

F. Would the project otherwise substantially degrade water quality? No New Impact/No Impact

G. Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? No New Impact/No Impact

H. Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows? No New Impact/No Impact

J. Inundation by seiche, tsunami, or mudflow? No New Impact/No Impact

The following significance criterion, included for analysis in this EIR, is based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), and will be used to determine the significance of potential hydrology and water quality impacts. Impacts to hydrology and water quality would be significant if the proposed project would:

I. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

3.6.4 Impacts Analysis

I. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less than Significant Impact with New Mitigation Required. The Proposed Amendment area is not located within a FEMA-designated 100-year floodplain. However, the area is located within an area subject to inundation by potential failure of the upstream San Antonio Dam, located five miles north of the City limits. If San Antonio Dam was impounding water to its capacity and failed catastrophically, under the most severe scenario earthquake on the Cucamonga or Sierra Madre fault, floodwaters would travel across an alluvial slope below the dam and down several small, unnamed drainages on its way to the City. These floodwaters could inundate broad areas of the City (Wilson Geoscience, Inc. 2005), resulting in potentially significant flood-related impacts.

Based on the City of Montclair General Plan, Public Health and Safety chapter, this flood control dam, with a capacity of 9,285 acre-feet, is rarely, if ever, filled to capacity. Dam failure is not considered a significant threat by the City, as failure of the dam would only occur in the event that the reservoir was completely full and the dam simultaneously failed as a result of strong seismically induced ground shaking. The majority of the Proposed Amendment area is located within the 15-minute floodwater arrival zone, which means that if the dam were to fail catastrophically, most of the Proposed Amendment area would be at risk of inundation within 15 minutes. This scenario is based on models prepared by the U.S. Army Corps of Engineers prior to the construction of the depressed section of State Route 210, which is located north and hydrologically upgradient of the Proposed Amendment area. This depressed area of freeway should reduce the risk of flooding downstream of the freeway. Based on the U.S. Army Corps of Engineers models, water depths of 4 to 5 feet were expected as far south as Interstate 10, located south of the Proposed Amendment area. The depressed area created by State Route 210 would likely reduce those projected water depths; however, existing structures in the planning area are considered at risk.

San Antonio Dam is regulated and monitored for structural safety by the California Department of Water Resources Division of Safety and Dams, in accordance with Division 3 of the California State Water Code. These regulations apply due to the dam height of greater than 25 feet or storage capacity of more than 50 acre-feet. The regulation of this dam reduces substantially the chance of catastrophic failure.

For severe flooding to result, the earthquake and the high water levels would have to occur simultaneously, which makes the chance very remote. The existing drainage system

provides effective coverage and dispersal, thus reducing potential flood-related impacts. The entire City of Montclair is located within the dam inundation area; therefore, proposed development within the Proposed Amendment area is not unique with respect to potential dam-related flooding. The Proposed Amendment would introduce land uses similar to existing on- and off-site land uses, resulting in inundation exposure of structures and the general public similar to existing conditions. In addition, all new development would be subject to San Bernardino County Flood Control regulations regarding adequacy of drainage infrastructure. However, the Proposed Amendment would substantially increase the amount of people and property subject to potential flooding, by allowing for land uses that include an additional 2,688 residential units and an additional 782,285 square feet of commercial space at in the planning area. As a result, the exposure of the general public and structures to inundation hazards would be higher than what was analyzed in the 2006 EIR and new mitigation is required. Impacts would be less than significant with the incorporation of new mitigation measures **MM-HYDRO-1** and **MM-HYDRO-2**.

3.6.5 Cumulative Impacts

The Proposed Amendment would increase the amount of impermeable surfaces, which in turn would reduce the ability of the ground surface to absorb potential flood flows, as a result of failure of the upstream San Antonio flood control dam. This increase in impermeable surfaces would be incrementally greater than under existing conditions. However, the Proposed Amendment would introduce land uses similar to existing on- and off-site land uses, resulting in inundation exposure of structures and the general public similar to existing conditions. The entire City of Montclair is located within the dam inundation area; therefore, proposed development within the Proposed Amendment area is not unique with respect to potential dam-related flooding. The existing drainage system provides effective coverage and dispersal, thus reducing potential flood-related impacts. In addition, all new development would be subject to San Bernardino County Flood Control regulations regarding adequacy of drainage infrastructure. However, the Proposed Amendment would substantially increase the amount of people and property subject to potential flooding. Dam maintenance and effective emergency response are the primary means of addressing localized flooding from areas of high flow. Mitigation measures **MM HYDRO-1** and **MM HYDRO-2** would ensure that effective dam maintenance and emergency response is in place with respect to potential failure of the San Antonio Dam.

Similarly, past, present, and reasonably foreseeable cumulative projects located within the potential dam inundation area would be subject to flooding as a result of potential failure of the dam. Increased population densities resulting from any of these cumulative projects would subject more people to potential flooding hazards, resulting in potentially significant impacts. Each project site would be subject to San Bernardino County Flood Control regulations. Those sites located within the City of Montclair would be provided assurances that the dam is being

adequately monitored for structural safety, as mandated by mitigation measure **MM-HYDRO-1**, and would be provided effective emergency response in the event of dam failure, as mandated by mitigation measure **MM-HYDRO-2** for the Proposed Amendment. As a result, cumulative flood-related impacts would be **less than significant with new mitigation required.**

3.6.6 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. The following mitigation measures from the 2006 NMDSP EIR will be incorporated for the Proposed Amendment.

MM-HYD-1 **Project Level Water Quality Management Plans.** All projects developed under the Proposed Amendment shall submit a WQMP to be implemented during the project planning, design, approval, permitting, construction, acceptance, and occupancy phases. These WQMPs may include, but are not limited to, the following BMPs:

Site Design BMPs

(To be included during the site planning and approval process)

- Maximize permeable area by using alternative materials or surfaces with a lower Coefficient of Runoff, or "C-factor."
- Construct walkways, trails, patios, parking areas, alleys, driveways, low traffic streets, and other low-traffic areas with open-jointed paving materials or permeable surfaces, such as pervious concrete, porous asphalt, and granular materials. Also, incorporate landscape areas into the drainage design of these areas.
- Minimize use of impervious surfaces, such as decorative concrete in landscape design.
- Where soils conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration.
- Use natural drainage systems and increase the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales.

Source Control BMPs

- Education for Property Owners, Tenants, and Occupants on good housekeeping practices to protect stormwater quality.
- Street Sweeping Private Streets and Parking Lots

- Roof Runoff Controls and Efficient Irrigation

Treatment Control BMPs

- Design landscape drainage features so that they promote infiltration of runoff, but do not inject runoff so that it bypasses the natural processes of filtering and transformation that occur in the soil.
- Pretreat runoff to reduce risk of contamination of groundwater.
- Project WQMPs shall follow the outline established by the San Bernardino County Stormwater Program's Model Water Quality Management Plan Guidance document.

Construction Activity

NPDES permits are required for all projects in excess of one acre. Erosion control measures are required when run-off could impact area drainages. Potential measures include the use of straw bales, siltation fences, berms, and basins. Mitigation measures shall be addressed on a project by project basis, depending on size and level of disturbance. No specific measures are recommended at this level.

MM-HYD-2 **Stormwater Infrastructure**. Prior to grading permit approval, project proponents, if applicable, shall be required to document sufficient stormwater capacity. If sufficient capacity is not available at the time of the project proposal, the proponent, in cooperation with the City and/or other affected agencies, shall document necessary improvements. Improvements shall be made prior to, or concurrent with, new development.

New mitigation measures for the Proposed Amendment are described below:

MM-HYDRO-1 Prior to initiating construction activities in any areas of the North Montclair Downton Specific Plan Amendment area, the City of Montclair Public Works Department shall establish communication with the California Department of Water Resources Division of Safety and Dams, to verify that the San Antonio Dam is being adequately monitored for structural safety, in accordance with Division 3 of the California State Water Code. Such communication shall include a review of dam maintenance records, with respect to structural safety, and shall continue on a biannual basis, indefinitely.

MM-HYDRO-2 Prior to initiating construction activities in any areas of the North Montclair Downton Specific Plan Amendment area, the City of Montclair Public Works

Department shall establish an emergency response plan that pertains specifically to potential failure of the San Antonio Dam. The plan shall include public notification and evacuation plans, to address potential dam related flooding in the area.

3.6.7 Significance After Mitigation

The 2006 NMDSP EIR included mitigation measure **MM-HYD-1**, which after implementation would result in increased permeability, thereby lessening increased runoff resulting from future projects developed under the Proposed Amendment. The 2006 NMDSP EIR also included mitigation measure **MM-HYD-2**, which after implementation would address potential off-site, downstream increased surface flows resulting from increased impermeable surfaces within the Proposed Amendment area. Implementation of new mitigation measure **MM HYDRO-1** would ensure that the San Antonio Dam is being adequately monitored for structural safety, in accordance with Division 3 of the California State Water Code. New mitigation measure **MM HYDRO-**2 would ensure that an adequate emergency response plan, which specifically pertains to potential flooding as a result of failure of the San Antonio Dam, is in place at the City of Montclair. Therefore, with the implementation of new mitigation measures **MM HYDRO-1** and **MM HYDRO-2**, flood-related impacts would be **less than significant with new mitigation required.**

3.6.8 References

City of Montclair. 1999. *City of Montclair General Plan*. Prepared by the Community Development Department in cooperation with L.D. King, Inc. http://www.cityofmontclair.org/civica/filebank/blobdload.asp?BlobID=6283. S ite accessed October 24, 2016.

County of San Bernardino. 2007. *San Bernardino County Land Use Plan, General Plan: Hazard Overlays.* Map EHFH B, Victorville/San Bernardino. http://www.sbcounty.gov/Uploads/ lus/HazMaps/EHFHB_20100309.pdf. Site accessed October 25, 2016.

Federal Emergency Management Agency (FEMA). 2016. *Dam Safety*. https://www.fema.gov/ dam-safety. Site accessed October 25, 2016.

Wilson Geosciences. 2005. *Seismic and Geologic Technical Background Report for the City of Claremont General Plan Update*, August.

INTENTIONALLY LEFT BLANK

3.7 NOISE

This section describes the existing noise conditions of the North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) site and surrounding vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the Proposed Amendment. The October 2016 Initial Study (Appendix A) for the Proposed Amendment concluded that there were no new impacts/no impacts related to exposing people residing or working in the Proposed Amendment area to excessive noise levels as a result of being located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport or within the vicinity of a private airstrip. Therefore, these issues are not included as part of this environmental impact report (EIR). As such, analysis provided in this section focuses on regulatory requirements and potential impacts related to implementation of the Proposed Amendment as it relates to: the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels; a substantial permanent increase in ambient noise levels in the Proposed Amendment vicinity above levels existing without the Proposed Amendment; and a substantial temporary or periodic increase in ambient noise levels in the Proposed Amendment vicinity above levels existing without the Proposed Amendment. Noise modeling data and related information are included in Appendix D.

3.7.1 Existing Conditions

The Proposed Amendment area is located in an urbanized environment and is subject to typical urban noises, such as noise generated by traffic, stationary noise sources and day-to-day outdoor activities. The predominant noise sources in the Proposed Amendment area include transportation and major stationary sources associated with commercial and industrial land uses. “Transportation noise” typically refers to noise from automobile use, trucking, aircraft, and rail operations. “Stationary noise” typically refers to noise from sources such as heating, ventilation, and air conditioning (HVAC) systems, compressors, landscape maintenance equipment, on-site construction activities or machinery associated with local industrial or commercial activities. Site-specific ambient noise measurements are discussed later in this section.

Noise Characteristics

Sound may be described in terms of level or amplitude (measured in decibels (dB)), frequency or pitch (measured in hertz (Hz) or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the amplitude of sound is the decibel. Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale is used to relate noise to human sensitivity. The A-weighted decibel scale (dBA)

performs this compensation by discriminating against low and very high frequencies in a manner approximating the sensitivity of the human ear. Table 3.7-1 provides examples of A-weighted noise levels from common sounds.

Table 3.7-1
Typical Sound Levels in the Environment and Industry

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
—	110	Rock band
Jet flyover at 300 meters (1,000 feet)	100	—
Gas lawn mower at 1 meter (3 feet)	90	—
Diesel truck at 15 meters (50 feet), at 80 kph (50 mph)	80	Food blender at 1 meter (3 feet) Garbage disposal at 1 meter (3 feet)
Noisy urban area, daytime gas lawn mower at 30 meters (100 feet)	70	Vacuum cleaner at 3 meters (10 feet)
Commercial area Heavy traffic at 90 meters (300 feet)	60	Normal speech at 1 meter (3 feet)
Quiet urban daytime	50	Large business office Dishwasher, next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime	30	Library
Quiet rural night time	20	Bedroom at night, concert hall (background)
—	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Source: Caltrans 2013.
Notes: kph = kilometers per hour; mph = miles per hour

Noise is defined as unwanted sound, and is known to have several adverse effects on people, including hearing loss, speech interference, sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, the State of California, and local agencies have established criteria to protect public health and safety, to prevent disruption of certain human activities, and to minimize annoyance.

Several descriptors of noise (noise metrics) exist to help predict average community reactions to the adverse effects of environmental noise, including traffic-generated noise, on a community. These descriptors include the equivalent noise level over a given period (L_{eq}), the statistical sound level (L_n), the day–night average noise level (L_{dn}), and the community noise equivalent level (CNEL). Each of these descriptors uses units of dBA.

L_{eq} is a sound energy level averaged over a specified time period (typically no less than 15 minutes for environmental studies). L_{eq} is a single numerical value that represents the amount of variable sound energy received by a receptor during a time interval. For example, a 1-hour L_{eq} measurement would represent the average amount of energy contained in all the noise that

occurred in that 1 hour. L_{eq} is an effective noise descriptor because of its ability to assess the total time-varying effects of noise on sensitive receptors. L_{max} is the greatest sound level measured during a designated time interval or event. L_n is a statistical description of the sound level that is exceeded over some fraction of a given period of time. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time. Half the time the noise level exceeds this level and half the time the noise level is less than this level. L_{90} noise level represents the noise level that is exceeded 90 percent of the time and for environmental noise is representative of the background ambient noise level.

Unlike the L_{eq} and L_n metrics, L_{dn} and CNEL metrics always represent 24-hour periods, usually on an annualized basis. L_{dn} and CNEL also differ from L_{eq} and L_n because they apply a time-weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when speech and sleep disturbance is of more concern). "Time weighted" refers to the fact that L_{dn} and CNEL penalize noise that occurs during certain sensitive periods. In the case of CNEL, noise occurring during the daytime (7:00 a.m.–7:00 p.m.) receives no penalty. Noise during the evening (7:00 p.m.–10:00 p.m.) is penalized by adding 5 dB, while nighttime (10:00 p.m.–7:00 a.m.) noise is penalized by adding 10 dB. L_{dn} differs from CNEL in that the daytime period is defined as 7:00 a.m.–10:00 p.m., thus eliminating the evening period. L_{dn} and CNEL are the predominant criteria used to measure roadway noise affecting residential receptors. These two metrics generally differ from one another by no more than 0.5 to 1 dB.

Vibration Characteristics

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and construction activities, such as blasting, pile driving, and heavy earth-moving equipment.

Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second. The root mean square amplitude is most frequently used to describe the effect of vibration on the human body and is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure root mean square. The decibel notation acts to compress the range of numbers required to describe vibration.

High levels of vibration may cause physical personal injury or damage to buildings. However, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. In addition, high levels of vibration can damage fragile buildings or interfere with equipment that is highly sensitive to vibration (e.g., electron microscopes). Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

Sensitive Receptors

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would be considered noise- and vibration-sensitive and may warrant unique measures for protection from intruding noise. Sensitive receptors near the Proposed Amendment area include the following:

- Moreno Elementary School (Moreno Street, West of Monte Vista Avenue)
- Unitarian Universalist Congregation (Monte Vista Avenue, South of Moreno Street)
- International Montessori School (Adjacent to Unitarian Church)
- Single family residences
    - West side of Monte Vista Avenue (Moreno Street to Arrow Highway)
    - East/west side of Mills Avenue
    - North side of Moreno Street (Fremont Avenue to Mills Avenue); South side of Moreno Street (Mills Avenue to Helena Street)
    - East side of Central Avenue (north of Metrolink Railway) along Ninth Street in the City of Upland.
- Multi-Family Residences
    - South side of Arrow Route (Central Avenue to Claremont Avenue)
    - West side of Central Avenue (north of Arrow Route in the City of Upland)
    - East side of Monte Vista Avenue (north of I-10 Freeway to Moreno Street)

The above existing sensitive receptors represent the nearest land uses with the potential to be impacted by construction and operation of future projects under the Proposed Amendment, including noise levels associated with the addition of project-related traffic on the local roadway network. Additional sensitive receptors are located farther from the Proposed Amendment area

in the surrounding community and would be less impacted by noise and vibration levels than the above-listed sensitive receptors. In addition to the off-site receptors listed above, the residential uses to be constructed as part of the Proposed Amendment are considered sensitive receptors.

Existing Noise Conditions

The existing ambient noise environment of the Proposed Amendment area is primarily the result of transportation-related sources. Major arterial streets that represent the most important source of noise in the Proposed Amendment area include Monte Vista Avenue, Moreno Street, Arrow Highway (8th Street in Upland), Mills Avenue, Richton Street and North Central Avenue. Each of these arterials carries a substantial volume of traffic, as noted during field noise measurements and as documented in the traffic study (Stantec 2016).

SANBAG/Metrolink railroad lines are located in the northern portion of the Proposed Amendment area. Additionally, the existing Metrolink rail line and Montclair Transcenter, located at 5091 Richton Street is a regional transportation hub with substantial levels of bus-traffic noise. The transcenter facility occupies a 1.6-acre service commercial site, with bus activity spanning a schedule from approximately 4:30 a.m. to 11:30 p.m daily. Non-transportation noise-producing land uses of note in the Proposed Amendment area include Montclair Place (formerly Montclair Plaza) located in the southern portion and manufacturing/industrial uses located in the western portion.

Land uses within the Proposed Amendment area may be characterized as predominately commercial big-box retail and vacant lots, interspersed with single-family and multi-family residences. The existing noise-sensitive residential uses within the Proposed Amendment area generally occur in the south and southwest portions of the Proposed Amendment area. Three education facilities, Montessori International Preschool, Moreno Elementary School, and Serrano Junior High School, are within or in close proximity to the Proposed Amendment area. Montessori International Preschool is located on Monte Vista Avenue, just south of Moreno Street (the Unitarian Universalist Congregation is located on the same property); Moreno Elementary School is located on Moreno Street, west of Monte Vista Avenue; and Serrano Junior High School which is located on San Jose Street, approximately one-half mile southwest of the boundary of the Proposed Amendment area.

Noise Level Measurements and Modeling of Ambient Noise Levels

Ambient noise measurements were performed in October 2016 at six different locations in the Proposed Amendment area using a Rion NL-52 precision integrating sound level meter. Figure 3.7-1 shows the locations of these measurements. These noise measurements represent the noise level for the 10-minute interval during which the noise measurement was taken. Table 3.7-2 shows the noise measurement location, measurement time of the day, and short-term noise levels (L_{EQ}).

Table 3.7-2
Ambient Noise Level Measurements

Location	Description	Time	dBA L_{EQ}
ST1	Olive Street traffic	10:50 AM – 11:00 AM	46.4
ST2	Huntington Drive traffic	9:55 AM – 10:05 AM	60.4
ST3	Monte Vista Avenue traffic	10:35 AM – 10:45 AM	64.7
ST4	Central Avenue traffic	11:25 AM – 11:35 AM	71.7
ST5	Arrow Highway West Traffic	11:10 AM – 11:20 AM	67.4
ST6	Rail corridor, distant roadway traffic	10:15 AM – 10:25 AM	46.9

In addition to the ambient noise measurement program described above, acoustical calculations were performed to determine the existing noise levels associated with major roadway segments predicted to be most affected by implementation of the Proposed Amendment. Acoustic calculations were performed based upon the existing roadway traffic volumes identified in the traffic report (Stantec 2016) and using standard noise modeling equations adapted from the FHWA transportation noise prediction model. The modeling calculations take into account the posted vehicle speed, average daily traffic volume, and the estimated vehicle mix. The model assumed "pavement" site propagation conditions. The calculated existing noise levels for the roadway segments of concern are presented in Table 3.7-7, Traffic Noise (Existing Plus Project) Along Future Project Roadways, in Section 3.7.4.

Of the 13 selected roadway segments, 10 of the roadways have a calculated existing noise level greater than 65 dB CNEL at a distance of 50 feet from the centerline (please refer to Table 3.7.6). As described previously, areas over 65 dBA CNEL are considered noise-impacted with respect to future proposed residential and lodging uses.

3.7.2 Regulatory Setting

Federal

There are no federal regulations related to noise that would apply to the Proposed Amendment.

State

Government Code Section 65302(g)

California Government Code Section 65302(g) requires the preparation of a Noise Element in a general plan, which shall identify and appraise the noise problems in the community. The Noise Element shall recognize the guidelines adopted by the Office of Noise Control in the State

Department of Health Services and shall quantify, to the extent practicable, current and projected noise levels for the following sources:

- Highways and freeways
- Primary arterials and major local streets
- Passenger and freight on-line railroad operations and ground rapid transit systems
- Aviation and airport-related operations
- Local industrial plants
- Other ground stationary noise sources contributing to the community noise environment.

California General Plan Guidelines

The California General Plan Guidelines, published by the Governor's Office of Planning and Research (OPR), provides guidance for the acceptability of specific land use types within areas of specific noise exposure. Table 3.7-3, Land Use Compatibility for Community Noise Environments, presents guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. OPR guidelines are advisory in nature. Local jurisdictions, including the City of Montclair, have the responsibility to set specific noise standards based on local conditions.

Table 3.7-3
Land Use Compatibility for Community Noise Environments

	Community Noise Exposure (CNEL)			
	Normally Acceptable[1]	*Conditionally Acceptable[2]*	*Normally Unacceptable[3]*	*Clearly Unacceptable[4]*
Residential-low density, single-family, duplex, mobile homes	50–60	55–70	70–75	75–85
Residential – multiple-family	50–65	60–70	70–75	70–85
Transit lodging – motel, hotels	50–65	60–70	70–80	80–85
Schools, libraries, churches, hospitals, nursing homes	50–70	60–70	70–80	80–85
Auditoriums, concert halls, amphitheatres	NA	50–70	NA	65–85
Sports arenas, outdoor spectators sports	NA	50–75	NA	70–85
Playgrounds, neighborhood parks	50–70	NA	67.5–77.5	72.5–85
Golf courses, riding stables, water recreation, cemeteries	50–70	NA	70–80	80–85

Table 3.7-3
Land Use Compatibility for Community Noise Environments

	Community Noise Exposure (CNEL)			
	Normally Acceptable[1]	*Conditionally Acceptable*[2]	*Normally Unacceptable*[3]	*Clearly Unacceptable*[4]
Office buildings, business commercial and professional	50–70	67.5–77.5	75–85	NA
Industrial, manufacturing, utilities, agriculture	50–75	70–80	75–85	NA

Source: OPR 2003
Notes: CNEL = community noise equivalent level; NA = not applicable
1 Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
2 Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
3 Normally Unacceptable: New construction or development should be discouraged. If new construction of development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise-insulation features must be included in the design.
4 Clearly Unacceptable: New construction or development should generally not be undertaken.

California Code of Regulations Title 24

The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation. State regulations governing noise levels generated by individual motor vehicles and occupational noise control are not applicable to planning efforts, nor are these areas typically subject to CEQA analysis. State noise regulations and policies applicable to the Proposed Amendment include Title 24 requirements and noise exposure limits for various land use categories.

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for residential buildings (California Code of Regulations Title 24, Part 2, Chapter 12, Section 1207.11.2). Title 24 establishes standards for interior room noise attributable to outside noise sources at multi-residential land uses. Title 24 also specifies that acoustical studies should be prepared whenever a multi-residential building or structure is proposed to be located in areas with exterior noise levels 60 dB CNEL or greater. The acoustical analysis must show that the building has been designed to limit intruding noise to an interior level not exceeding 45 dB CNEL for any habitable room.

Local

City of Montclair General Plan Noise Element

The City of Montclair General Plan prescribes noise standards for interior and exterior noise, as well as maximum residential/non-residential noise levels. Refer to Table 3.7-4 for a summary of City noise standards. Refer to Table 3.7-3 for a chart of noise compatibility standards.

Table 3.7-4
City of Montclair Interior and Exterior Noise Standards

Categories	Land Use	Noise Standards (CNEL)	
		Interior [1,2]	*Exterior*
Residential	Single and multi-family, duplex, mobile homes	45	65 [3]
Commercial	Hotel, motel, transient lodging	45	65 [3]
	Commercial retail, bank, restaurant	55	-
	General office, reception/clerical	50	-
	Private offices, research and development	45	-
	Amphitheater, concert hall, auditorium, theater	45	-
Institutional	Hospital, nursing home, school classroom, church, library	45	65 [3]
Industrial	Manufacturing, warehousing, etc.	65	-

Source: City of Montclair General Plan, Noise Element
Notes: 1. Noise standard with windows closed. Mechanical ventilation shall be provided per UBC requirements.
2. Indoor environment excluding bathrooms, toilets, closets, and corridors.
3. Outdoor environment limited to rear yard of single family residences, multi-family patios and balconies.

In addition, the following objectives and policies are contained within the City's General Plan Noise Element:

Objectives

N0-1.1.0. Noise mitigation measures for future development should comply with the standards included in the City of Montclair Noise Element;

N0-1.2.1. Potential noise impacts due to stationary sources should be mitigated in the planning stage.

Implementing Policies

NE-1.1.2. For all areas within the year 2020 65 dBA CNEL roadway contours, future residential lots and dwellings shall be sound attenuated against present and projected noise, which shall be the sum of all noise impacting the project, so as not to exceed an exterior standard of 65 dBA CNEL in outdoor living areas and an interior standard of 45 dBA CNEL in all habitable rooms. An acoustical study shall be prepared under the supervision al a person experienced in the field of acoustical engineering;

NE-1.1.4. Prior to the issuance of any building permits, an acoustical analysis report describing the acoustical design features of the structures required to satisfy the exterior and interior noise standards shall be submitted to the City for approval along with satisfactory evidence which indicates that the sound attenuation

·measures specified in the approved acoustical report(s) have been incorporated into the design of projects;

NE-1.1.5. Prior to the issuance of any Certificates of Use and Occupancy, field testing in accordance with California Administration Code Title 25 regulations may be required by the City, to verify compliance with Sound Transmission Class (STC) and Impact Insulation Class (llC) design standards;

NE-1.1.6. Noise mitigation measures shall be developed from a list of City approved measures. The approved noise mitigation measures include: site design, such as set-backs from the roadways, grade separations and exterior living area orientations, noise barriers, mechanical ventilation (i.e., air conditioning) and upgraded windows. Additional measures shall be approved at the discretion of the City of Montclair;

NE-1.1.9. All sources of temporary noise shall comply with the City of Montclair Noise Ordinance;

NE-1.2.2. New noise generators shall not be located in the vicinity of noise sensitive receptors unless they can be adequately mitigated. Land use should be zoned such that high noise generators such as industrial or manufacturing activities are buffered from sensitive uses by moderate uses such as commercial or office-uses;

NE-1.2.5. All construction vehicles and equipment, fixed or mobile operated, shall be equipped with properly operating and maintained mufflers;

NE-1.2.6. Stock piling and/or vehicle staging areas shall be located as far as practical from residential homes;

NE-1.2.7. The noisiest operations shall be arranged to occur together in the construction programs to avoid continuing periods of greater annoyance; and

NE-1.2.8. Construction which can impact noise sensitive receptors shall be limited to the hours of 7:00 AM to 8:00 PM on any given day and provided that the building official determines that the public health and safety will not be impaired.

The 65 dBA CNEL standard is applicable for proposed zones containing residential units. These proposed residential zones are "Neighborhood Residential" and "Corridor Residential" under the Proposed Amendment. In the proposed Town Center zones, the 65 dBA CNEL standard is applicable wherever transient lodging, such as hotels, are proposed.

Based on these criteria, noise levels in the plan area over 65 dBA CNEL for residential uses would require noise reduction measures. Land uses involving transient lodging would also require noise reduction measures for levels above 65 dBA CNEL.

3.7.3 Thresholds of Significance

The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). It was concluded in the Initial Study, that there were no new impacts/no impacts for the following significance criteria. Therefore, the following significance criteria are not included as part of this EIR.

E. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? No New Impact/No Impact

F. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? No New Impact/No Impact

The following significance criteria, included for analysis in this EIR, are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and will be used to determine the significance of potential noise impacts. Noise impacts would be significant if the Proposed Amendment would:

A. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

B. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

C. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

D. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Quantitative thresholds of significance have been established for the purposes of this analysis based on the local polices and regulations described in Section 3.7.2, and are listed below.

- The City's compatibility threshold for residential uses is 65 dBA CNEL. Noise from traffic on adjacent arterial roadways at proposed residential uses exceeding 65 dBA CNEL would be considered a significant noise impact.

- During construction activities, a project-related temporary increase in ambient noise levels of 10 dBA L_{eq} or greater is considered a substantial (and thus significant) noise impact.
- Title 24 of the California Building Code requires that interior noise levels attributable to exterior sources shall not exceed 45 dB CNEL in any multi-family residential unit. Exceedance of this standard within the proposed residential units is considered a significant noise impact.
- Off-site noise impacts due to project-generated traffic would be considered significant if the project-generated traffic causes an increase of 5 dB CNEL compared to existing noise levels.
- Construction or operation of the proposed project would be considered significant if the project resulted in vibration levels of 0.01 inches/second or greater peak particle velocity at or beyond the property boundary.

Methodology

Ambient noise measurements were collected to quantify the existing daytime noise environment at six representative locations (see Section 3.7.1). Construction noise levels were estimated using heavy construction noise emissions data from the Federal Transit Authority (FTA).

The noise levels associated with roadway traffic were determined based on ambient noise measurements and using the Federal Highway Administration TNM 2.5 Traffic Noise Model version 2.5 (FHWA 2004). Information used in the model included the Existing, Existing plus Project, Long Range without Project, and Long Range with Project traffic volumes and speeds. Traffic volumes for each of the previously mentioned scenarios were obtained from the traffic study conducted for the Proposed Amendment (Appendix E) and used to model noise levels under those scenarios. Noise levels were modeled at representative noise-sensitive receivers. The receivers were modeled to be five feet above the local ground elevation, unless otherwise specified.

3.7.4 Impacts Analysis

A. Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact with New Mitigation Incorporated. On-site noise-generating activities associated with the Proposed Amendment would include short-term construction as well as long-term operational noise associated with the Proposed Amendment. The Proposed Amendment would also generate off-site traffic noise along various roadways in the area. These potential effects are analyzed below.

Construction Noise (Short-Term Impacts)

Construction noise and vibration are temporary phenomena. Construction noise and vibration levels vary from hour to hour and day to day, depending on the equipment in use, the operations being performed, and the distance between the source and receptor.

Due to the project being an amendment to an existing specific plan, the future implementation pattern and timing of land use development projects which could be allowed under the Proposed Amendment remain speculative. There is no reliable method of estimating which future developments might be under construction simultaneously, and whether residences which would be allowed under the Proposed Amendment would already be in existence as construction of other development proceeds. As such, the following general assessment is appropriate as a programmatic level of review for this type of project.

Equipment that would be in operation during construction would include excavators, backhoes, scrapers, forklifts, compressors, paving equipment, and haul trucks. The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 3.7-4, Construction Equipment Maximum Noise Levels. Note that the equipment noise levels presented in Table 3.7-4 are maximum noise levels. Typically, construction equipment operates in alternating cycles of full power and low power, producing average noise levels less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time. Nonetheless, impacts were evaluated assuming maximum noise levels.

Table 3.7-4
Construction Equipment Maximum Noise Levels

Equipment Type	"Typical" Equipment dBA at 50 feet
Air compressor	81
Backhoe	85
Concrete pump	82
Concrete vibrator	76
Crane	83
Truck	88
Dozer	87
Generator	78
Loader	84
Paver	88
Pneumatic tools	85
Water pump	76

Table 3.7-4
Construction Equipment Maximum Noise Levels

Equipment Type	"Typical" Equipment dBA at 50 feet
Power hand saw	78
Shovel	82
Trucks	88

Source: FTA 2006

The maximum noise levels at 50 feet for typical construction equipment would range up to 88 decibels (dBA) for the type of equipment normally used for this type of project, although the hourly noise levels would vary. Adding together the simultaneous operation of 2-3 pieces of heavy equipment in a given area would result in maximum noise levels of approximately 95 dBA at 50 feet. Construction noise in a well-defined area typically attenuates at approximately 6 dB per doubling of distance. Considering construction source noise levels and exterior attenuation rates, locations within 1,600 feet of a construction site could be affected by noise levels over 65 dBA (assuming the absence of intervening structures). Project construction would take place both near and far from adjacent, existing noise-sensitive uses. For example, future construction associated with Corridor Residential and Town Center uses north of Moreno Street and West of Fremont Avenue would take place within approximately 70 feet of existing residences (along Geneva Avenue and Fremont Avenue); construction associated with Town Center uses at the southwest corner of Central Avenue and 8th Street would be located approximately 1,000 feet away from these same residencies. As the distance between construction site and sensitive receptor increases, there would likely be shielding provided by intervening structures. Nonetheless, given that existing residences are located within approximately 70 feet of proposed construction areas, existing residences would have the potential to be exposed to substantially higher noise levels during future construction of projects allowed under the Proposed Amendment.

In addition to the above impacts on existing residences, proposed future on-site residences could be exposed to project-related construction noise. The phasing of residences and residential units within mixed-use zones is speculative at this time. However, it is likely that proposed residences could be completed and occupied by the time later project phases come under construction. The assumption that new residences could be constructed and occupied while nearby construction of commercial or residential development occurs is conservative. Given that construction could occur within 70 feet of existing noise-sensitive land uses, the same mitigation approach would apply to construction in close proximity to newly constructed residences.

Although nearby off-site residences would be exposed to elevated construction noise levels, the exposure would be short-term, and would cease upon project construction. It is anticipated that construction activities associated with future projects under the Proposed Amendment would take place between 7:00 a.m. and 8:00 p.m., and would not take place on Sundays or public holidays, and would therefore, not violate City of Montclair Municipal Code or General Plan standards for construction. However, construction noise levels would be substantially higher than existing ambient daytime noise levels (as shown in Table 3.7-2).

Therefore, noise impacts from construction are considered potentially significant. Excessive noise occurrence in the overnight period results in the greatest impact to noise sensitive land uses, via sleep disruption. Mitigation measure **MM-NOI-1**, which prohibits construction in the overnight period, addresses the single most important aspect of construction noise impact. Mitigation measure **MM-NOI-2** aims to reduce the maximum construction noise levels experienced at noise sensitive receptors, bringing the noise levels more in alignment with the magnitude of traffic noise along major roadways in the community. Construction noise would remain noticeable at nearby residences, but likely would not be a substantial irritant. The suite of controls required as part of mitigation measures **MM-NOI-1** and **MM-NOI-2** would result in a reduction of maximum construction noise levels in the range of 10-15 dBA. Therefore, temporary construction-related noise impacts would be a **less than significant impact with new mitigation incorporated**.

Operational Noise (Long-Term Impacts)

The primary noise-related effect that future projects under the Proposed Amendment could have on-site and off-site is an increase in traffic, which is the main source of noise in most areas. As such, the following analysis is organized into separate discussions of on-site roadway noise effects and off-site roadway noise effects.

On-Site Exterior Traffic Noise Levels

Acoustical calculations were performed for Existing roadway traffic volumes, and for the Existing Plus Project, Long Range, and Long Range Plus Project roadway traffic volumes for roadway segments which could be affected by implementation of future projects under the Proposed Amendment (Stantec 2016). The calculations were performed using standard noise modeling equations adapted from the FHWA noise prediction model. The modeling calculations take into account the posted vehicle speed, average daily traffic volume, and the estimated vehicle mix. The model assumed “pavement” site propagation conditions. (Please refer to Appendix D for the worksheet containing the traffic noise

modeling results.) With respect to the roadway traffic volumes to which future noise-sensitive land uses could be exposed, the Long Range Plus Project scenario represents the ultimate traffic noise exposure levels associated with future project roadways, which are illustrated in Table 3.7-5.

With respect to Table 3.7-5, noise levels are indicated at 50 feet from the centerline of each roadway segment. Noise levels at distances greater than 50 feet from the centerline would be lower due to attenuation provided by increased distance from the noise source. Generally, noise from heavily traveled roadways would experience a decrease of approximately 3 dBA for every doubling of distance from the roadway. The noise model does not take into account the sound-attenuating effect of intervening structures, barriers, vegetation, or topography. Therefore, the noise levels predicted by the model are conservative. The "Distance to 65 dBA CNEL" is measured from the roadway centerline, and assumes the absence of any topography or intervening structures. However, in general, a noise sensitive receptor located less than the indicated distance to the 65 dBA CNEL contour could potentially be exposed to future roadway noise levels which exceed 65 dBA CNEL, constituting a potentially significant impact.

Table 3.7-5
Future Traffic Noise Levels Along Future Project Roadways

Road	Segment	Future Noise Level (CNEL)	Distance to 65 dBA CNEL Contour
Arrow Route (6th Street)	West of Monte Vista	68	73
Arrow Highway (8th Street)	West of Central Avenue	71	130
	East of Monte Vista	70	109
	West of Monte Vista	70	113
Central Avenue	South of Moreno	73	179
	North of Moreno	63	-
Mills Avenue	North of Moreno	65	50
	North of Arrow Highway	67	69
Monte Vista Avenue	South of San Jose	71	134
	South of Moreno	71	118
	North of Arrow Highway	70	104
Moreno Street	East of Central Avenue	66	60
	West of Monte Vista	67	63

With the exception of Central Avenue and Mills Avenue (along the segments north of Moreno Street), proposed Corridor Residential and Town Center uses are located within the predicted 65 dBA CNEL contour of each examined road segment in the Proposed

Amendment area. As such, proposed residences could be exposed to future roadway traffic volumes which exceed the City's exterior noise exposure criterion of 65 dBA CNEL, resulting in a potentially significant impact. Mitigation measure **MM-NOI-3** requires a site-specific analysis, to be prepared at the time of development application submittal. A site plan illustrating proposed exterior living spaces is necessary in order to complete the exterior noise exposure evaluation. Given the range of control strategies available, from increasing the setback between patio/balcony areas and an adjacent roadway, to noise barriers for individual exterior spaces and the siting of exterior use areas on the opposite side of the building from the noise source, it can be concluded that **MM-NOI-3** will be effective in protecting future proposed exterior living areas from excessive exterior noise. Therefore, with the implementation of mitigation measure **MM-NOI-3**, exterior noise levels within exterior living areas of proposed residences would meet the City exterior noise standard of 65 dBA CNEL, and thus, on-site exterior traffic noise impacts would be a **less than significant impact with new mitigation incorporated**.

On-Site Interior Traffic Noise Levels

The City and State require that interior noise levels not exceed a CNEL of 45 dBA within the habitable rooms of residences. Typically, with the windows open, building shells provide approximately 15 dB of noise reduction. Therefore, rooms exposed to an exterior CNEL greater than 60 dBA could result in an interior CNEL greater than 45 dB. The State Building Code recognizes this relationship, and therefore, requires the preparation of interior noise studies when the exterior noise level is projected to exceed 60 dBA CNEL.

The data shown in Table 3.7-5 indicate that the future noise levels up to 65 dBA CNEL could affect building facades as far away as 134 feet from some of the road segments in the Proposed Amendment area. Thus, the unmitigated interior noise level within the habitable rooms of some future dwelling units located immediately adjacent to the Proposed Amendment area road segments could exceed the 45 dBA L_{dn} noise criterion. A subsequent interior noise analysis would be required for units located within the identified 65 dBA CNEL contour for these future project road segments. This standard mitigation approach identifies the need for a specific study within a geographic area with identified elevated exterior noise levels. The evaluation of interior noise levels for a structure is dependent upon the design of the building shell, including exterior walls, windows, doors, and ventilation openings. None of these design details exist at the current time for future buildings to be developed as part of the Proposed Amendment; therefore, it is not possible to complete the specified interior noise analysis at this planning stage.

However, compliance with the interior noise standard of 45 dBA CNEL will be required to be demonstrated with building permit application submittal. There are industry

standards for such an interior noise analysis, which evaluate each component of the building shell for attenuation performance (based on sound transmission class (STC) of the materials). Building permit approval will be contingent upon the interior noise evaluation demonstrating that interior noise exposure meets the 45 dBA CNEL criterion. As necessary, this may include windows with dual or triple glazing, limiting window size for facades facing elevated noise sources, inclusion of extra layers of building material in exterior wall assemblies, etc., which can each be specified and evaluated for performance in the interior noise analysis. Therefore, with the implementation of mitigation measure **MM-NOI-4**, the resultant noise level would meet the State and City interior noise standard of 45 dBA L_{dn}, and thus, on-site interior traffic noise impacts would be a **less than significant impact with new mitigation incorporated**.

Off-Site Traffic Noise Levels

Future projects under the Proposed Amendment would generate traffic along various arterial roadways. The City does not have a specific noise criterion for evaluating off-site noise impacts to residences or noise-sensitive areas from project-related traffic. For the purposes of this noise analysis, such impacts are considered significant when they cause an increase of 5 dB compared to existing noise levels. An increase or decrease in noise level of at least 5 dB is required before a noticeable change in community response would be expected (Caltrans 2013). Therefore, a clearly perceptible increase (+5 dB) in noise exposure to sensitive receptors is considered significant.

The results of the traffic modeling for the Existing and Existing Plus Project scenarios are summarized in Table 3.7-6, and the traffic noise worksheet is located in Appendix D. As shown, future project-related traffic would result in a noise level increase of 41 dBA CNEL or less (rounded to whole numbers) along the studied roadways in the vicinity of the Proposed Amendment area. Increases would be below the significance threshold of 5 dB. Therefore, traffic related to future projects under the Proposed Amendment would not substantially increase the existing noise levels in the Proposed Amendment vicinity, and there would be **no impact/no new impact** from operational traffic-related noise. No new mitigation is required for off-site traffic noise.

Table 3.7-6
Traffic Noise (Existing Plus Project) Along Future Project Roadways

Road	Segment	Existing Noise Level (CNEL)	Existing Plus Project CNEL	Change in CNEL
Arrow Route (6th Street)	West of Monte Vista	65	66	1
Arrow Highway (8th Street)	West of Central Avenue	67	71	4
	East of Monte Vista	68	70	2

Table 3.7-6
Traffic Noise (Existing Plus Project) Along Future Project Roadways

Road	Segment	Existing Noise Level (CNEL)	Existing Plus Project CNEL	Change in CNEL
	West of Monte Vista	68	71	3
Central Avenue	South of Moreno	72	73	1
	North of Arrow Hwy.	69	69	0
Mills Avenue	North of Moreno	63	64	1
	North of Arrow Highway	65	66	1
Monte Vista Avenue	South of San Jose	70	71	1
	South of Moreno	69	71	2
	North of Arrow Highway	68	69	1
Moreno Street	East of Central Avenue	66	67	1
	West of Monte Vista	62	66	4

The noise level increases associated with additional traffic volumes under the Long Range with future project traffic conditions scenario and the Long Range without future project traffic conditions scenario are summarized in Table 3.7-7. The noise level increases associated with the Proposed Amendment under future traffic conditions would be 2 dB or less (rounded to whole numbers). As such, increases would be below the significance threshold of 5 dB. Traffic noise would not substantially increase as a result of the Proposed Amendment, and there would be **no impact/no new impact** from operational traffic-related noise. No new mitigation is required for off-site traffic noise.

Table 3.7-7
Traffic Noise (Long Range With & Without Future Projects) Along Project Roadways

Road	Segment	Long Range Without Project Noise Level (CNEL)	Long Range Plus Project CNEL	Change in CNEL
Arrow Route (6th Street)	West of Monte Vista	67	67	0
Arrow Highway (8th Street)	West of Central Avenue	69	71	2
	East of Monte Vista	69	70	1
	West of Monte Vista	69	70	1
Central Avenue	South of Moreno	73	73	0
	North of Arrow Hwy.	70	70	0
Mills Avenue	North of Moreno	65	65	0
	North of Arrow Highway	67	67	0
Monte Vista Avenue	South of San Jose	71	71	0
	South of Moreno	70	71	1
	North of Arrow Highway	70	70	0
Moreno Street	East of Central Avenue	66	66	0
	West of Monte Vista	65	66	1

B. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact with New Mitigation Incorporated. Construction activities that might expose persons to excessive ground-borne vibration or ground-borne noise could cause a potentially significant impact. Ground-borne vibration information related to construction activities has been collected by the California Department of Transportation (Caltrans 2004). Information from Caltrans indicates that continuous vibrations with a peak particle velocity of approximately 0.1 inch/second begin to annoy people. The heavier pieces of construction equipment, such as bulldozers, would have peak particle velocities of approximately 0.089 inch/second or less at a distance of 25 feet (DOT 2006). Ground-borne vibration is typically attenuated over short distances. At the closest distance between existing residences and the proposed construction areas (approximately 70 feet) and with the anticipated construction equipment, the peak particle velocity would be approximately 0.034 inch/second. This vibration level would exceed the Caltrans vibration threshold of perceptibility of 0.01 inch/second. Vibration is very subjective, and some people may be annoyed at continuous vibration levels near the level of perception (or approximately a peak particle velocity of 0.01 inch/second). Although construction activities do not typically use construction equipment that would result in continuous vibration levels that typically annoy people, since some residences are approximately 70 feet from future construction areas, residences could be temporarily annoyed with the use of some construction equipment. Implementation of mitigation measure **MM NOI-2** would ensure residences are notified of construction activities and provided contact information in the event they wish to report a noise- or vibration-related complaint. Advance notification eliminates the element of surprise, and establishes expectations to avoid fear regarding potential prolonged operations. The ability to contact a project representative if vibration is perceived to be excessive or damaging provides the opportunity for operations to be modified as necessary, or for compensation to be awarded in the event that accidental damage occurs.

The major concern with regard to construction vibration is related to building damage. Construction vibration as a result of developing future projects under the Proposed Amendment would not result in structural building damage, which typically occurs at vibration levels of 0.5 inch/second or greater for buildings of reinforced-concrete, steel, or timber construction. The heavier pieces of construction equipment used would include typical construction equipment such as excavators, graders, dump trucks and vendor trucks. Pile driving, blasting, or other special construction techniques are not anticipated to be needed for construction of developments allowed under the Proposed Amendment; therefore, excessive ground-borne vibration and ground-borne noise would not be generated. Ground-borne vibration would not be associated with future projects under the Proposed Amendment. As such, impacts related to ground-borne

vibration are considered to be a **less than significant impact with new mitigation incorporated**. No further mitigation is required.

C. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less Than Significant Impact with New Mitigation Incorporated. As discussed under item 3.7(A) above, future projects under the Proposed Amendment would generate traffic that would contribute to increased roadway noise levels within the Proposed Amendment area and within adjacent areas. However, such project traffic contributions would remain less than significant with respect to roadway noise levels.

Retail/commercial land uses that would be allowed in the Town Center portion of the Proposed Amendment area have the potential to generate noise from heating, ventilation, and air conditioning (HVAC) equipment, which could adversely impact residences constructed in this same portion of the Proposed Amendment area. HVAC equipment located on the ground or on the rooftop of commercial office or retail space would have the potential to generate high noise levels. The specific details (location, size, manufacturer, and model) of any such equipment is unknown at this time. Noise levels generated by HVAC equipment vary, but typically range from approximately 50 dBA to 65 dBA at a distance of 50 feet (City of Santa Ana 2010). For a single point source such as a piece of mechanical equipment, the sound level normally decreases by approximately 6 dBA for each doubling of distance from the source under "hard-surface" conditions typical of a developed commercial site. HVAC noise levels have the potential to exceed the City's noise standard (65 CNEL) if they are located within 50 feet of an existing or proposed residence (assuming a clear line-of-sight between the source and receiver). Implementation of mitigation measure **MM NOI-4** would reduce noise impacts from exterior mechanical equipment (including HVAC) to a less than significant level. Mitigation measure **MM-NOI-4** establishes a review procedure for future commercial and mixed-use development to specifically require an acoustical evaluation of proposed HVAC equipment. The analysis must identify means to control HVAC equipment noise to meet adopted standards. Control methods include selection of quiet equipment, location of equipment away from adjacent noise-sensitive land uses, and/or erection of a sound barrier around the equipment. Using these methods, HVAC noise can be controlled to avoid noise impacts to sensitive receptors. As such, impacts would be a **less than significant impact with new mitigation incorporated**. No further mitigation is required.

As discussed under item 3.12(A) above, mitigation measures are identified to ensure that operation of projects under the Proposed Amendment would not exceed applicable noise standards or otherwise result in a substantial permanent increase in ambient noise levels.

Upon implementation of mitigation measures **MM-NOI-3** through **MM-NOI-4**, operational noise impacts would be a **less than significant impact with new mitigation incorporated**. No further mitigation is required.

D. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less Than Significant Impact with New Mitigation Incorporated. As discussed under item 3.7.4(A) above, the Proposed Amendment would result in temporary noise increases during construction of future development allowed under the amendment. The temporary increases in ambient noise levels would vary depending on the location of the construction activities and the type of equipment being used. Temporary noise increases at adjacent existing and future noise-sensitive land uses from construction activities are considered potentially significant; however, with the implementation of mitigation measures **MM-NOI-1** and **MM-NOI-2**, temporary noise impacts from construction activities is considered a **less than significant impact with new mitigation incorporated**. No further mitigation is required.

3.7.5 Cumulative Impacts

Noise in Excess of Standards

The Proposed Amendment and related projects would all be subject to applicable noise standards (descriptions of the standards applicable within the City are described throughout this section). The Proposed Amendment would incorporate mitigation measures as described in Section 3.7.6 to ensure compliance with applicable noise standards. With the incorporation of the mitigation measures described in Section 3.7.6 below, the Proposed Amendment would not contribute to cumulative exceedances of noise standards, and its incremental effect is considered a **less than significant impact with new mitigation incorporated**.

Temporary/Periodic Increases in Ambient Noise Levels

The Proposed Amendment would result in temporary noise increases during construction of future developments arising from the Proposed Amendment, as discussed under item 3.7.4(A) above. The construction period of future projects under the Proposed Amendment has the potential to overlap with the construction of other projects in the sub-region. Due to the decrease in noise levels with distance and the presence of physical barriers, the related projects would not combine with future projects under the Proposed Amendment to produce a cumulative noise effect during construction. Additionally, all future projects under the Proposed Amendment would be required to comply with the City of Montclair's Noise Ordinance to limit noise hours during construction. The implementation of the mitigation measures described in Section 3.7.6

below, along with the requirement to comply with the City's Noise Regulation, would reduce future projects' incremental effect, ensuring that cumulative impacts are **less than significant impact with new mitigation incorporated**.

Vibration

Construction-related vibration from future projects under the Proposed Amendment was addressed under item 3.7.4(B) above. Other foreseeable projects within the vicinity of the Proposed Amendment area would not be close enough to create a combined excessive generation of groundborne vibration. Therefore, with the implementation of mitigation measures described in Section 3.7.6 below, cumulative impacts associated with excessive groundborne vibration is considered a **less than significant impact with new mitigation incorporated**.

Permanent Increase in Ambient Noise Levels

Stationary Sources. Long-term operational noise would result from operation of future projects under the Proposed Amendment, such residential activities, and other permanent on-site noise sources (e.g., HVAC equipment), as addressed under item 3.7.4(A) above. A cumulative impact could result if noise produced during operation of the Proposed Amendment were to combine with noise produced from the operation of other related projects to create a cumulatively significant permanent increase in ambient noise levels. However, the operation of future projects under the Proposed Amendment, along with the operation of other related projects, would be subject to the City's Noise Control Ordinance, which limits the exterior noise levels at residences. Implementation of mitigation measures **MM-NOI-3** through **MM-NOI-4** would ensure that future projects under the Proposed Amendment complies with the City of Montclair's noise standards. Similarly, other related projects would also be required to comply with the City's noise standards. Compliance with the City's Noise Control Ordinance would reduce the operational noise of future projects under the Proposed Amendment such that its incremental effect is not cumulatively considerable. As such, cumulative impacts to ambient noise levels is considered **less than significant impact with new mitigation incorporated**.

Off-Site Traffic Noise

Future projects under the Proposed Amendment along with other related projects would generate off-site traffic noise. When calculating future traffic impacts, the traffic study included traffic from related projects in the Long Range traffic volumes. Recent pending and approved projects in the City were also included in the traffic model. Thus, future traffic results with and without the Proposed Amendment already account for the cumulative impacts from the list of related projects contributing to traffic increases. Since the noise impacts are generated directly from the traffic analysis results, the Long Range Without Project Noise Level and Long Range With Project Noise Levels described herein already reflect cumulative impacts. As described herein, the noise level increases associated

with both of these scenarios would generate a noise level increase of 2 dBA or less (rounded to whole numbers) along the studied roadways in the vicinity of the Proposed Amendment area. As such, increases would be below the significance threshold of 5 dBA. As such, with or without the Proposed Amendment, traffic noise would not be substantially increased in the Proposed Amendment area. As such, the incremental effect of the Proposed Amendment on off-site traffic noise is not cumulatively considerable. Cumulative off-site traffic noise impacts are considered **less than significant impact with new mitigation incorporated**.

3.7.6 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. The following mitigation measures from the 2006 NMDSP EIR will be incorporated for the Proposed Amendment.

MM-N-2 **Long-term.** The following mitigation measures are recommended to reduce potential long-term noise impacts: Sound attenuation walls, tree-lines, and/or setbacks shall be incorporated into future development plans for the Specific Plan area and installed by the City and/or future developers between proposed noise sensitive uses, such as residential units and noise sources including roads, rail tracks and noise generating land uses, such as commercial buildings to reduce the noise levels at proposed sensitive uses to City standards (65 dBA CNEL or below.

MM-N-3 Commercial facilities adjacent to noise sensitive uses such as residential units shall be designed so that noise-generating activities, including outdoor sales or activities, truck-loading areas, garbage dumpsters, and loud-speaker systems are not adjacent to or directed toward these uses.

New mitigation measures for the Proposed Amendment are described below:

Construction

MM-NOI-1 Construction activities shall take place during the permitted time and day per the Montclair Noise Element Implementing Policy NE-1.2.8. Construction shall be limited to the hours of 7 a.m. to 8 p.m. Monday through Saturday, and not at all during other hours or on Sundays or public holidays.

MM-NOI-2 The City of Montclair shall enforce adherence to the following measures for all future construction projects implemented under the Proposed Amendment, as a pre-requisite to approving the grading permit:

- The project contractor shall, to the extent feasible, schedule construction activities to avoid the simultaneous operation of construction equipment so as

to minimize noise levels resulting from operating several pieces of equipment with emissions levels greater than 80 dBA (measured at 50 feet).

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. Enforcement shall be accomplished by random field inspections by applicant personnel during construction activities, to the satisfaction of the City Engineering Department.
- Construction noise reduction methods such as shutting off idling equipment, construction of a temporary noise barrier, maximizing the distance between construction equipment staging areas and adjacent residences, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible.
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event the City receives a complaint, appropriate corrective actions shall be implemented and a report of the action provided to the reporting party. Appropriate corrective actions could include stricter enforcement of construction schedule, re-location of stationary equipment further from adjacent noise-sensitive receptors, reduction in the number of equipment working simultaneously in proximity to the sensitive receptor, erection of temporary noise barriers, or a combination of the above.
- If equipment is being used that can cause hearing damage at adjacent noise receptor locations (distance attenuation shall be taken into account), portable noise barriers shall be installed that are demonstrated to be adequate to reduce noise levels at receptor locations below hearing damage thresholds (i.e., generally over 90 dBA, assuming this exposure for an 8-hour construction day). This may include erection of temporary berms or plywood barriers to create a break in the line-of-sight, or erection of a heavy fabric tent around the noise source.

Operation

MM-NOI-3 Future residential units located within the identified 65 dBA CNEL contour of Project road segments shall have site-specific acoustical analyses prepared to identify appropriate measures for achieving noise exposure levels not to exceed 65 dBA CNEL for proposed exterior living areas. The site plan for any such future proposed residential development is necessary in order to accurately

evaluate the exterior noise exposure level in each of the proposed exterior living spaces (i.e., rear yards for single family residences, porches and patios for multi-family residences). It is not possible to conduct such evaluations at the planning stage, because detailed site plans are not available. However, setbacks, noise barriers, or location of exterior living areas behind proposed residences are each potentially effective means to satisfy this requirement. The specified exterior noise analysis demonstrating compliance with the 65 dBA CNEL criterion shall be approved by the City prior to granting land use approval.

An interior noise analysis will also be required for such dwelling units prior to issuance of building permits. The evaluation of interior noise levels for a structure is dependent upon the design of the building shell, including exterior walls, windows, doors, and ventilation openings. None of these design details exist at the current time for future buildings; it is therefore not possible to complete the specified interior noise analysis at this planning stage. There are industry standards for such an interior noise analysis, which evaluate each component of the building shell for attenuation performance (based on sound transmission class, or STC, of the materials). Building permit approval shall be contingent upon an interior noise evaluation demonstrating that interior noise exposure meets the 45 dBA CNEL criterion.

MM-NOI-4 Because heating, ventilation, and air conditioning (HVAC) equipment and other mechanical equipment can generate noise that could affect surrounding sensitive receptors and because the details, specifications, and locations of this equipment is not yet known, the City shall require that future project applicants for commercial and mixed use developments retain an acoustical specialist to review project construction-level plans. The acoustical specialist shall have the responsibility to ensure that the equipment specifications and plans for HVAC and other outdoor mechanical equipment incorporate measures, such as the specification of quieter equipment or provision of acoustical enclosures, that will avoid exceeding relevant noise standards at nearby noise-sensitive land uses (e.g., residential). Prior to the commencement of construction for future commercial and mixed use developments, the acoustical specialist shall certify in writing to the City that the equipment specifications and plans incorporate measures that will achieve the relevant noise limits.

3.7.7 Significance after Mitigation

Upon implementation of mitigation measures **MM-N-2** and **MM-N-3** from the 2006 NMDSP EIR, as well as new mitigation measures **MM-NOI-1** through **MM-NOI-4**, the noise impacts of the Proposed Amendment would be a **less than significant impact with new mitigation incorporated**.

3.7.8 References

Caltrans. 2004. *Transportation- and Construction-Induced Vibration Guidance Manual*. June 2004. Accessed June 6, 2016. http://www.dot.ca.gov/hq/env/noise/pub/vibrationmanFINAL.pdf.

Caltrans (California Department of Transportation). 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September 2013.

City of Montclair. 1999. Montclair General Plan Noise Element.

City of Santa Ana. 2010. City of Santa Ana Transit Zoning Code (SD 84A and SD 84B) Final Environmental Impact Report (SCH No. 2006071100).

FHWA (Federal Highway Administration). 2004. FHWA Traffic Noise Model Version 2.5.

FTA (Federal Transit Administration). 2006. *Transit Noise and Vibration Impact Assessment*. May 2006.

Governor's Office of Planning and Research (OPR). 2003. *State of California General Plan Guidelines.* October 2003. Accessed July 6, 2015. http://opr.ca.gov/docs/General_Plan_Guidelines_2003.pdf.

Stantec. 2016. North Montclair Downtown Specific Plan Amendment Traffic Report.

INTENTIONALLY LEFT BLANK

SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan 07/13/2016.

DUDEK

North Montclair Downtown Specific Plan Amendment Project

FIGURE 3.7-1

Noise Measurement Locations

INTENTIONALLY LEFT BLANK

3.8 POPULATION AND HOUSING

This section describes the existing population and housing setting related to the North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) and analyzes the Proposed Amendment's impacts to population and housing. The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following issue areas as they relate to population and housing: displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere and displace substantial numbers of people, necessitating the construction of replacement housing elsewhere. It was concluded in the Initial Study, that there were no new impacts/no impacts for these issue areas. As such, these issues are not included as part of this EIR. Analysis within this section identifies associated regulatory requirements and identifies the potential impacts of substantial population growth, either directly or indirectly as it relates to implementation of the Proposed Amendment.

3.8.1 Existing Conditions

Population

The estimated population for the City of Montclair as of July 1, 2015, according to the United States Census Bureau, was 38,690 residents (United States Census Bureau, 2016). According to the United States Census Bureau, the City experienced a 5.5 percent population increase between 2010 and 2015. Forecasts show a gradual population growth rate over the next 20 years with an estimated population of 43,900 in 2035 (City of Montclair Planning, 2016).

The population in the NMDSP area is a relatively small percentage of the City's population. Using the household occupancy rate of 3.6, as reported by the City in the 2010 census, the existing resident population of downtown Montclair is estimated to be 2,023 persons, which is approximately 5 percent of the City total.[1]

Housing

There are approximately 9 existing single-family residences within the NMDSP area, located along Huntington Drive, east of Claremont Boulevard. An additional 40 single-family residences are located at the northwest corner of Fremont Avenue and Moreno Street, but these residences are located in the Specific Plan of Development No. 81-2 that the City adopted in 1998; therefore these houses are adjacent to, but not technically within, the NMDSP amendment area.

Multi-family residential in the NMDSP area includes a 385-unit residential complex, known as The Paseos at Montclair North, completed in 2015 at the northeast corner of Monte Vista

[1] United States Census Bureau: http://www.census.gov/quick facts/table/HSD310214/0648788/accessible, accessed October 8, 2016.

Avenue and Moreno Street. An additional 129-unit residential development known as Arrow Station is under construction on the north side of Arrow Highway approximately 200 feet east of Monte Vista Avenue. A third 23-unit project known as Vista Court was recently approved at 8949 Monte Vista Avenue.

The implementation of the two multi-family attached residential projects, and approval of a third multi-family project marks an uptick in population growth in the NMDSP area and is in line with the residential zoning and development envisioned for the NMDSP area (City of Montclair, 2011). These residential projects are located in the immediate vicinity of the Proposed Amendment area but have independent utility because they have already been constructed, are currently being constructed, or have been approved for construction. These projects have previously undergone environmental review by the City of Montclair, and were found to be consistent with the environmental impacts analyzed in the EIR prepared for the NMDSP that was approved on May 15, 2006. For this reason, these projects are not analyzed in this Supplemental EIR, but are considered in the cumulative impact analysis.

2006 North Montclair Downtown Specific Plan

The North Montclair Downtown Specific Plan was adopted by the City on May 15, 2006 (2006 Plan). The EIR, completed to analyze the environmental effects of the 2006 Plan, found that the plan would introduce between 8,393 and 11,369 new residents in the planning area at buildout. The EIR concluded that this increase in population would have a number of direct and indirect significant impacts.

3.8.2 Regulatory Setting

Federal

There are no federal laws or regulations related to housing that are applicable to the Proposed Amendment.

State

Regional Comprehensive Plan

The Southern California Association of Governments (SCAG) is a public agency that builds strategic plans guiding the region in land use, growth, economics, and the environment. The SCAG Regional Comprehensive Plan (RCP) provides a growth management strategy for the region. The overall goal of the RCP is to strengthen the integration of local and regional land use, transportation, and natural resource planning. As stated in the RCP's Land Use and Housing Element, growth should be focused on existing and emerging centers and along major

transportation corridors. In addition to this, the RCP's Housing and Land Use Element includes the goal to pursue more infill residential development (SCAG 2008). Additionally, new housing opportunities should be provided, with building types and locations that respond to the region's changing demographics.

Regional Housing Needs Assessment

A Regional Housing Needs Assessment (RHNA) is mandated by state law as part of the periodic process of updating local housing elements of general plans. The most recently completed SCAG RHNA planning period was January 1, 2006 to June 30, 2014. The fifth cycle RHNA Allocation Plan, which covers the planning period from October 2013 to October 2021, was adopted by the Regional Council on October 4, 2012. Communities use the RHNA in land use planning; prioritizing local resource allocation; and in deciding how to address identified existing and future housing needs resulting from population, employment, and household growth (SCAG 2012). Based on a methodology that weighs a number of factors (e.g., projected population growth, employment, commute patterns, and available sites), SCAG determined quantifiable needs for housing units in the region according to various income categories. In its RHNA, SCAG identifies the City of Montclair's share of the region's housing needs as 697 new housing units for the 2014–2021 Housing Element Cycle (SCAG 2012).

Local

City of Montclair General Plan

The City's General Plan Housing Element is one of seven required General Plan elements mandated by State of California law (City of Montclair, 2014). State law requires that each jurisdiction's Housing Element consist of identification and analysis of existing and projected housing needs and a statement of goals, policies, quantified objectives, and scheduled program actions for the preservation, improvement and development of housing. The Housing Element must analyze and plan for housing for all segments of the community. The City's 2014-2021 Housing Element was adopted by the City Council in February 2014 after a lengthy review process. This Housing Element contains the official policies for the construction, rehabilitation, preservation and conservation of housing in the City of Montclair for the planning period from October 2014 to October 2021. The Housing Element outlines the City's progress toward achieving the objectives set for the city by Southern California Association of Governments (SCAG). The Housing Element identifies and analyzes the existing and projected housing needs, resources, opportunities and past performance in program implementation. The Housing Element is developed based on a detailed analysis of the City's economic, demographic and housing characteristics and has been certified by the State's Department of Housing and Community Development as being compliant with all aspects of state law.

North Montclair Downtown Specific Plan

The North Montclair Downtown Specific Plan, which was adopted on May 15, 2006, provides zoning to accommodate the City's 2014-2021 RHNA need. Within the North Montclair Downtown Specific Plan area, the Town Center (TC) zone allows for densities up to 60 dwelling units per acre (net) and the Corridor Residential (CR) zone allows for densities from 30 to 50 dwelling units per acre, above the "default" density standard of 30 dwelling units per acre established by Assemply Bill 2348 and accepted by HCD as appropriate for accommodating the lower-income housing need. There are vacant and underutilized sites within these zones.

3.8.3 Thresholds of Significance

The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following significance criteria based on Appendix G of the State CEQA Guidelines. It was concluded in the Initial Study, that there were no new impacts/no impacts for the following significance criteria. Therefore, the following significance criteria are not included as part of this Supplemental EIR.

B. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? No New Impact/No Impact

C. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? No New Impact/No Impact

The following significance criterion, included for analysis in this Supplemental EIR, is based on Appendix G of the State CEQA Guidelines, and will be used to determine the significance of potential population and housing impacts. Impacts to population and housing would be significant if the Proposed Amendment would:

A. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) of indirectly (for example, through extension of roads of other infrastructure).

3.8.4 Impacts Analysis

A. Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

New Significant and Unavoidable Impact. The Proposed Amendment would amend the NMDSP to allow for an increase in the number of residences by 2,688 dwelling units. Using the household occupancy rate of 3.6, as reported for Montclair in the 2010 Census,

the construction of 2,688 new residential units would introduce approximately 9,677 people to the planning area.

In addition, the Proposed Amendment would amend the NMDSP to allow for an increase in the amount of non-residential space by 782,285 square feet, which would increase the number of jobs available in the NMDSP area relative to the number of jobs that are currently available in the area. The number of additional employees in the area that would result from the Proposed Amendment has been estimated using employment generation rates from a Southern California Association of Government (SCAG) report on employment density. Table 3.8-1 shows the employment density associated with different non-residential land uses in San Bernardino County according to the SCAG report.

Table 3.8-1
Square Feet Associated with Non-residential Land Uses

Land Use Category	Square Feet/Employee
Regional Retail	1,009
Services	124
Office	697
Industrial	705

As shown in Table 3.8-1, regional retail land uses in San Bernardino County are associated with an employment density of 1,009 square feet (sf) per employee (SCAG based this number on the average employment density of 1,009 sf per acre and on the average floor area ratio of regional retail buildings in San Bernardino County. This number also incorporates a building efficiency factor, which excludes any non-work related spaces in a building such as common areas from the employment density) (SCAG 2001). The SCAG report also finds that other retail/service land uses in San Bernardino county are associated with an employment density of 124 sf per employee, office land uses are assocated with 697 sf per employee and industrial land uses are associated with 705 sf per employee (SCAG 2001).

The estimated change in jobs in the Proposed Amendment area is shown in Table 3.8-2 (Employment Generation for the Proposed Amendment) using the employment densities shown in Table 3.8-1 for each proposed non-residential use.

Table 3.8-2
Employment Generation for Proposed Amendment

Site Use	Leasable Square Footage	Employment Generation Rate (sf per employee)	Employees (Jobs)
Office	1,322	679	2
Retail	306,682	1,009	303
Services	259,264	124	2,090
Industrial	-207,356	705	-294
		Total employees (Jobs)	**2,101**

As shown in Table 3.8-2, it is estimated that the non-residential site uses planned in the Proposed Amendment area would provide employment for approximately 2,101 additional individuals, based on SCAG employment generation rates.

During construction of future projects under the Proposed Amendment, temporary construction employment would be generated in the planning area. Given the relatively common nature of the construction anticipated, the demand for construction employment would likely be met within the existing and future labor market in the City and in surrounding areas, including Los Angeles County and other cities and communities within San Bernardino County. If construction workers live outside of the City, these workers would likely commute during the relatively short, and finite, construction period of projects.

Upon Proposed Amendment buildout, there would be a net increase in jobs available in the planning area. It is estimated that operation of the development allowed under the Proposed Amendment would generate a total of 2,101 jobs. The employees for the additional jobs in the planning area would likely be hired from the existing workforce within the City and within the nearby cities and communities in San Berndino County and Los Angeles County. However, in the unlikely event that these additional workers were to relocate to the City or to nearby areas, the population may increase in the City and in the region. The average persons per household in the City are approximately 3.6 (U.S. Census Bureau 2016). Therefore, in the unlikely event that all employees of the Proposed Amendment currently live outside of the City and were to move into the City, the Proposed Amendment would result in a population increase of approximately 7,564 new City residents.[2]

The total potential increase in population that would be generated from the Proposed Amendment is estimated to be approximately 17,241 new City residents (9,677 generated from the new residential development and 7,564 generated from the new non-residential

[2] 2,101 new employees under the Proposed Amendment x 3.6 persons per household =7,564 new City residents.

development). This population estimate is a conservative worst-case estimate, as it assumes that all of the new employees for the development allowed under the Proposed Amendment currently live outside of the City, that all of these employees would move into the City upon obtaining a job in the planning area, and that all of the new employees would bring a household consisting of two or more persons each. While this scenario would have the potential to occur, it would be very unlikely, particularly considering the urbanized and built-out nature of the region in which the City is located. However, assuming Proposed Amendment buildout would occur by 2040, the Proposed Amendment would exceed the population and employment growth projections for the City, as calculated by SCAG (see Table 3.8-3 (SCAG's Population, Housing and Employment Growth Projections for the City of Montclair)) by approximately 12,441 new residents and 501 new jobs.

Table 3.8-3
SCAG's Population, Housing and Employment Growth Projections for the City of Montclair

	Year 2020	Year 2035	Year 2040
Population	37,900	42,300	42,700
Employment	17,400	18,800	19,000

The 2006 EIR found that the NMDSP would introduce between between 8,393 and 11,369 new residents in the planning area at buildout. The 2006 EIR concluded that this increase in population would have a number of direct and indirect significant impacts. Since the Proposed Amendment would generate an additional 5,871 new residents beyond what was projected for the 2006 plan, the increase in population is considered a new significant impact relative to population growth allowed under the 2006 plan. The implementation of mitigation measures such as **MM-PUB-1** as outlined in Chapter 3.9 and **MM-TRA-1** through **MM-TRA-5** as outlined in Chapter 3.11 would ensure the infrastructure that is needed to deal with this additional population would be in place; however even with this mitigation, impacts to the transportation and traffic infrastructure would be reduced but not fully mitigated. Mitigationfor the population increase is, therefore, limited to substantially reducing the development potential allowed under the Proposed Amendment. Therefore, implementation of the Proposed Amendment would result in a **new significant and unavoidable impact**.

3.8.5 Cumulative Impacts

Cumulative impacts to population and housing considers whether impacts of the Proposed Amendment together with other related projects, when taken as a whole, substantially increase the population or need for housing within the regional area. As discussed above, the 2006 EIR

found that the NMDSP would introduce between between 8,393 and 11,369 new residents in the planning area at buildout. Since the Proposed Amendment would generate approximately 5,871 additional new residents beyond what was projected for the 2006 NMDSP plan, the increase in population is considered a new significant impact relative to population growth allowed under the 2006 plan. Mitigation is limited to substantially reducing the development potential allowed under the Proposed Amendment, and therefore, impacts are considered significant and unavoidable.

It is anticipated that other related projects in the Proposed Amendment area that have commercial land uses may result in growth from attracting employees and tenants. The growth induced by these commercial projects would be considered substantial because they would contribute directly to further population growth in the area. The introduction of the other commercial projects would potentially increase the amount of visitors to the Proposed Amendment area directly, due to new businesses, and indirectly, due to the construction of new infrastructure. The implementation of new businesses in the Proposed Amendment area would generate new jobs. As a result, the current estimate of new jobs (including direct, indirect, and induced jobs) from construction, and the ongoing operation of the Proposed Amendment area, would be created.

In addition, it is anticipated that cumulative projects in the Proposed Amendment area that have a residential component may also result in growth by increasing the amount of residents living in the Proposed Amendment area. The growth induced by new residential projects would be considered substantial because they would contribute directly to population growth by introducing new dwelling units and residents.

The population growth caused by other related projects would further exacerbate the significant population growth impacts caused by the Proposed Amendment. The implementation of mitigation measures such as **MM-PUB-1** as outlined in Chapter 3.9 and **MM-TRA-1** through **MM-TRA-5** as outlined in Chapter 3.11 would ensure the infrastructure that is needed to deal with this additional population would be in place; however even with this mitigation, impacts to the transportation and traffic infrastructure would be reduced but not fully mitigated. Mitigationfor the population increase is, therefore, limited to substantially reducing the development potential allowed under the Proposed Amendment. Therefore, the Proposed Amendment would contribute considerably to a cumulatively significant impact to population growth. Cumulatively the Proposed Amendment would result in a **new significant and unavoidable impact**.

3.8.6 Mitigation Measures

The implementation of mitigation measures such as **MM-PUB-1** as outlined in Chapter 3.9 and **MM-TRA-1** through **MM-TRA-5** as outlined in Chapter 3.11 would ensure the infrastructure that is needed to deal with this additional population would be in place; however even with this mitigation, impacts to the transportation and traffic infrastructure would be reduced but not fully

mitigated. Mitigationfor the population increase is, therefore, limited to substantially reducing the development potential allowed under the Proposed Amendment. As such, impacts are considered significant and unavoidable.

3.8.7 Significance After Mitigation

The implementation of mitigation measures such as **MM-PUB-1** as outlined in Chapter 3.9 and **MM-TRA-1** through **MM-TRA-5** as outlined in Chapter 3.11 would ensure the infrastructure that is needed to deal with this additional population would be in place; however even with this mitigation, impacts to the transportation and traffic infrastructure would be reduced but not fully mitigated. Mitigationfor the population increase is, therefore, limited to substantially reducing the development potential allowed under the Proposed Amendment. Therefore, a new significant and unavoidable impact would occur.

3.8.8 References

City of Montclair. 2014. *City of Montclair General Plan Housing Element 2014-2021*. Adopted February 3, 2014. Accessed October 3, 2016. http://www.cityofmontclair.com/civica/filebank/blobdload.asp?BlobID=7007

City of Montclair. 2011. Zoning Map. Accessed October 8, 2016. http://www.cityofmontclair.com/civica/filebank/blobdload.asp?BlobID=6574.

City of Montclair. 2013. *General Plan Land Use Map*. July 24, 2013. Accessed October 8, 2016. http://www.cityofmontclair.org/depts/cd/planning/general_plan_map.asp.

Southern California Association of Governments. 2001. *Employment Density Study Summary Report.* Prepared by Natelson Company in association with Terry A. Hayes Associates. October 31, 2001. Accessed October 8, 2016. http://www.mwcog.org/uploads/committee-documents/bl5aX1pa20091008155406.pdf.

Southern California Association of Governments. 2016. *Adopted 2016 Regional Transportation Plan Growth Forecast.* Microsoft Excel data accessed from SCAG's Economic and Demographic Library on October 4, 2016. http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting. http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx

Southern California Association of Governments. 2016. Jurisdictional-level growth forecasts. 2016. Accessed on October 6, 2016. http://www.scag.ca.gov/Documents/2016GrowthForecastByJurisdiction.pdf

Southern California Association of Governments. 2008. Final 2008 Regional Comprehensive Plan. Accessed on October 6, 2016. https://www.scag.ca.gov/Documents/f2008RCP_Complete.pdf

Southern California Association of Governments. 2012. Regional Housing Needs Assessment 5th Cycle RHNA Allocation Plan. Adopted October 4, 2012. Accessed on October 6, 2016. http://rtpscs.scag.ca.gov/Pages/Regional-Housing-Needs-Assessment.aspx

United States Census Bureau. 2016. State & County QuickFacts – Montclair (city), California. Accessed October 8, 2016. http://www.census.gov/quickfacts/table/HSD310214/0648788,00.

3.9 PUBLIC SERVICES

This section describes the existing setting of the project site and vicinity with regards to public services, identifies associated regulatory requirements for public services, and evaluates potential impacts related to implementation of the North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment). The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 Cal. Code Regs. section 15000 et seq.). The Initial Study concluded that public services impacts related to future development under the Proposed Amendment may be potentially significant. Accordingly, the analysis in this section focuses on the potential impacts of the Proposed Amendment on fire protection services, police protection services, schools, parks, library services, and other public facilities.

3.9.1 Existing Conditions

Fire Protection

The City of Montclair Fire Department provides fire protection services in the Proposed Amendment area. The Fire Department operates out of two fires stations: Fire Station 151 is located within the downtown area at the southeast corner of Monte Vista Avenue and Arrow Highway and Fire Station 152 is located in the southern portion of the City near the intersection of Monte Vista Avenue and Mission Boulevard. The Fire Department staff includes 18 fire fighters, three chief officers, a Public Safety Director, and one fire investigator.

As indicated in the 2006 NMDSP EIR, Fire Station 151 is staffed with a three-person engine, has one triple combination pumper, and one quint (engine) with a 55-foot ladder. On a 24-hour basis, the downtown area is served by 16 firefighters, one chief officer, and one fire investigator.

The Montclair Fire Department has been participating in an "All Hazard" emergency aid system with surrounding communities through mutual-aid and automatic-aid agreements. The local aid agreements include the Chino Valley Fire Protection District, Upland Fire Department, Ontario Fire Department, Rancho Cucamonga Fire Protection District, San Bernardino County Fire Department, and the Los Angeles County Fire Department (Montclair Fire Department 2016).

Police Protection

Police protection services in the City are provided by the Montclair Police Department, which is headquartered on the northwest corner of Arrow Highway and Monte Vista Avenue, at 4870 Arrow Highway. The Montclair Police Department serves an approximately 5.5 square-mile community with 38,700 residents. The Department employs 60 sworn officers, 50 full and part-time civilian support personnel and 18 volunteers, including 15 reserve officers and 3 chaplains

(Montclair Police Department 2016). In addition to patrolling, the Department is also involved in specialized assignments such as Detective Bureau, Narcotics Investigations Task Force, Motor Officer Program, Technical Services, Plaza Precinct Patrol, and School Resource Officer.

Schools

The Proposed Amendment area is served by the Ontario-Montclair School District and the Chaffey Joint Union High School District. Moreno Elementary School and Serrano Middle School, both Ontario-Montclair School District schools, are the closest elementary and middle school to the planning area. Moreno Elementary School is located on Moreno Street, southwest of the downtown area. Serrano Middle School is located on San Jose Street, also southwest of the downtown area. Montclair High School of the Chaffey Joint Union High School District serves the entire City and is located on Benito Street, approximately 1.1 miles south of the NMDSP area.

Moreno Elementary School serves students in kindergarten through grade 6. The current total enrollment of the school is 560 students (CDE 2016). According to the 2006 NMDSP EIR, the capacity of Moreno Elementary is 700 students. Serrano Middle School serves grades 7 and 8 and the current total student population is 705 students (CDE 2016). According to the 2006 NMDSP EIR, Serrano Middle School has capacity for 749 students. Montclair High School currently has 2,989 students enrolled in grades 9-12 (CDE 2016). At the time of preparation of the 2006 NMDSP EIR, enrollment at the high school was at 3,223 students and capacity was listed as 2,500 students. Since then, a new two-story, 32-classroom building was constructed to provide for increased levels of student enrollment.

Parks

Montclair has currently established approximately 55 acres for park and recreational use within the City. There are 13 parks, one of which is currently undeveloped and is located within the unincorporated area. Moreno Vista Park is located approximately 1,000 feet from the NMDSP area. Several other parks are leased from the Ontario-Montclair School District or the Chino Basin Water Conservation District for use by the City. A complete list of parks and facilities is shown in Table 3.9-1 (Recreational and Open Space Facilities).

Table 3.9-1
Recreational and Open Space Facilities

Parks	Acreage	Facilities
Alma Hofman	7.3	Playground, barbeque, community center with gym, weights, basketball and racquet courts, skate park
MacArthur	2.9	Basketball, playground equipment, passive
Wilderness Basin Park	2.8	Picnic area, Passive

Table 3.9-1
Recreational and Open Space Facilities

Parks	Acreage	Facilities
Sunrise	2.3	Playground equipment, passive
Sunset	7.14	Playground equipment, fruit park, passive
Monte Vista Mini	0.4	Passive
Moreno Vista	3.0	Passive
Saratoga	11.7	Playground equipment, baseball field, soccer field, basketball court, barbeque areas, picnic areas
Essex	2.9	Softball, passive
Kingsley	3.0	Softball
Golden Girls	1.6	Softball
Paseos Park	0.77	Passive
Pacific Electric Trail	4.0	Biking, walking/jogging, passive
Unnamed (unincorporated)	4.85	Undeveloped
Total	**54.66**	

According to the 2016 State Department of Finance, the population of the City was 38,686 persons in 2016 (CDF 2016). The existing park land acreage owned by the City is approximately 54.66 acres. Existing and/or potential parks currently provide approximately 1.41 acres of park land per 1,000 residents. This means that the City is currently falling short of objectives established in the City's General Plan by approximately 61 acres which is lower than the 2.5 to 3 acres per thousand residents, which is commonly recommended as a goal for suburban communities. The City's park land dedication requirements for new development and land banking of park land acreage of 3 acres per 1,000 residents is an attempt to achieve a standard closer to the ideal ratio.

2006 North Montclair Downtown Specific Plan

The North Montclair Downtown Specific Plan that was adopted by the City on May 15, 2006 (2006 plan) included a number of civic spaces and facilities for the planning area. The plan hoped to achieve public sites of unique qualities that established and identified a sense of place. The plan called for its civic spaces and facilities to provide locations for public gatherings and expand the purpose of the districts beyond commerce. The civic spaces the plan established included:

1. The creation of a pedestrian plaza connecting the residential and commercial developments of the North Montclair Downtown Specific Plan with the front door of the Montclair Plaza shopping center.
2. The creation of a public square that terminated by the Metrolink transit station and the Gold Line commuter trains along Arrow Highway.

3. The creation of a square north of the railroad tracks to the Huntington right-of-way and the establishment of a corridor for bike paths and pedestrian trails along the Huntington that would link to Claremont Village and Upland.
4. The development of an ornamental and symbolic garden at the intersection of the bike/pedestrian corridor along Huntington Avenue and Monte Vista Avenue to establish a visual gateway to Montclair.
5. The development of two additional sites to provide for neighborhood-oriented open space, like playgrounds and dog runs, and maybe anchored by community facilities such as senior centers, public pools, and/or recreation centers.

Despite the 2006 plan including language which allowed for the development of additional plazas, playgrounds and small parks where feasible throughout the planning area, the Final EIR found that the 2006 plan would not provide sufficient parkland to serve the population projected and would add to the current deficiency in the City. The 2006 plan had a parkland deficiency of between 17.2 and 26.1 acres within the planning area and would exacerbate the City's park shortage. Since mitigation was found to be limited to substantially redesigning the project to accommodate the necessary acreage, the EIR found that impacts were significant and unavoidable. The Final EIR also found that based on the population and growth factors, given the relative lack of remaining open land in and around Montclair, the project's contribution to the cumulative impact was also considered significant and unavoidable.

Since the adoption of the 2006 NMDSP, there has been one neighborhood-oriented public park developed in the planning area, the Central Public Park at the new Paseos residential development. This park is approximately 0.77 acres in size and features passive open space, an amphitheater, and a fountain.

Libraries

The Montclair Branch of the San Bernardino County Library system is located at 9955 Fremont Avenue in the Montclair Civic Center, approximately 1.5 miles south of the Proposed Amendment area. The Montclair Library is one of the largest facilities in the regional library system. It encompasses 20,200 square feet and 59,100 volumes. The Montclair Library serves the residents of the City, which has a current population of 38,686 people.

3.9.2 Regulatory Setting

Federal

There are no federal public services regulations applicable to the Proposed Amendment.

State

Fire Protection

California Fire Code

The California Fire Code is Chapter 9 of Title 24 of the California Code of Regulations. It provides regulations for safeguarding life and property from fire and explosion hazards derived from the storage, handling, and use of hazardous substances, materials, and devices. The provisions of this code apply to construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenance connected or attached to such building structures throughout California.

Uniform Fire Code

The Uniform Fire Code contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The code contains specialized technical regulations related to fire and life safety.

California Health and Safety Code

State fire regulations are set forth in Section 13000 et seq. of the California Health and Safety Code, including regulations for building standards (also set forth in the California Building Code), and fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training. The State Fire Marshal enforces these regulations and building standards in all state-owned buildings, state-occupied buildings, and state institutions throughout California.

California Occupational Safety and Health Administration

In accordance with California Code of Regulations, Title 8, Sections 1270, Fire Prevention, and 6773, Fire Protection and Fire Equipment, the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials; fire hose size requirements; restrictions on the use of compressed air; requirements for access roads; and guidelines for testing, maintaining, and using all firefighting and emergency medical equipment.

Mutual Aid Agreements

The California Disaster and Civil Defense Master Mutual Aid Agreement, as provided by the California Emergency Services Act, provides statewide mutual aid between and among local jurisdictions and the State. The statewide mutual aid system exists to ensure that adequate resources, facilities, and other supports are provided to jurisdictions whenever resources prove to be inadequate for a given situation. Each jurisdiction controls its own personnel and facilities but can give and receive help whenever needed.

Schools

California State Assembly Bill 2926 – School Facilities Act of 1986

In 1986, Assembly Bill (AB) 2926 was enacted by the State of California authorizing entities to levy statutory fees on new residential and commercial/industrial development in order to pay for school facilities. AB 2926, entitled the School Facilities Act of 1986, was expanded and revised in 1987 through the passage of AB 1600, which added Section 66000 et seq. of the California Government Code.

Proposition 1A/Senate Bill 50

SB 50, or the Leroy F. Greene School Facilities Act of 1998, imposes new limitations on the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development. SB 50 amends Section 17620 of the Education Code to authorize school districts to levy statutory developer fees at levels that may be significantly higher than those previously permitted, but also provides new and stricter standards for school districts to follow when levying fees. School Districts would continue to be authorized to charge development fees (also known as Level 1 fees) of $1.93 per square foot on residential buildings and $0.31 per square foot on commercial or industrial buildings. However, pursuant to Government Code Sections 65995.5 and 65995.7, SB 50 authorizes school districts to charge additional Level 2 development fees to match 50 percent of school construction costs of State funds, and Level 3 development fees to fund 100 percent of school construction costs if State funds are not available.

Government Code Section 65996

Section 65996 designates Section 17620 of the Education Code (the mitigation fees authorized by SB 50) and Section 65970 of the Government Code to be the exclusive method for considering and mitigating development impacts on school facilities.

Parks

Quimby Act

California Government Code Section 66477, referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees solely for park and recreation purposes. The required dedication and/or fees are based upon the residential density, parkland cost, and other factors. Land dedication and fees collected pursuant to the Quimby Act may be used for acquisition, improvement, and expansion of park, playground, and recreational facilities or the development of public school grounds.

Assembly Bill 1359

Assembly Bill 1359 was signed into law in 2013. The bill allows cities and counties to use developer paid Quimby Act fees to provide parks in neighborhoods other than the one in which the developer's subdivision is located. The Quimby Act has long been used by public agencies to develop parkland and recreational facilities. The fee is imposed on developers as a condition of public agency approval of a tentative map or parcel map. Public agencies were limited, however, in how the funds could be used. In particular, cities and counties were required to use the fees for parks that served the developer's proposed subdivision. AB 1359 lifted this limitation if certain requirements are met.

1. The neighborhood where the city or county is proposing to use the fees to provide parks must have fewer than three acres of park area per 1,000 members.
2. The neighborhood where the proposed subdivision is located must have at least three acres of park area or more per 1,000 members.
3. The city or county must hold a public hearing before using the fees in another neighborhood.
4. The city or county must find it reasonably foreseeable that the new subdivision's residents will use the park facilities in the other neighborhood.
5. And, finally, the city or county must use the fees in areas consistent with the city or county's local Quimby Act ordinance and general plan.

AB 1359 makes one other addition to the Quimby Act. It now allows a city or county to enter into a joint or shared-use agreement with one or more public districts in order to provide additional park and recreational access.

Local

City of Montclair General Plan

Fire

The General Plan includes policies and programs to minimize potential damage and hazards resulting from fire, including, but not limited to, the following:

SE- 4.4.0 Require that all development plans be reviewed by local planning, fire, water, health, road, and flood control authorities.

SE- 4.5.0 Support plans which would provide for safe ingress and egress of emergency equipment.

Police

The Safety Element of the General Plan contains implementation policies and programs that encourage coordination between crime prevention and physical planning, while supporting the need for sufficient facilities. It includes policies which encourage consideration of design that would prevent criminal activity through security and surveillance:

SE- 3.1.2 Encourage design consideration that would prevent or discourage criminal activity by providing security and surveillance.

SE- 3.1.3 Advocate the design of proposed developments to facilitate their surveillance and neighborhood watch by the people who utilize or inhabit them.

SE- 3.1.4 Maximize the social deterrents to crime in street patterns and lot planning enhancing the neighborhood observation and recognition.

SE- 3.1.5 Encourage the clustering of houses into small neighborhoods removed from major thoroughfares, thereby enhancing neighborhood recognition and surveillance and making strangers in the neighborhood obvious.

Parks

The Open Space Element of the General Plan addresses parks and supports the standards of 3.0 acres per 1,000 population. It includes policies directing land acquisition for park areas where future population growth and higher density is anticipated, and encourages a balanced park system that is accessible to all ages.

City of Montclair Municipal Code

The City has adopted an ordinance to fund parks and recreation in accordance with Section 66477 of the Subdivision Map (the Quimby Act). The City's Quimby Ordinance allows the City to require the payment of a fee or the dedication of an equivalent area of parkland when new residential subdivisions are proposed. The law states that "the dedication of land or the payment of fees, or both, shall not exceed the proportionate amount necessary to provide 3 acres of park area per 1,000 persons residing within a subdivision subject to this section, unless the amount of existing neighborhood and community park area, as calculated pursuant to this subdivision, exceeds that limit, in which case the legislative body may adopt the calculated amount as a higher standard not to exceed 5 acres per 1,000 persons residing in a subdivision subject to this section." In addition to Quimby fees, facilities can be provided by grants, donations, user fees, community fund raising events, joint ventures, and joint use agreements.

3.9.3 Thresholds of Significance

The following significance criteria are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 Cal. Code Regs. section 15000 et seq.), and will be used to determine the significance of potential impact to public services. Impacts related to public services would be significant if the proposed project would:

A. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:
    - Fire protection
    - Police protection
    - Schools
    - Parks
    - Libraries
    - Other public facilities

3.9.4 Impacts Analysis

A Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire Protection

No New Impact/No Impact. The 2006 NMDSP EIR concluded that, although continued development would place additional demand on fire service, impacts would be less than significant. The EIR further concluded that implementation of the NMDSP would result in an increased amount and density of development, which would increase the fire flows required in the planning area. Impacts were considered significant but mitigatable.

As previously discussed, fire protection services and emergency medical services are provided by the Montclair Fire Department. The Montclair Fire Department Station 151 is closest to the planning area and would be the first responder to any individual site within the Proposed Amendment area. In the event that Station 151could not meet the immediate needs of a call for services independently or did not have capability to address the full extent of a larger incident, Station 152 could respond or provide support. Future development under the Proposed Amendment would be subject to current Montclair Fire Department requirements for fire sprinkler systems, fire alarm systems, fire flow, and equipment and firefighter access, as well as International Fire Code requirements. Additionally, in accordance with the requirements of the Montclair Fire Department, a Knox Box would be installed at future project sites to enable emergency service personnel to access buildings (Montclair Fire Department 2011). The implementation of the Proposed Amendment would result in the development of 2,688 additional residential units which would result in changes to both the makeup and population in this portion of the fire service area and could result in the need for additional physical facilities, expanded facilities, equipment or personnel in order to maintain existing fire department service rations, response times, or other performance objectives.

As discussed in the 2006 NMDSP EIR, development projects undertaken pursuant to the proposed plan would result in the payment of both developer's fees and property taxes, both of which would result in additional revenue available to the City and the City Fire Department. Developer's fees cannot be used for personnel. However, assuming that the City routes increased property tax revenues to the Fire Department as development and population increases in the planning area, impacts would be less than significant. No

physical improvements, which could result in environmental impacts, would be expected as a result of the Proposed Amendment.

Mitigation measure **MM-PUB-1** was identified in the 2006 NMDSP EIR and is also recommended mitigation for impacts caused by the Proposed Amendment. It is expected that implementation of mitigation measure **MM-PUB-1** would help reduce impacts on fire flows. With the incorporation of mitigation measure **MM-PUB-1**, all projects developed within the NMDSP area would be required to ensure that existing or proposed infrastructure provides adequate fire flow. To demonstrate compliance with the measure, new projects would be required to perform any engineering surveys requested by the City or Water District and coordinate with the appropriate agencies to ensure that fire flows are adequate for the size of the buildings, their relationship to other structures, property lines, and types of construction used. Implementation of this mitigation measure would reduce impacts related to fire flows to less than significant levels.

MM-PUB-1 Projects under the NMDSP shall ensure that infrastructure is in place that provides adequate fire flow. This includes performing any engineering surveys required by the City or the Water District to assess ability of existing infrastructure to accommodate the project proponent to coordinate with the appropriate agencies to ensure fire flows shall be based on the size of the buildings, their relationship to other structures, property lines, and types of construction used.

With the implementation of **MM-PUB-1**, as required under the 2006 NMDSP EIR, impacts associated with fire services to be provided to future development under the Proposed Amendment would result in **no new impact/no impact**. No new mitigation is required.

Police Protection

New Significant and Unavoidable Impact. The 2006 NMDSP EIR concluded that while implementation of the NMDSP would place additional demand upon police services, impacts were still considered less than significant.

Future development under the Proposed Amendment would result in an increase of 2,688 additional residential dwelling units within the NMDSP area. This increase would result in changes to both the makeup and population in this portion of the police service area. An increase in activity in the planning area would potentially lead to an increase in the number of calls that the Montclair Police Department receives from the downtown area. Additional police staffing in the planning area could result in the physical alteration of governmental facilities. With additional residents in the planning area, future development under the Proposed Amendment may adversely affect service levels or response times and may result

in the need for additional or expanded police facilities to maintain existing police department service ratios, response times, or other performance objectives.

As indicated in the 2006 NMDSP EIR, development projects undertaken pursuant to the proposed plan would result in the payment of both developers' fees and property taxes, both of which would result in additional revenue available to the City and the City Police Department. Developers' fees cannot be used for personnel. However, since it cannot be confirmed at this time that the City is able to route increased property tax revenues to the Police Department as development and population increases in the planning area, the Proposed Amendment would result in a **new significant and unavoidable impact** to police protection services

Schools

No New Impact/No Impact. The 2006 NMDSP EIR found that buildout of the NMDSP would increase the demand for schools in the area that may already experience capacity problems. Impacts were considered less than significant assuming the payment of the required fees.

The City is served by the Ontario-Montclair School District and by the Chaffey Joint Union High School District. The need for new school facilities is typically associated with a population increase that generates an increase in enrollment large enough to cause new schools to be constructed.

Although the General Plan states that school facilities are sufficient to serve the future needs of the City, the growth projected under the Proposed Amendment was not included in this assessment. Future development under the Proposed Amendment would cause population growth in the City. As previously discussed, the Proposed Amendment involves the development of an additional 2,688 residential dwelling units, which would result in changes to both the makeup and population in the school districts. According to the California School Board, the average number of students generated per dwelling unit is 0.7 student (California Department of General Services, Office of Public School Construction 2009). Assuming that each additional household would occupy a dwelling unit, the Proposed Amendment could result in approximately 1,783 new students. In the event that 1,783 students were to be added to the Ontario-Montclair School District and/or the Chaffey Joint Union High School District due to future development under the Proposed Amendment, this addition would occur over time and could potentially result in the need for new schools in the area.

As discussed in the 2006 NMDSP EIR, developers within the NMDSP area are required to pay applicable school impact fees. Pursuant to Government Code Section 65996, payment

of school impact fees in accordance with Government Code Section 65995 is deemed to constitute full and complete mitigation for potential impacts to schools caused by development. Therefore, implementation of the Proposed Amendment would result in **no new impact/no impact** to schools outside of those assessed in the 2006 NMDSP EIR**.** No new mitigation is required.

Parks

New Significant and Unavoidable Impact. The 2006 NMDSP EIR concluded that implementation of the NMDSP would place additional demand upon park facilities and would not provide sufficient parkland to meet the City standards. Impacts were considered to be significant and unavoidable.

Future development under the Proposed Amendment would result in 2,688 additional residential units, which would result in changes to both the makeup and population in the NMDSP area. The Proposed Amendment is expected to generate substantial population growth within the City and the new residents of the planning area would be expected to use nearby park facilities.

Currently the City is deficient in parkland and the increased population will exacerbate this deficiency. According to the State Department of Finance, in 2016, the population of the City was 36,686 in 2016 (CDF 2016). The existing park land acreage within the study area is approximately 54.66 acres which means that existing parks provide a total of 1.41 acres of park land per 1,000 residents. This means that the City is currently falling short of objectives established in the City's General Plan by approximately 61 acres. Two acres of parkland is considered low in comparison to the range of 2.5 to 3.0 acres per thousand, which is commonly recommended as a goal for suburban communities. The City's park land dedication requirements for new development and land banking of park land acreage of 3 acres per 1,000 residents is an attempt to achieve a standard closer to the ideal ratio. The City intends to update its General Plan in the future to allow for payment of fees in lieu of dedication of park land, however, until those updates are approved, all development projects are required to satisfy the City's park land acreage dedication requirements.

The Proposed Amendment could result in up to 17,240 total residents in the planning area at buildout. Using the current standard of 3 acres per thousand people, the projected population would require approximately 61 acres of additional parkland. Currently, there are approximately 20 acres of parkland proposed for the planning area. This results in an additional parkland deficit of approximately 41 acres in the planning area.

The plan includes language which allows for the development of additional, small parks throughout the Proposed Amendment area. The plan also includes walkable streets, bikeways,

and other outdoor features which may be considered recreational and are not reflected in the acreage. It should also be noted that the 3 acre of parkland per 1000 residents standard found in the General Plan reflects a "suburban" standard for parkland dedication. The focus of the NMDSP is to create a more urban, pedestrian-friendly and walkable community which is somewhat antithetical to car-centric suburban standards related to park development. Nevertheless, based on the new regulating plan, the Proposed Amendment will not meet the current General Plan standard and will exacerbate the City's park shortage. Mitigation is limited to substantially redesigning the Proposed Amendment to accommodate the necessary acreage. As such, this is considered a **new significant and unavoidable impact.**

Libraries and Other Public Facilities

No New Impact/No Impact. The 2006 NMDSP EIR found that the NMDSP would increase the demand for library services. Impacts were considered less than significant. The EIR also found that implementation of the NMDSP would increase solid waste generation and demand for disposal capacity. Impacts were considered less than significant.

Other public facilities and services provided within the City include library services and City administrative services. Library services are provided at the Montclair Branch Library, which is located at 9955 Fremont Avenue. The library serves approximately 14,000 people per month and is a member of the San Bernardino County Library System and the San Bernardino, Inyo, Riverside Counties United Library Service Network (SIRCULS Network). Because the library is part of a greater network of other county library services, residents and registered borrowers have access to over three million titles (City of Montclair 1999; San Bernardino County Library 2016). City administrative services are generally provided at Montclair City Hall, located at 5111 Benito Street, south of the Proposed Amendment area. Residents from future development under the Proposed Amendment could use library services and the City's administrative services. The Proposed Amendment would involve an increase in residential housing (2,688 additional units) and would be expected to generate substantial population growth within the Proposed Amendment area. However, since the overall residential growth associated with the Proposed Amendment would occur gradually over a roughly 20-year period, the impact on library and other administrative services would also be gradual and most likely commensurate with overall increased funding and staffing levels expected during that time frame. Therefore, it is anticipated that existing library and City administrative services would be sufficient or require a slight increase over time to accommodate the increased demand due to implementation of the Proposed Amendment, and no new or physically altered governmental facilities would be necessary. Accordingly, implementation of the Proposed Amendment would result in **no new impact/no impact** outside of what was assessed in the 2006 NMDSP EIR.

3.9.5 Cumulative Impacts

Cumulative impacts to public services considers whether impacts of the Proposed Amendment together with other related projects, when taken as a whole, substantially increase the provision of public services within the regional area. As discussed above, the 2006 EIR found that the NMDSP would introduce between 8,393 and 11,369 new residents in the planning area at buildout. Since the Proposed Amendment would generate approximately 5,871 additional new residents beyond what was projected for the 2006 NMDSP plan, the increase in population is considered a new significant impact relative to population growth allowed under the 2006 plan. Mitigation is limited to substantially reducing the development potential allowed under the Proposed Amendment, and therefore, impacts are considered significant and unavoidable.

Cumulative development in the City will increase the structures, residents, and employees requiring fire and police protection. Assuming fees continue to be adjusted and assessed and improvements in facilities are made concurrent with, or in advance of, new development, cumulative impacts to police and fire are not considered significant.

Cumulative development in the City will continue to increase the number of students attending local schools and other educational facilities. Assuming appropriate statutory fees continued to be paid, impacts are considered fully mitigated by the law.

Based on the population and growth discussed in Chapter 3.8 of this Supplemental EIR, the City is deficient in meeting the required acreage for parkland. As shown in Table 5.9-8, there is a deficit in parkland of over 50%. Continued growth in the City will increase the number of residents and consequently the demand for park space. If fees continue to be exacted and new park space is developed concurrent with, or in advance of new development in the City, impacts could be reduced. However, given the relative lack of remaining open land in and around Montclair, as well as the inability to confirm at this time that the City will route increased property tax revenues to the Police Department as development and population increases in the planning area, the Proposed Amendment's contribution to the cumulative police protection services and parks impact is considered a **new significant and unavoidable impact**.

3.9.6 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. New mitigation measures for the Proposed Amendment are described below:

MM-PUB-1 Projects under the NMDSP shall ensure that infrastructure is in place that provides adequate fire flow. This includes performing any engineering surveys required by the City or the Water District to assess ability of existing

infrastructure to accommodate the project proponent to coordinate with the appropriate agencies to ensure fire flows shall be based on the size of the buildings, their relationship to other structures, property lines, and types of construction used.

3.9.7 Significance after Mitigation

Mitigation measure **MM PUB-1**, which was also included in the 2006 NMDSP EIR, requires that future projects ensure adequate fire flow. Implementation of mitigation measure **MM PUB-1** would ensure that impacts associated with the provision of fire protection services remain less than significant and consistent with the 2006 NMDSP EIR.

Since it cannot be confirmed at this time that the City is able to route increased property tax revenues to the Police Department as development and population increases in the planning area, impacts to police protection services is considered a **new significant and unavoidable impact**. In terms of impacts to parks resulting from future development under the Proposed Amendment, there are no feasible mitigation measures, and as such, impacts are considered to be a **new significant and unavoidable impact**, as concluded in the 2006 NMDSP EIR. Cumulative impacts associated with parks would also be a **new significant and unavoidable impact**.

3.9.8 References

California Government Code. Section 65995–65996.

CDE (California Department of Education), Educational Demographics Unit. 2016. "Enrollment by Grade for 2015-16." Accessed November 28, 2016. http://dq.cde.ca.gov/dataquest/Enrollment/GradeEnr.aspx?cYear=2015-16&cGender=B&cType=ALL&cChoice=DistEnrGr2&cSelect=3667819,Ontario-Montclair.

CDF (California Department of Finance), Demographic Research Unit. 2016. "Table 1: 2016 Population Rankings, California Cities Ranked by 1/1/16 Total Population." Accessed December 15, 2016. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/.

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed November 28, 2016. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

Montclair Fire Department. 2011. "Montclair Fire Department Fire Prevention Bureau Knox Box Program." Accessed November 28, 2016. http://www.cityofmontclair.org/depts/fire/prevention/knox_box_program.asp.

Montclair Fire Department. 2016. "Overview of the Department." Accessed November 28, 2016. http://cityofmontclair.org/depts/fire/admin/overview.asp.

Montclair Police Department. 2016. "About Us." Accessed November 28, 2016. http://cityofmontclair.org/depts/police/default.asp.

San Bernardino County Library. 2016. "Montclair Branch Library." Accessed November 28, 2016. http://www.sbclib.org/LibraryLocations/MontclairBranchLibrary.aspx.

INTENTIONALLY LEFT BLANK

3.10 RECREATION

This section describes the existing recreational uses; identifies associated regulatory requirements; and evaluates potential adverse impacts related to recreation as a result of implementing the proposed North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment). The October 2016 Initial Study (Appendix A) for the Proposed Amendment identified recreation as an issue area that would be analyzed in the Supplemental EIR. As such, both thresholds are included as part of this Supplemental EIR. Analysis within this section identifies associated regulatory requirements and identifies the potential impacts of the Proposed Amendment on recreational facilities.

3.10.1 Existing Conditions

Parks Standards

The City of Montclair's (City) General Plan sets a goal of 3 acres of recreational area per 1,000 residents. The City is over 50% deficient in parkland under existing conditions.

Parks

Regional Parks

Regional parks include the most extensive or more highly specialized of the recreational facilities. They provide spacious areas for those scenic and recreation opportunities that have area-wide significance. The City, while having no regional parks within its own boundaries, is in close proximity to three major regional recreational facilities. The first, the Frank G. Bonelli Regional County Park, includes 2,500 acres of land and is located northwest of the planning area. This facility is within a ten minute drive of the City. The park provides the most recreational opportunities in the area including boating, horseback riding, fishing, swimming, camping, and hiking. The Prado Regional Park is located southeast of the City, approximately ten miles from the City. This park consists of 2,100 acres and includes two golf courses. The main park area is 1,200 acres and includes a 56-acre lake stocked with trout and catfish, an equestrian center for the board and rental of horses, and camping with recreational vehicle hookups. Finally, Cucamonga Guasti Regional Park, a 79-acre day use park, is located six miles east of the City. This park includes approximately 20 acres of lake; picnic tables; a bait/boat rental facility; a three-quarter acre swimming lagoon; and a new water park offering rides and aquatic recreation.

Local Parks and Recreational Areas

Montclair currently has established approximately 55 acres for park and recreational use in the city. There are 13 parks, one of which is currently undeveloped. Several other parks are leased from the

Ontario-Montclair School District for use by the City. There are no regional parks within the Proposed Amendment area. A complete list of parks and facilities is shown in Table 3.10-1 (Recreational and Open Space Facilities).

Table 3.10-1
Recreational and Open Space Facilities

Parks	Acreage	Facilities
Alma Hofman	7.3	Playground, barbeque, community center with gym, weights, basketball and racquet courts, skate park
MacArthur	2.9	Basketball, playground equipment, passive
Wilderness Basin Park	2.8	Picnic area, Passive
Sunrise	2.3	Playground equipment, passive
Sunset	7.14	Playground equipment, fruit park, passive
Monte Vista Mini	0.4	Passive
Moreno Vista	3.0	Passive
Saratoga	11.7	Playground equipment, baseball field, soccer field, basketball court, barbeque areas, picnic areas
Essex	2.9	Softball, passive
Kingsley	3.0	Softball
Golden Girls	1.6	Softball
Paseos Park	0.77	Passive
Pacific Electric Trail	4.0	Biking, walking/jogging, passive
Unnamed (unincorporated)	4.85	Undeveloped
Total	**54.66**	

According to the 2016 State Department of Finance, the population of the City was 38,686 persons in 2016 (CDF 2016). The existing park land acreage owned by the City is 54.66 acres. Existing and/or potential parks currently provide approximately 1.41 acres of park land per 1,000 residents. This means that the City is currently falling short of objectives established in the City's General Plan by approximately 61 acres which is lower than the 2.5 to 3 acres per thousand residents, which is commonly recommended as a goal for suburban communities. The City's park land dedication requirements for new development and land banking of park land acreage of 3 acres per 1,000 residents is an attempt to achieve a standard closer to the ideal ratio.

Funding

Parks and other recreational facilities are primarily funded by the City's general fund. A major factor in providing additional parks is the ability to provide proper maintenance, equipment, and recreational programs. Unfortunately, declining general fund revenues are often insufficient, and parks and recreation is commonly seen as a "harmless" way to cut costs. Grants, shared use arrangements (e.g. with school districts) and innovative funding mechanisms (e.g. utility or

antenna lease agreements) are potential methods to provide for sufficient parks, with their requisite maintenance and amenities. Additional funding has been obtained through grants, shared use arrangements (such as with the school district), and other funding mechanisms.

2006 North Montclair Downtown Specific Plan

The North Montclair Downtown Specific Plan that was adopted by the City on May 15, 2006 (2006 plan) included a number of civic spaces and facilities for the planning area. The plan hoped to achieve public sites of unique qualities that established and identified a sense of place. The plan called for its civic spaces and facilities to provide locations for public gatherings and expand the purpose of the districts beyond commerce. The civic spaces the plan established included:

1. The creation of a pedestrian plaza connecting the residential and commercial developments of the North Montclair Downtown Specific Plan with the front door of the Montclair Plaza shopping center.
2. The creation of a public square that terminated by the Metrolink transit station and the Gold Line commuter trains along Arrow Highway.
3. The creation of a square north of the railroad tracks to the Huntington right-of-way and the establishment of a corridor for bike paths and pedestrian trails along the Huntington that would link to Claremont Village and Upland.
4. The development of an ornamental and symbolic garden at the intersection of the bike/pedestrian corridor along Huntington Avenue and Monte Vista Avenue to establish a visual gateway to Montclair.
5. The development of two additional sites to provide for neighborhood-oriented open space, like playgrounds and dog runs, and maybe anchored by community facilities such as senior centers, public pools, and/or recreation centers.

Despite the 2006 plan including language which allowed for the development of additional plazas, and small parks where feasible throughout the planning area, the Final Program EIR found that the 2006 plan would not provide sufficient parkland to serve the population projected and would add to the current deficiency in the City. The 2006 plan had a parkland deficiency of between 17.2 and 26.1 acres within the planning area and would exacerbate the City’s park shortage. Since mitigation was found to be limited to substantially redesigning the project to accommodate the necessary acreage, the EIR found that impacts were significant and unavoidable. The final EIR also found that based on the population and growth factors, given the relative lack of remaining open land in and around Montclair, the project's contribution to the cumulative impact was also considered significant and unavoidable.

Since the adoption of the 2006 plan, there has been one neighborhood-oriented public park developed in the planning area, the Central Public Park at the new Paseos residential development. This park is approximately two acres in size and features an amphitheater and a fountain.

Bicycle and Pedestrian Circulation

The City of Montclair has integrated bicycle planning into overall transportation planning. Although bike routes or paths are not readily identifiable in Montclair, cycling is considered safe, and therefore, encouraged both as a form of transportation or recreation. The surrounding communities, such as Claremont, Upland and Ontario all have bike routes connecting or within reasonable distance from established routes within the Montclair planning area.

3.10.2 Regulatory Setting

Federal

There are no federal regulations applicable to the Proposed Amendment.

State

Quimby Act

California Government Code Section 66477, referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees solely for park and recreation purposes. The required dedication and/or fees are based upon the residential density, parkland cost, and other factors. Land dedication and fees collected pursuant to the Quimby Act may be used for acquisition, improvement, and expansion of park, playground, and recreational facilities or the development of public school grounds.

Assembly Bill 1359

Assembly Bill was signed into law in 2013. The bill allows cities and counties to use developer paid Quimby Act fees to provide parks in neighborhoods other than the one in which the developer's subdivision is located. The Quimby Act has long been used by public agencies to develop parkland and recreational facilities. The fee is imposed on developers as a condition of public agency approval of a tentative map or parcel map. Public agencies were limited, however, in how the funds could be used. In particular, cities and counties were required to use the fees for parks that served the developer's proposed subdivision. AB 1359 lifted this limitation if certain requirements are met.

1. The neighborhood where the city or county is proposing to use the fees to provide parks must have fewer than three acres of park area per 1,000 members.

2. The neighborhood where the proposed subdivision is located must have at least three acres of park area or more per 1,000 members.
3. The city or county must hold a public hearing before using the fees in another neighborhood.
4. The city or county must find it reasonably foreseeable that the new subdivision's residents will use the park facilities in the other neighborhood.
5. And, finally, the city or county must use the fees in areas consistent with the city or county's local Quimby Act ordinance and general plan.

AB 1359 makes one other addition to the Quimby Act. It now allows a city or county to enter into a joint or shared-use agreement with one or more public districts in order to provide additional park and recreational access.

Local

City of Montclair General Plan

The Open Space Element of the City of Montclair General Plan addresses Parks and supports the standards of three acres per 1,000 population. It includes policies directing land acquisition for park areas where future population growth and higher density is anticipated, and encourages a balanced park system that is accessible to all ages.

City's General Plan states that standards developed by state and City policies suggest that an average of one acre of parkland for each 3,000 residents is needed. The nearest recreational facility to the Proposed Amendment area is the play fields at Moreno Elementary School. Other passive recreational facilities include the open space along the San Antonio Channel.

The General Plan states that the city currently falls approximately 35 acres short of meeting the standard. The General Plan cites problems with park acquisition as the limiting factor.

City of Montclair Municipal Code

The City has adopted an ordinance to fund parks and recreation in accordance with Section 66477 of the Subdivision Map (the Quimby Act). The City's Quimby Ordinance allows the City to require the payment of a fee or the dedication of an equivalent area of parkland when new residential subdivisions are proposed. The law states that "the dedication of land or the payment of fees, or both, shall not exceed the proportionate amount necessary to provide three acres of park area per 1,000 persons residing within a subdivision subject to this section, unless the amount of existing neighborhood and community park area, as calculated pursuant to this subdivision, exceeds that limit, in which case the legislative body may adopt the calculated amount as a higher standard not to exceed five acres per 1,000 persons residing in a subdivision

subject to this section." In addition to Quimby fees, facilities can be provided by grants, donations, user fees, community fund raising events, joint ventures, and joint use agreements.

3.10.3 Thresholds of Significance

The following significance criteria, included for analysis in this Supplemental EIR, are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and will be used to determine the significance of potential impacts to parks and recreational facilities. Impacts related to parks and recreational facilities would be significant if the Proposed Amendment would:

A. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

B. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

3.10.4 Impacts Analysis

A. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

New Significant and Unavoidable Impact. Buildout under the Proposed Amendment will increase the planning area population, which in turn will increase the demand for park facilities. Currently the city is deficient in parkland and the increased population will exacerbate this deficiency.

According to the 2016 State Department of Finance, the population of the City was 38,686 in 2016 (CDF 2016). The existing park land acreage owned by the City is 54.66. Existing and/or potential parks currently provide approximately 1.41 acres of park land per 1,000 residents. This means that the City is currently falling short of objectives established in the City's General Plan by approximately 61 acres, which is lower than the 2.5 to 3.0 acres per thousand residents, which is commonly recommended as a goal for suburban communities. The City's park land dedication requirements for new development and land banking of park land acreage of three per 1,000 residents is an attempt to achieve a standard closer to the ideal ratio.

The Proposed Amendment could introduce up to 17,240 new residents in the planning area at buildout. Using the current three acre per thousand standard, the projected population would require approximately 52 acres of additional parkland. Currently there

are approximately 20 acres of parkland proposed for the planning area. This results in an additional parkland deficit of approximately 32 acres in the planning area.

The plan includes language which allows for the development of additional, small parks throughout the Proposed Amendment area. The plan also includes walkable streets, bikeways, and other outdoor features which may be considered recreational and are not reflected in the acreage. However, based on the new regulating plan, the Proposed Amendment will not meet standards and will exacerbate the City's park shortage. The City will be updating their General Plan to include in-lieu fees in the future, but since this update has not yet occurred, mitigation is limited to substantially redesigning the Proposed Amendment to accommodate the necessary acreage. As such, this is considered a **new significant and unavoidable impact**.

B. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

New Significant and Unavoidable Impact. The plan includes language which allows for the development of additional, small parks throughout the Proposed Amendment area. The plan also includes walkable streets, bikeways, and other outdoor features which may be considered recreational and are not reflected in the acreage. The City is currently under contract with MIG Engineering to develop standards for walkable streets and bikeways. Once these studies have been completed the City will be in a position to finance certain bike and walkway improvements in the area.

City staff will recommend to the City Council a supplemental parkland fee, or an increase in the Quimby Act fee, if warranted, to accomplish the goal of acquiring and developing additional parkland in the planning area. However, based on the new regulating plan, the Proposed Amendment will not meet the City's 3 acres of parkland for every 1,000 citizen standard and will exacerbate the City's park shortage. The City will be updating their General Plan to include in-lieu fees in the future, but since this update has not yet occurred, mitigation is limited to substantially redesigning the Proposed Amendment to accommodate the necessary acreage. Impacts are considered significant and unavoidable. As such, this is considered a **new significant and unavoidable impact**.

3.10.5 Cumulative Impacts

Based on the population and growth factors, the City is deficient in meeting the required acreage for parkland. There is a deficit in parkland of over 50%. Continued growth in the City caused by other cumulative projects will further increase the number of residents and consequently the

demand for park space. If fees continue to be exacted and new park space is developed concurrent with, or in advance of new development in the City, impacts could be reduced. In addition, if the city updates the General Plan to include new in-lieu fees in the future, impacts could be reduced; however, given the relative lack of remaining open land in and around the City and the current lack of an in-lieu fee program, the Proposed Amendment's contribution to the cumulative impact is considered a **new significant and unavoidable impact**.

3.10.6 Mitigation Measures

Mitigation is limited to substantially redesigning the Proposed Amendment to accommodate the necessary acreage. As such, impacts are considered to be a **new significant and unavoidable impact**.

3.10.7 Significance After Mitigation

There is no feasible mitigation and impacts are considered to be a new significant and unavoidable impact.

3.10.8 References

CDF (California Department of Finance), Demographic Research Unit. 2016. "Table 1: 2016 Population Rankings, California Cities Ranked by 1/1/16 Total Population." Accessed December 15, 2016. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/.

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed October 8, 2016. http://www.cityofmontclair.com/depts/cd/planning/general_plan.asp.

City of Montclair. 2010. *City Parks and Park Map – Montclair, California* 2016. Accessed October 8, 2016. http://www.cityofmontclair.com/about/parks.asp.

3.11 TRANSPORTATION/TRAFFIC

This section describes the existing transportation facilities on the proposed North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) site and within the Proposed Amendment's general vicinity. Analysis within this section identifies associated regulatory requirements and potential impacts related to implementation of the Proposed Amendment. This section is based on the analysis presented in the *North Montclair Downtown Specific Plan Amendment Project Traffic Study* prepared for Proposed Amendment (Appendix E).

An Initial Study (Appendix A) was completed for the Proposed Amendment in October 2016 that included an analysis of the significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). The Initial Study concluded that there were no impacts or no new impacts related to hazardous design features, emergency access or conflicts with adopted polices, plans or programs related to transit, bicycle and pedestrian facilities. Because the Initial Study addressed these topics and found no impacts or no new impacts, this EIR does not include these environmental factors. This EIR does include an analysis of whether the Proposed Amendment conflicts with applicable plans, ordinances or policies related to the performance of the circulation system, whether the Proposed Amendment conflicts with the applicable congestion management program, and whether the Proposed Amendment results in a change in air traffic patterns.

Public and agency comments related to transportation were received during the public review period in response to the Initial Study, and are summarized below. These comments were taken into consideration in preparation of this EIR.

- Include a determination of consistency with Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS).
- Consider mitigation measures provided in the SCAG RTP/SCS as applicable or feasible.
- Include an analysis of freeway mainline segments within a five-mile radius of project.
- Recommendation that the City prepare a transportation demand management (TDM) ordinance. Additionally, consider requiring shower facilities and bike storage for commercial, office and mixed use development.
- General recommendations regarding the design of roadway, pedestrian and bicycle facilities:
    - Consider using National Association of City Transportation Official's (NACTO) design guide for roadway configurations.

  - Install Class IV (protected bikeways) bicycle facilities particularly on the truck routes and high-density commercial/employment areas.
  - Design the local streets to serve vehicular and pedestrian circulation equally, and for a safe pedestrian friendly environment. Consider both Americans with Disability Act and California Highway Design Manual standards and requirements to provide transportation routes for all users and modes.
  - Relegate parking spaces to the back of buildings and provide preferential parking for ridesharing vehicles, low-emitting, fuel-efficient, and alternative-fueled vehicles.
  - Consider a no-car zone downtown as well as traffic calming.
- Provide bike parking in compliance with the City's established standards and locate it in areas accessible to office and commercial.
- Concern regarding implementation of the project prior to the development of the Gold Line and potential effects on parking availability.
- Ensure that the station meets the Southern California Regional Rail Authority (SCRRA) requirement of 500 spaces at new stations and that the parking lot circulation separates buses and passenger vehicles.
- Ensure that the right-of-way set aside is enough to accommodate service by Metrolink's San Bernardino Line and the Gold Line extension. Additionally, incorporate transportation facilities identified by SCAG's Los Angeles and San Bernardino Inter-County Transit and Rail Connectivity Study.
- Allow for direct vehicle access to operate and maintain station amenities and facilities such as the ticket vending machines, signage, phones, etc.
- Ensure safe, direct pedestrian access for station users and station area residents. For example, maintain direct access from Arrow Highway to the pedestrian underpass to access the station platforms from development on the south side of the tracks.
- Maintain setbacks and landscaping such that rail operations and safety are not affected.
- Ensure that construction activities do no impact train schedules or safety. There shall be no encroachment into the railroad right-of-way unless the contractor follows SCCRA rules and requirements for encroachment approval.

3.11.1 Existing Conditions

This section describes key vicinity roadway segments, transit, pedestrian and biking facilities.

Roadways

The existing arterial roadway system in the study area includes all of the currently built arterial roadways together with a number of midblock travel lanes on individual roadway segments. Regional access for the City is provided via two interchanges with the Interstate 10 (I-10) freeway, located at Monte Vista Avenue and at Central Avenue. The I-10 freeway is the principal east-west freeway in the Pomona Valley, just south of the Proposed Amendment area. Roadways in the study area are further described below.

Interstate 10 is a major east-west US highway that begins at the Pacific Ocean in Santa Monica, California and ends in Jacksonville, Florida. In the study area it is known as the San Bernardino Freeway.

Arrow Highway is a four-lane major east-west roadway with a center turn lane crossing the northern portion of Montclair. East of Benson Avenue, Arrow Highway becomes West 8th Street in the City of Upland.

Arrow Route is a four-lane east-west major roadway in the City of Upland. West of Claremont Boulevard it becomes East 6th Street in the City of Claremont.

Monte Vista Avenue is a six-lane north-south arterial roadway with an intermittent center turn-lane in the project study area. Bus stops are currently located along Monte Vista Avenue in, and adjacent to, the planning area.

Central Avenue is a divided six-lane arterial roadway. This north-south roadway provides access to I-10 and Cable Airport.

Moreno Street is a four-lane, east-west, divided major roadway with pocket turn lanes between Monte Vista and Central Avenue. West of Monte Vista it is an undivided two-lane collector roadway. East of Central Avenue it is an undivided four-lane secondary roadway with a center turn lane.

Indian Hill Boulevard is a four-lane north-south divided major arterial in Claremont. Along its path through Claremont, Indian Hill Boulevard transitions from a four-lane divided major arterial to a two- and four-lane divided secondary arterial to a two-lane collector. Indian Hill Boulevard has an interchange at I-10, but does not have an interchange at State Route 210 (SR- 210).

San José Street is a short, two-lane collector that runs east-west connecting Mills Avenue to Monte Vista Avenue.

Palo Verde Street is a four-lane, east-west, partially-divided major roadway with pocket turn lanes between Monte Vista and Central Avenue. Its western terminus is at Monte Vista Avenue. East of Central Avenue it transitions to an undivided two-lane secondary roadway in a residential area.

Claremont Boulevard/Mills Avenue is a four-lane, north-south, secondary arterial in the City of Claremont. South of Arrow Highway it becomes a two-lane collector roadway.

Holt Boulevard is a four-lane, east-west, divided arterial in the southern portion of the study area. It connects the City of Montclair to the City of Ontario and the City of Pomona.

Mission Boulevard is a four-lane, east-west, divided arterial in the southern portion of the study area. It connects the City of Montclair to the City of Ontario and the City of Pomona.

Transit

The Montclair Transcenter provides an array of transit services, including bus and heavy rail public transit. The Montclair Transcenter is also the designated terminus for the Gold Line light rail service.

Foothill Transit provides local transit service and regional transit connections between Montclair and destinations to the west in Pomona, the San Gabriel Valley, and downtown Los Angeles. These services include express routes, local routes, and school supplementary routes. Omnitrans provides public transit to the West Valley area of San Bernardino County. Its services include demand response for those who use Americans with Disabilities Act (ADA) facilities. Riverside Transit Agency provides express service to downtown Riverside. The Metrolink San Bernardino line is the busiest of Southern California's seven Metrolink lines, running from downtown Los Angeles east through the San Gabriel Valley and the Inland Empire to San Bernardino. It is one of the three initial lines (along with the Santa Clarita and Ventura Lines) on the original Metrolink system. The San Bernardino Line serves the following stations:

- Union Station, Los Angeles
- Cal State L.A., Los Angeles
- El Monte
- Baldwin Park
- Covina
- Pomona (North)
- Claremont
- Montclair, Montclair Transcenter
- Upland
- Rancho Cucamonga
- Fontana
- Rialto
- Santa Fe Depot, San Bernardino
- Downtown San Bernardino/San Bernardino Transit Center (under construction)
- Redlands (proposed for construction)

Additionally, the Pacific Electric Inland Empire Trail serves the area and is located in the northern portion of Montclair. Figure 3.11-2 shows the existing transit services.

Phase 2B of the Gold Line light rail service is proposed for construction from Azusa to the Montclair Transcenter (located on Arrow Highway in the planning area). If approved, project construction is scheduled to begin in 2017, with completion in the first half of 2022. Pursuant to Assembly Bill 2574, the Montclair Transcenter is the designated terminus for the Gold Line Foothill Extension from Pasadena to Montclair. The Final EIR for the project was certified by the Construction Authority Board in March 2013, and advanced engineering and environmental consulting work began in 2014. This two-year process would advance design for the project to a point where it would be ready for a design-build procurement. The foothill corridor extension would be a part of the Los Angeles County Metro Rail System and, when completed, would be served by the Metro Gold Line. The Foothill Gold Line is being planned and implemented by the Gold Line Foothill Extension Construction Authority.

Bicycle and Pedestrian Facilities

On the north border of the Montclair Transcenter is the Pacific Electric Inland Empire Trail (PET)—a bicycle, running, horse riding and walking trail in the West Valley area of San Bernardino County, with expansive views and connections to community centers, parks, transit areas, and shopping and residential districts. The trail follows the old Pacific Electric Railway, a former, privately owned mass transit system in Southern California, also known as the Red Car system consisting of electrically powered streetcars, light-rail, and buses. The PET is the only Class 1 (separated path) bicycle facility in the City of Montclair. A Class 2 (bicycle lane) facility exists along Mills Avenue between Holt Boulevard and the PET. A second Class 2 bicycle facility is proposed along G Street in Ontario and Orchard Street in Montclair connecting to the Mills Avenue Class 2 bicycle facility.

Existing Conditions Level of Service

An analysis of existing traffic conditions was completed using the level of service (LOS) methodology described in Section 3.11.4. The analysis assumed existing roadway geometries which are shown in Figure 4 of Appendix E. The traffic volumes used for the analysis were obtained from a comprehensive count program performed in Fall 2014 and counts conducted in Summer/Fall 2016. Existing average daily traffic (ADT) volumes in the study area are illustrated in Figure 3.11-3. Peak hour intersection turning movements for the AM and PM peaks are shown in Figures 3.11-4 and 3.11-5, respectively. Table 3.11-1 summarizes the existing peak hour delay and LOS for each intersection. The traffic count data and HCM LOS worksheets for each intersection can be found in Appendix E.

Table 3.11-1
Existing Conditions Level of Service

ID	Intersection	Jurisdiction	AM		PM	
			Delay	*LOS*	*Delay*	*LOS*
1	Monte Vista Avenue / Arrow Highway*	Montclair	25.5	C	**65.7**	**E**
2	Monte Vista Avenue / Moreno Street	Montclair	18.1	B	18.7	B
3	Monte Vista Avenue / San Jose Street	Montclair	25.4	C	28.0	C
4	Monte Vista Avenue / I-10 Westbound Ramps*	Montclair	16.0	B	32.3	C
5	Monte Vista Avenue / I-10 Eastbound Off-ramp / Palo Verde Street*	Montclair	34.4	C	35.1	D
6	Palo Verde Street / I-10 Eastbound On-ramp	Montclair	12.5	B	14.1	B
7	Central Avenue / Arrow Highway*	Montclair	34.2	C	28.3	C
8	Central Avenue / Moreno Street*	Montclair	40.0	D	30.9	C
9	Central Avenue / I-10 Westbound Ramps*	Montclair	25.0	C	21.9	C
10	Central Avenue / I-10 Eastbound Ramps*	Montclair	19.3	B	28.7	C
11	Indian Hill Boulevard / Arrow Highway**	Claremont	44.9	D	46.9	D
12	Claremont Boulevard / Mills Avenue / Arrow Highway**	Claremont	28.7	C	38.1	D
13	Monte Vista Avenue / Foothill Boulevard*	Upland	27.4	C	31.8	C
14	Monte Vista Avenue / Arrow Route	Upland	20.0	B	23.1	C
15	Central Avenue / Arrow Route	Upland	25.2	C	25.9	C
16	Mountain Avenue / 8th Street*	Upland	48.3	D	43.6	D
17	Central Avenue / Holt Boulevard*	Montclair	27.3	C	31.6	C
18	Central Avenue / Mission Boulevard*	Montclair	45.7	D	54.1	D

Source: Stantec 2016
Notes:
* San Bernardino County CMP Intersections
** Los Angeles County CMP Intersections
Bold indicates unacceptable level of service. The performance standard for CMP intersections is LOS E, but the City of Montclair's LOS D criteria are utilized for all intersections in Montclair.

3.11.2 Regulatory Setting

The following is a summary of regulations that apply to projects in the City of Montclair.

State of California Department of Transportation (Caltrans)

As the owner and operator of the State Highway System, the State of California Department of Transportation (Caltrans) implements established state planning priorities in all functional plans, programs, and activities. Caltrans has the responsibility to coordinate and consult with local jurisdictions when proposed local land use planning and development may impact state highway facilities. Pursuant to Section 21092.4 of the Public Resources Code (PRC), for projects of statewide, regional, or area-wide significance, the lead agency shall consult with transportation planning agencies and public agencies that have transportation facilities which could be affected by the project. A traffic impact study is required by Caltrans when a project generates and assigns over 100 peak hour trips to a state highway facility; or if the project generates and

assigns 50 to 100 peak hours trips to a state highway facility causing the facility to approach LOS C or D; or 1 to 49 peak hour trips are generated and assigned to a state highway facility causing it to experience significant congestion (LOS E or F), increased risk for traffic collisions, or affect access to the facility. (Caltrans 2002)

Southern California Association of Governments (SCAG)

The Southern California Association of Governments (SCAG) develops the Regional Transportation Plan (RTP), which presents the transportation vision for Los Angeles, Orange, San Bernardino, Imperial, Riverside, and Ventura Counties. Senate Bill 375 (SB 375) was enacted to reduce greenhouse gas emissions from automobiles and light trucks through integrated transportation, land use, housing and environmental planning. Under the law, SCAG is tasked with developing a Sustainable Communities Strategy (SCS), a newly required element of the Regional Transportation Plan (RTP) that provides a plan for meeting emissions reduction targets set forth by the California Air Resources Board.

The 2016 RTP/SCS identifies priorities for transportation planning within the Southern California region, sets goals and policies, and identifies performance measures for transportation improvements to ensure that future projects are consistent with other planning goals for the area. The RTIP, also prepared by SCAG based on the RTP, lists all of the regional funded/programmed improvements within the next seven years. In order to qualify for CEQA streamlining benefits under SB 375 a project must be consistent with the RTP/SCS.

County of San Bernardino Congestion Management Program (CMP)

To address the increasing public concern that traffic congestion is impacting the quality of life and economic vitality of the State of California, Proposition 111 created the Congestion Management Program (CMP) in 1990. The intent of the CMP is to provide the analytical basis for transportation decisions through the State Transportation Improvement Program (STIP) process. Included with the provision for additional transportation funding was a requirement to undertake a Congestion Management Program (CMP) within each county with an urbanized area having a population of 50,000 or more, to be developed and adopted by a designated Congestion Management Agency (CMA). In 1990 the San Bernardino Associated Governments (SANBAG) was designated the CMA for San Bernardino County.

Although implementation of the CMP was made voluntary by the passage of AB 2419 (Bowler, 1996), the CMP requirement has been retained in all five urban counties within the SCAG region. In addition to its value as a transportation management tool, CMPs have been retained in these counties because of the Federal Congestion Management Process requirement that applies to all large urban areas that are not in attainment of federal air quality standards. These counties recognize that the CMP provides a mechanism through which locally implemented programs can

fulfill most aspects of a regional requirement that would otherwise have to be addressed by the Regional Agency (SCAG).

The LOS at each CMP locations is monitored by local jurisdictions in order to implement the statutory requirements of the CMP. If LOS standards deteriorate, then local jurisdictions must prepare a deficiency plan to meet conformance standards outlined by the countywide plan. The local CMP requires that a TIA report be prepared when a project's trip generation exceeds 250 two-way peak hour trips. For the CMP roadway system, the LOS standard shall be E for all segments and intersections except those designated LOS F, as listed in Table 2-1 of the CMP (SANBAG 2016). None of the intersections in the study area is listed in Table 2-1 of the CMP.

County of Los Angeles Congestion Management Program

In Los Angeles County, the Los Angeles County Metropolitan Transportation Authority (Metro) is the designated CMA and is responsible for implementing the CMP. The 2010 CMP marks the eighteenth year since the adoption of the first CMP for Los Angeles County in 1992. The 2010 CMP is the eighth CMP adopted for Los Angeles County since the requirement became effective with the passage of Proposition 111 in 1990. The CMP program is intended to address the impact of local growth on the regional transportation system. It includes monitoring LOS on the CMP Highway and Roadway network, measuring frequency and routing of public transit, implementing the Transportation Demand Management and Land Use Analysis Program Ordinances and helping local jurisdictions meet their responsibilities under the CMP.

While many levels of government are involved in developing and implementing the CMP, local jurisdictions have significant implementation responsibilities. These responsibilities include assisting in monitoring the CMP system; adopting and implementing a transportation demand management ordinance; adopting and implementing a program to analyze the impacts of local land use decisions on the regional transportation system; and participating in the Countywide Deficiency Plan.

The project is not located within the County of Los Angeles, therefore, the City of Montclair is not subject to these monitoring requirements. Additionally, the CMP states that when a project is less specific and the proposed land uses and project design details are not well defined (such as in a zone map amendment or a general plan amendment), the level of detail in the traffic study may be adjusted accordingly. This may apply for example, to redevelopment areas, citywide general plans, or community level specific plans. Therefore, this transportation analysis does not include a land use and transit analysis. However, since two of the study intersections are within the Metro CMP, they are analyzed using the Metro CMP requirements, specifically using the Intersection Capacity Utilization (ICU) method of calculating LOS. Similar to the San

Bernardino County CMP, the LOS standard for intersections and roadways in the Los Angeles County CMP network is LOS E.

City of Montclair

The City of Montclair Circulation Element objective is to promote a circulation and transportation system that accommodates all modes efficiently and safely as well as be attractive in appearance (Montclair 1999). The City has a LOS standard of D for all intersections under its jurisdiction. Montclair has not established a standard for those intersections that are already operating deficiently; therefore, an industry standard of an increase of one second/vehicle or more at a deficient intersection will be used to define an exceedance of the LOS standard.

City of Claremont

The City of Claremont Circulation Element has a stated vision of becoming a transit connected, calm traffic environment that encourages and supports both bicycling and walking. The Circulation Element also established a standard of LOS D or better for secondary arterials and LOS E for major arterials. Any intersection currently operating deficiently is required to maintain the existing level of service after consideration of new project traffic. (Claremont 2009)

City of Upland

The City of Upland Circulation Element includes goals that encourage mobility and access for all modes of travel including automobiles, transit, bicyclists, pedestrians and freight (Upland 2015a). The City of Upland has established a minimum acceptable LOS D for intersections during peak hours outside of the Downtown Specific Plan area and the Transit Priority Roadways except where such improvements are physically infeasible or would negatively impact bicyclists, pedestrians, or transit patrons. Intersections within the Downtown Specific Plan area and intersections along the Transit Priority Roadways may operate at LOS E. (Upland 2015a) Upland has not established a standard for those intersections that are already operating deficiently; therefore, an industry standard of an increase of one second/vehicle or more at a deficient intersection will be used to define an exceedance of the LOS standard.

3.11.3 Thresholds of Significance

The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). It was concluded in the Initial Study that there were no new impacts/no impacts for these criteria. Therefore, the following significance criteria are not included as part of this EIR.

D. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

E. Result in inadequate emergency access.

F. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The following significance criteria, included for analysis in this EIR, are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and will be used to determine the significance of potential transportation/traffic impacts. Impacts to transportation/traffic would be significant if the Proposed Amendment would:

A. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

B. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

C. Result in a change to air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

3.11.4 Methodology

This section describes the methodology used to analyze the potential impacts of the Proposed Amendment. Roadways and intersections that could potentially be affected by future projects under the Proposed Amendment were identified and analyzed under two scenarios: existing conditions and future long-range conditions. The study area and study scenarios are described in more detail below.

Level of Service

The performance of the circulation system is measured using level of service (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels are defined, from LOS A as the best operating conditions, to LOS F, or the worst operating conditions. LOS E represents “at-capacity” operations. When traffic volumes exceed the intersection capacity, stop-and-go conditions result, and operations are designated as LOS F.

Highway Capacity Manual (HCM) Methodology

LOS was evaluated for each roadway and intersection during the morning (AM) and evening (PM) peak hours for an average weekday using the 2010 Highway Capacity Manual (HCM) methodology for signalized intersections. Intersections #11 Indian Hill Boulevard / Arrow Highway and #12 Claremont Boulevard / Mills Avenue / Arrow Highway were also evaluated using the Intersection Capacity Utilization (ICU) method described below in order to meet Los Angeles County CMP requirements. All intersections evaluated in the study area are signalized. The result of the HCM calculations is an estimate of average control delay at the intersection. Average control delay is associated with a LOS grade as shown in Table 3.11-2.

The HCM operational analysis for signalized intersections was applied using peak hour volumes and the geometric configuration of the intersection. This methodology assumes optimized signal timing/phasing for existing and future signal analysis, unless the given intersection is in a coordinated intersection system, in which case estimated actual cycle length is utilized. The HCM saturation flow rate and clearance interval parameters used in the HCM calculations are consistent with the San Bernardino Congestion Management Program (CMP) procedures and, thereby, with the methodology adopted by many local jurisdictions throughout the County.

Table 3.11-2
Signalized Intersection Level of Service Definitions - HCM Methodology

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤ 10	Free flow
B	10.1 - 20.0	Stable flow (slight delays)
C	20.1 - 35.0	Stable flow (acceptable delays)
D	35.1 – 55.0	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	55.1 – 80.0	Unstable flow (intolerable delay)
F	≥ 80.1	Forced flow (congested and queues fail to clear)

Source: HCM 2010.

Intersection Capacity Utilization (ICU) Methodology

For the Los Angeles County CMP intersections, intersections are analyzed using the Intersection Capacity Utilization (ICU) methodology. ICU is defined as the sum of the ratios of approach volume divided by approach capacity for each leg of intersection. The method assumes optimal signal operation and timing. The analysis assumes a capacity of 1,600 vehicles per lane for all through and turn lanes and 2,880 vehicles total for dual turn lanes. The resulting volume to capacity (V/C) ratio is associated with a LOS grade as shown in Table 3.11-3.

Table 3.11-3
Signalized Intersection Level of Service Definitions - ICU Methodology

Level of Service	V/C Ratio	General Description
A	1. 0.60	At LOS A, there are no cycles that are fully loaded, and few are even close to loaded. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turning movements are easily made, and nearly all drivers find freedom of operation.
B	> 0.60 – 0.70	LOS B represents stable operation. An occasional approach phase is fully utilized, and a substantial number are approaching full use. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C	> 0.70 – 0.80	In LOS C stable operation continues. Full signal cycle loading is still intermittent, but more frequent. Occasionally drivers may have to wait through more than one red signal indication, and back-ups may develop behind turning vehicles.
D	> 0.80 – 0.90	LOS D encompasses a zone of increasing restriction, approaching instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive back-ups.
E	> 0.90 – 1.00	LOS E represents the most vehicles that any particular intersection approach can accommodate. At capacity (V/C = 1.00) there may be long queues of vehicles waiting upstream of the intersection and delays may be great (up to several signal cycles).
F	> 1.00	LOS F represents jammed conditions. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration, hence, volumes carried are not predictable. V/C values are highly variable because full utilization of the approach may be prevented by outside conditions.

Source: Metro 2010.

Study Area

A total of 18 intersections were included in the study area. As noted in Table 3.11-4, twelve of these intersections are in the San Bernardino County Congestion Management Program and two are in the Los Angeles County Congestion Management Program, which is discussed in more detail in section 3.11.3.

Table 3.11-4
Study Area Intersections

ID	Intersection	CMP	Jurisdiction
1	Monte Vista Avenue / Arrow Highway	San Bernardino	Montclair
2	Monte Vista Avenue / Moreno Street	No	Montclair
3	Monte Vista Avenue / San Jose Street	No	Montclair
4	Monte Vista Avenue / I-10 Westbound Ramps	San Bernardino	Montclair
5	Monte Vista Avenue / I-10 Eastbound Off-ramp / Palo Verde Street	San Bernardino	Montclair
6	Palo Verde Street / I-10 Eastbound On-ramp	No	Montclair
7	Central Avenue / Arrow Highway	San Bernardino	Montclair

Table 3.11-4
Study Area Intersections

ID	Intersection	CMP	Jurisdiction
8	Central Avenue / Moreno Street	San Bernardino	Montclair
9	Central Avenue / I-10 Westbound Ramps	San Bernardino	Montclair
10	Central Avenue / I-10 Eastbound Ramps	San Bernardino	Montclair
11	Indian Hill Boulevard / Arrow Highway	Los Angeles	Claremont
12	Claremont Boulevard / Mills Avenue / Arrow Highway	Los Angeles	Claremont
13	Monte Vista Avenue / Foothill Boulevard	San Bernardino	Upland
14	Monte Vista Avenue / Arrow Route	No	Upland
15	Central Avenue / Arrow Route	No	Upland
16	Mountain Avenue / 8th Street	San Bernardino	Upland
17	Central Avenue / Holt Boulevard	San Bernardino	Montclair
18	Central Avenue / Mission Boulevard	San Bernardino	Montclair

Source: Stantec 2016.

Study Scenarios

For the purposes of this analysis, potential impacts related to traffic have been assessed for each of the following scenarios:

- **Existing Conditions (Baseline):** represents existing traffic conditions based on observed traffic counts.
- **Existing Conditions with Project:** includes existing conditions as well as vehicle trips generated by the project.
- **Long Range (2040) without Project:** includes long-range traffic forecasts including buildout of the City of Montclair General Plan. These traffic forecasts were obtained from the San Bernardino County Transportation Analysis Model (SBTAM). The SBTAM is a sub-regional travel demand model that is used for the future planning and environmental projects in the County of San Bernardino. The SBTAM model was chosen over other travel demand models as it is the most current model for the study area.
- **Long Range (2040) with Project:** includes long-range traffic forecasts from SBTAM as well as vehicle trips generated by the project.

3.11.5 Impacts Analysis

A. Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

RTP/SCS Consistency Analysis

No New Impact/ No Impact.

The Southern California Association of Governments (SCAG) Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) establishes regional policies and goals for transportation to improve mobility, promote sustainability, facilitate economic development, and preserve the quality of life for residents in the region (SCAG 2016). SCAG reviews environmental documents for regionally significant projects for their consistency with the adopted RTP/SCS. Lead agencies have the sole discretion in determining a project's consistency with the RTP/SCS. Based on the analysis shown in Table 3.11-5, below, the Proposed Amendment is consistent with the RPT/SCS and there is **no impact**.

Table 3.11-5
RTP/SCS Consistency Analysis

No	Goal	Consistency
G-1	Align the plan investments and policies with improving regional economic development and competitiveness.	Consistent: The RTP/SCS includes investment in the Gold Line extension to Montclair, which will support the mix of land uses planned in the NMDSP.
G-2	Maximize mobility and accessibility for all people and goods in the region.	Consistent: The NMDSP has an emphasis on bicycle, pedestrian and transit facilities. The additional TOD development allowed for in the NMDSP Amendment will support use of these new facilities. Additionally, a new street grid pattern will provide improved mobility and accessibility for all users.
G-3	Ensure travel safety and reliability for all people and goods in the region.	Consistent: The City of Montclair builds new transportation facilities up to state-of-the-practice standards and considers safety of all new facilities. The City coordinates with transit providers with regard to safety and reliability, but does not have direct authority over transit facilities.
G-4	Preserve and ensure a sustainable regional transportation system.	Consistent: The City of Montclair coordinates with regional transit providers and Caltrans to provide sustainable options for transportation. The NMDSP Amendment includes several improvements to the circulation system that will help improve mobility options for sustainable modes of travel.

Table 3.11-5
RTP/SCS Consistency Analysis

No	Goal	Consistency
G-5	Maximize the productivity of our transportation system.	Not applicable: Transportation Systems Management and Intelligent Transportation Systems are implemented by SCAG and Transportation Demand Management is implemented within the City on a project level basis if or when appropriate.
G-6	Protect the environment and health of our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).	Consistent: The NMDSP Amendment includes many improvements to the circulation system for bicyclists and pedestrians that will help improve mobility options for active modes of travel.
G-7	Actively encourage and create incentives for energy efficiency, where possible.	Consistent: In addition to state and federal incentives, the NMDSP EIR includes MM-GHG-1 and MM-GHG-2 which include energy saving strategies. (See Section 3.56 for more detail.)
G-8	Encourage land use and growth patterns that facilitate transit and active transportation.	Consistent: The NMDSP has an emphasis on bicycle, pedestrian and transit facilities. The additional TOD development allowed for in the NMDSP Amendment will support use of these new facilities. Additionally, a new street grid pattern will provide improved mobility and accessibility for all users.
G-9	Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	Not applicable: The regional transportation system is managed by regional agencies and Caltrans. However, the City of Montclair coordinates with these agencies on safety and security where applicable.

Source: Dudek 2016.

Operational Traffic

New Significant and Unavoidable Impact.

Roadway Analysis

A LOS analysis was completed to comply with Caltrans CMP and the City's regulations. As discussed above in Section 3.11.1 LOS is the regulatory measure of the effectiveness of the circulation system.

The City of Montclair and other cities in the study area have set the standard for LOS at D. Any intersection performing at E or F is considered an unacceptable LOS. For the San Bernardino CMP roadway system, the LOS standard is E for all segments and intersections except those designated LOS F, as listed in Table 2-1 of the CMP (SANBAG 2016). Similarly, the Los Angeles CMP roadway system standard is LOS E. However, the City of Montclair performance standard, LOS D, is applied for all City intersections in the study area regardless of whether it is a CMP intersection since LOS D is more conservative than the CMP criteria. The San Bernardino County performance standard of LOS D is applied for all non-CMP intersections outside the City of Montclair. The CMP performance standard of LOS E is applied for all CMP intersections, including

those in Los Angeles and San Bernardino Counties, outside the City of Montclair. For intersections already operating below the relevant jurisdiction's LOS threshold, a significant impact occurs if the project results in an increase of 1.0 second or more in the average delay during the AM and PM peak hour using the HCM methodology. Using the ICU methodology a significant impact occurs when there is a 2% increase in capacity (V/C ≥ 0.02) at intersections already operating at a deficient LOS. These LOS standards are used to measure the effectiveness of the circulation system and identify impacts per CEQA threshold A, described above. Table 3.11-6, below, summarizes the impact criteria used for this threshold.

Table 3.11-6
LOS Significance Criteria[1]

Jurisdiction	CMP Intersection[2]	Non-CMP Intersection
City of Montclair	D	D
City of Upland	E	D
City of Claremont	E	D
County of San Bernardino	E	D

Source: Stantec 2016.
Notes:
1. Intersections already operating at unacceptable LOS are considered to be significantly impacted if there is an increase in delay of 1.0 seconds or more or if there is an increase in the volume to capacity ratio of 2% or more.
2. These standards apply to the CMP network in San Bernardino and Los Angeles Counties.

Project Trip Generation, Distribution, and Assignment

To evaluate the potential impacts of the Proposed Amendment, trip generation was estimated and then those trips were distributed along the roadway network, and LOS at the study intersections was calculated. This process was completed for both Existing with Project conditions and Long Range with Project conditions as described in Section 3.11.1.

Rates from the Institute of Transportation Engineers' (ITE) 9th Edition Trip Generation Manual were used to calculate project trip generation. Trip generation rates are shown in Appendix E and project trips are shown in Table 3.11-7. After the net new project trips were calculated, trips were distributed throughout the roadway network.

The trip distribution patterns for the Proposed Amendment were derived using the SBTAM traffic model and are illustrated in Figure 9 of Appendix E. They represent the estimated distribution pattern of daily project-generated trips on the study area roadway system. The land uses are converted into socioeconomic data before being input into the traffic model, and trips of different purposes (home-based-work, home-based-other, etc.) are then generated from those socioeconomic data. The model determines the attraction zone of each trip production through its trip distribution

module, consistent with the base SCAG model. Trips of all the different purposes are combined in the trip assignment stage when they are assigned to the network roadway system where routes may vary due to speed and congestion. Therefore, the model shows the trip distribution pattern for the entire Proposed Amendment. AM and PM peak hour project only trips are assigned based on these daily trip distribution patterns, as are the inbound versus outbound proportion of those peak hour trips.

Table 3.11-7
Project Trip Generation

Land Use	Quantity	Unit	AM Peak Hour			PM Peak Hour			ADT
			In	*Out*	*Total*	*In*	*Out*	*Total*	
Existing Conditions									
Single-Family Detached Housing (210)	18	DU	3	10	14	11	7	18	171
Apartment (220)	385	DU	39	157	196	155	84	239	2,560
Condominium/Townhouse (230)	25	DU	2	9	11	9	4	13	145
Shopping Center (820)	266.001	TSF	158	97	255	474	513	987	11,358
Services (820)	177.158	TSF	105	65	170	315	342	657	7,565
Industrial Park (130)	207.356	TSF	139	31	170	37	139	176	1,416
		Total Existing	*448*	*369*	*816*	*1,001*	*1,089*	*2,090*	*23,216*
Project Buildout									
Single-Family Detached Housing (210) [1]	-38	DU	-7	-21	-29	-24	-14	-38	-362
Apartment (220)	4,676	DU	477	1,908	2,385	1,884	1,015	2,899	31,095
Condominium/Townhouse (230)	1,250	DU	94	457	550	436	215	650	7,263
General Office Building (710)	1,322.695	TSF	1,816	248	2,063	335	1,636	1,971	14,589
Shopping Center (820)	306.682	TSF	183	112	294	546	592	1,138	13,095
Services (820)	259.264	TSF	154	95	249	462	500	962	11,071
Industrial Park (130) [2]	-207.356	TSF	-139	-31	-170	-37	-139	-176	-1416
		Total Project Buildout	*2,577*	*2,766*	*5,343*	*3,602*	*3,803*	*7,405*	*75,335*
		Net New Trips	**2,129**	**2,398**	**4,527**	**2,600**	**2,715**	**5,315**	**52,119**

Source: Stantec 2016.
Notes: DU = dwelling units; TSF = thousand square feet
1. The Proposed Amendment reduces the number of allowable single family units by 38 DU.
2. The Proposed Amendment reduces the amount of allowable industrial park uses by 207,356 TSF.

Existing with Project Conditions

Existing with project volumes were prepared by adding net new trips generated by the Proposed Amendment to existing volumes based on the project trip distribution patterns. Figure 3.11-6 illustrates the ADT for Existing with project conditions. Peak hour intersection turning movements for the AM and PM peaks are shown in Figures 3.11-7 and 3.11-8, respectively. The existing and existing with project delay and LOS results are summarized in Table 3.11-8 (LOS worksheets can be found in Appendix E).

Table 3.11-8
Existing Conditions

Intersection	Jurisdiction	LOS Method	Existing No Project				Existing with Project			
			AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
			Delay or V/C	*LOS*	*Delay or V/C*	*LOS*	*Delay or V/C*	*LOS*	*Delay or V/C*	*LOS*
1. Monte Vista Avenue / Arrow Highway*	Montclair	HCM	25.5	C	**65.7**	**E**	34.0	C	**67.2**	**E**
2. Monte Vista Avenue / Moreno Street	Montclair	HCM	18.1	B	18.7	B	28.1	C	45.4	D
3. Monte Vista Avenue / San Jose Street	Montclair	HCM	25.4	C	28.0	C	22.2	C	29.6	C
4. Monte Vista Avenue / I-10 Westbound Ramps*	Montclair	HCM	16.0	B	32.3	C	18.4	B	35.5	D
5. Monte Vista Avenue / I-10 Eastbound off-Ramp/Palo Verde Street*	Montclair	HCM	34.4	C	35.1	D	42.3	D	**68.9**	**E**
6. Palo Verde Street / I-10 Eastbound On-ramp	Montclair	HCM	12.5	B	14.1	B	11.9	B	11.2	B
7. Central Avenue / Arrow Highway*	Montclair	HCM	34.2	C	28.3	C	53.0	D	**110.9**	**F**
8. Central Avenue / Moreno Street*	Montclair	HCM	40.0	D	30.9	C	25.4	C	51.2	D
9. Central Avenue / I-10 Westbound Ramps*	Montclair	HCM	25.0	C	21.9	C	20.5	C	21.2	C
10. Central Avenue / I-10 Eastbound Ramps*	Montclair	HCM	19.3	B	28.7	C	20.8	C	28.8	C
11. Indian Hill Boulevard / Arrow Highway**	Claremont	ICU	0.73	C	0.82	D	0.78	C	0.90	D
12. Claremont Boulevard/Mills Avenue / Arrow Highway**	Claremont	ICU	0.55	A	0.64	B	0.62	B	0.77	C
13. Monte Vista Avenue / Foothill Boulevard*	Upland	HCM	27.4	C	31.8	C	28.1	C	33.6	C
14. Monte Vista Avenue / Arrow Route	Upland	HCM	20.0	B	23.1	C	21.5	C	28.3	C

Table 3.11-8
Existing Conditions

Intersection	Jurisdiction	LOS Method	Existing No Project				Existing with Project			
			AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
			Delay or V/C	*LOS*	*Delay or V/C*	*LOS*	*Delay or V/C*	*LOS*	*Delay or V/C*	*LOS*
15. Central Avenue / Arrow Route	Upland	HCM	25.2	C	25.9	C	46.7	D	52.6	D
16. Mountain Avenue / 8th Street*	Upland	HCM	48.3	D	43.6	D	56.7	E	57.7	E
17. Central Avenue / Holt Boulevard*	Montclair	HCM	27.3	C	31.6	C	28.5	C	35.4	D
18. Central Avenue / Mission Boulevard*	Montclair	HCM	45.7	D	54.1	D	49.4	D	**56.2**	**E**

Source: Stantec 2016.
Notes: *San Bernardino County CMP Intersection; **Los Angeles County CMP intersections; **bold** = unacceptable LOS; **bold and highlighted** = significant impact

As shown, without the project, all intersections meet the relevant jurisdiction's performance criteria except the following:

- Monte Vista Avenue/Arrow Highway (#1) – LOS E (PM peak hour)

As stated previously in section 3.11.3, a significant impact is defined as an increase in delay such that an intersection LOS deteriorates to below acceptable conditions during the AM or PM peak hour. (See Table 3.11-5) Unacceptable conditions for intersections in the City of Montclair occur when LOS is below D (LOS E or F). This applies to all intersections in the City of Montclair regardless of whether it is a CMP intersection. Outside of Montclair the threshold is D for non-CMP intersections and E for Los Angeles and San Bernardino County CMP intersections. Additionally, an intersection that is already operating at unacceptable conditions would cause a significant impact if there is an increase in delay of 1.0 second or more at that intersection or an increase of V/C equal or greater than 0.02. Based on these thresholds, the Proposed Amendment results in significant impacts at the following intersections:

- Monte Vista Avenue/Arrow Highway (#1) – LOS E (PM peak hour)
- Monte Vista Avenue/I-10 Eastbound off-ramp/Palo Verde Street (#5) – LOS E (PM peak hour)
- Central Avenue/Arrow Highway (#7) - LOS F (PM peak hour)
- Central Avenue / Mission Boulevard (#18) – LOS E (PM peak hour)

As demonstrated in Table 3.11-11, mitigation measures **MM-TRA-1** and **MM-TRA-4** would mitigate the project's impacts at the following intersections to **less than significant** levels:

- Monte Vista Avenue/Arrow Hwy (#1)
- Central Avenue / Mission Boulevard (#18)

Furthermore, as demonstrated in Table 3.11-11, mitigation measures **MM-TRA-2** and **MM-TRA-3** will reduce delay, but will not fully mitigate project impacts at intersections #5 and #7. Therefore, impacts at the following intersections are **significant and unavoidable**:

- Monte Vista Avenue/I-10 Eastbound off-ramp/Palo Verde St (#5)
- Central Avenue/Arrow Highway (#7)

Long Range Conditions

As discussed in section 3.11.1, the SBTAM model was used to forecast traffic volumes for the Long Range scenario, year 2040, which includes build out of the City of Montclair General Plan. After establishing 2040 volumes, project traffic was added to the study area using a project-specific distribution as discussed above. Figure 3.11-9 illustrates the ADT for Long Range with project conditions. Peak hour intersection turning movements for the AM and PM peaks are shown in Figures 3.11-10 and 3.11-11, respectively. The resulting delay and LOS calculations are shown in Table 3.11-9, below.

Table 3.11-9
Long Range Conditions

Intersection	Jurisdiction	LOS Method	Long Range No Project				Long Range with Project			
			AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
			Delay or V/C	*LOS*	*Delay or V/C*	*LOS*	*Delay or V/C*	*LOS*	*Delay or V/C*	*LOS*
1. Monte Vista Avenue / Arrow Highway*	Montclair	HCM	22.8	C	**55.5**	**E**	24.9	C	**79.5**	**E**
2. Monte Vista Avenue / Moreno Street	Montclair	HCM	21.8	C	36.0	D	22.4	C	33.9	C
3. Monte Vista Avenue / San Jose Street	Montclair	HCM	33.1	C	27.4	C	28.9	C	26.3	C
4. Monte Vista Avenue / I-10 Westbound Ramps*	Montclair	HCM	15.7	B	18.2	B	15.5	B	17.6	B
5. Monte Vista Avenue / I-10 Eastbound off-Ramp/Palo Verde Street*	Montclair	HCM	21.7	C	41.5	D	23.2	C	39.0	D

Table 3.11-9
Long Range Conditions

Intersection	Jurisdiction	LOS Method	Long Range No Project				Long Range with Project			
			AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
			Delay or V/C	*LOS*	*Delay or V/C*	*LOS*	*Delay or V/C*	*LOS*	*Delay or V/C*	*LOS*
6. Palo Verde Street / I-10 Eastbound On-ramp	Montclair	HCM	9.6	A	14.2	B	9.7	A	13.9	B
7. Central Avenue / Arrow Highway*	Montclair	HCM	22.7	C	30.0	C	35.9	D	**59.6**	**E**
8. Central Avenue / Moreno Street*	Montclair	HCM	15.8	B	27.4	C	18.2	B	37.7	D
9. Central Avenue / I-10 Westbound Ramps*	Montclair	HCM	19.9	B	29.3	C	19.1	B	21.6	C
10. Central Avenue / I-10 Eastbound Ramps*	Montclair	HCM	14.0	B	26.7	C	14.7	B	29.2	C
11. Indian Hill Boulevard / Arrow Highway**	Claremont	ICU	0.93	E	**1.10**	**F**	0.97	E	**1.13**	**F**
12. Claremont Boulevard/Mills Avenue / Arrow Highway**	Claremont	ICU	0.78	C	0.97	E	0.79	C	0.99	E
13. Monte Vista Avenue / Foothill Boulevard*	Upland	HCM	33.6	C	42.8	D	37.9	D	49.1	D
14. Monte Vista Avenue / Arrow Route	Upland	HCM	32.5	C	42.2	D	34.5	C	47.3	D
15. Central Avenue / Arrow Route	Upland	HCM	45.7	D	46.4	D	**60.9**	**E**	**62.4**	**E**
16. Mountain Avenue / 8th Street*	Upland	HCM	66.2	E	64.5	E	79.4	E	72.9	E
17. Central Avenue / Holt Boulevard*	Montclair	HCM	41.7	D	**64.0**	**E**	44.7	D	**67.2**	**E**
18. Central Avenue / Mission Boulevard*	Montclair	HCM	**76.1**	**E**	**87.9**	**F**	**106.1**	**F**	**121.3**	**F**

Source: Stantec 2016.
Notes: *San Bernardino County CMP Intersections; **Los Angeles County CMP intersections; **bold** = unacceptable LOS; **bold and highlighted** = significant impact

As shown, without the project, all intersections meet the relevant jurisdiction's performance criteria except the following:

- Monte Vista Avenue/Arrow Highway (#1) – LOS E (PM peak hour)
- Indian Hill Boulevard / Arrow Highway (#11) – LOS F (PM peak hour)
- Central Avenue / Holt Boulevard (#17) – LOS E (PM peak hour)
- Central Avenue / Mission Boulevard (#18) – LOS E (AM peak hour) and LOS F (PM peak hour)

As stated previously in section 3.11.3, a significant impact is defined as an increase in delay such that an intersection LOS deteriorates to below acceptable conditions during the AM or PM peak hour (see Table 3.11-5). Unacceptable conditions for intersections in the City of Montclair occur when LOS is below D (LOS E or F). This applies to all intersections in the City of Montclair regardless of whether it is a CMP intersection. Outside of Montclair, the threshold is D for non-CMP intersections and E for Los Angeles and San Bernardino County CMP intersections. Additionally, an intersection that is already operating at unacceptable conditions would cause a significant impact if there is an increase in delay of 1.0 second or more at that intersection or an increase of V/C equal or greater than 0.02. Based on these thresholds, the Proposed Amendment results in a significant impact at the following intersections:

- Monte Vista Avenue/Arrow Hwy (#1) – LOS E (PM peak hour)
- Central Avenue / Arrow Highway (#7) – LOS E (PM peak hour)
- Indian Hill Boulevard / Arrow Highway (#11) –LOS F (PM peak hour)
- Central Avenue / Arrow Route (#15) – LOS E (AM and PM peak hour)
- Central Avenue / Holt Boulevard (#17) – LOS E (PM peak hour)
- Central Avenue / Mission Boulevard (#18) – LOS F (AM and PM peak hour)

As demonstrated in Table 3.11-11, mitigation measures **MM-TRA-6** and **MM-TRA-7** would mitigate the Proposed Amendment's impacts at the following intersections to **less than significant** levels:

- Central Avenue / Arrow Route (#15) for the AM impact only
- Central Avenue / Holt Boulevard (#17)

As demonstrated in Table 3.11-11, mitigation measures **MM-TRA-1**, **MM-TRA-3, MM-TRA-4**, and **MM-TRA-6** will improve delay, but will not fully mitigate Proposed Amendment impacts. Therefore, impacts at the following intersections are **significant and unavoidable**:

- Monte Vista Avenue/Arrow Hwy (#1)
- Central Avenue / Arrow Highway (#7)
- Central Avenue / Arrow Route (#15) for the PM impact only
- Central Avenue / Mission Boulevard (#18)

Freeway Segment Analysis

An evaluation of the Proposed Amendment on the freeway mainline segments within a five-mile radius of the planning area was completed. Vehicle volumes were obtained from SBTAM, which is the most current local travel model available. Project trips were distributed using the same methodology for the roadway segment analysis as described above. The results show an increase of 11,466 daily trips to the I-10 freeway with approximately 5,212 ADT west of Monte Vista Avenue and approximately 6,254 east of Central Avenue. As shown in Table 3.11-10, below, the Proposed Amendment will increase traffic by less than 3 percent to the mainline freeway segments that are adjacent to the planning area.

Table 3.11-10
Freeway Mainline Segment Average Daily Traffic

Segment	No Project ADT	Project ADT	Total ADT	Percentage Increase
Existing Conditions				
I-10 West of Monte Vista	254,000	5,212	259,212	2.0%
I-10 East of Central Avenue	243,000	6,254	249,254	2.5%
Long Range Conditions				
I-10 West of Monte Vista	301,597	5,212	306,809	1.7%
I-10 East of Central Avenue	300,431	6,254	306,685	2.0%

Source: Stantec 2016.

An evaluation of yield-control (roundabouts) at state highway intersections and interchanges was also completed for the Proposed Amendment. The analysis was completed using SIDRA software. Appendix E contains summary worksheets for the SIDRA analysis. The analysis indicates that the ramp intersections would operate at LOS F based on a single lane roundabout, as shown in Table 3.11-11, below, except for the Palo Verde Street and I-10 EB on-ramp intersection. This intersection operates at LOS C in Existing Conditions without project and would operate at LOS D in Long Range Conditions both with and without the project.

Table 3.11-11
Freeway Intersection Analysis

Location	Without Project				With Project			
	AM		*PM*		*AM*		*PM*	
	LOS	*Delay*	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*	*Delay*
Existing Conditions								
4. Monte Vista Avenue / I-10 Westbound Ramps*	F	218.8	F	297.8	F	420.5	F	586.3

Table 3.11-11
Freeway Intersection Analysis

Location	Without Project				With Project			
	AM		*PM*		*AM*		*PM*	
	LOS	*Delay*	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*	*Delay*
5. Monte Vista Avenue / I-10 Eastbound off-Ramp/Palo Verde Street*	F	228.4	F	280.5	F	384.3	F	504.1
6. Palo Verde Street / I-10 Eastbound On-ramp	C	20.3	C	21.1	F	53.6	F	79.5
9. Central Avenue / I-10 Westbound Ramps*	F	180.4	F	503.6	F	386.1	F	789.6
10. Central Avenue / I-10 Eastbound Ramps*	F	266.2	F	533.7	F	456.3	F	811.1
Long Range Conditions								
4. Monte Vista Avenue / I-10 Westbound Ramps*	F	249.1	F	346.3	F	327.8	F	443.0
5. Monte Vista Avenue / I-10 Eastbound off-Ramp/Palo Verde Street*	F	302.4	F	367.7	F	353.3	F	436.8
6. Palo Verde Street / I-10 Eastbound On-ramp	D	25.0	D	25.3	D	25.2	D	25.3
9. Central Avenue / I-10 Westbound Ramps*	F	232.3	F	612.2	F	287.0	F	709.5
10. Central Avenue / I-10 Eastbound Ramps*	F	295.4	F	577.7	F	383.1	F	703.1

Source: Stantec 2016.
Notes: *CMP Intersections

Construction Traffic

New Significant and Unavoidable Impact.

This Proposed Amendment will not be constructed all at one time, making it speculative to determine the exact number of trips for construction. However, the recently evaluated Montclair Plaza Expansion/Enhancement Project (Montclair 2015) assumed up to 52 trucks and a maximum of 206 trips for 210,000 square feet of retail construction. This project consists of approximately 1,681,285 square feet of commercial uses, plus residential uses equivalent to another 925,000 square feet. This is a total of approximately 2.6 million square feet, approximately 10 times the size of the Montclair Plaza Expansion/Enhancement Project. To be conservative, the analysis assumes that this project would generate up to 10 times as much traffic as the mall expansion would generate, or up to 1,854 trips (including PCEs) daily. However, the nature of a Specific Plan is to allow development to be completed over time, and the project is expected to be

built over 10 to 20 years. It is therefore unlikely that more than 1/10th of the project would be under construction at any given time. Using these assumptions construction traffic would be similar to the levels estimated in the Montclair Plaza Expansion/Enhancement Project, or up to 52 trucks and 206 trips per day.

Construction truck traffic is expected to travel to/from the planning area via the I-10 freeway, Central Avenue, and Monte Vista Avenue. A typical construction workday occurs from 7:00 AM to 5:00 PM, with many of the trips (particularly trucks) occurring outside the AM and PM peak hours. A maximum of 10 percent of the total trips are expected to occur during the conventional peak hours of the surrounding roadways, resulting in up to 21 trips (10% of the 206 noted above) in either the AM or the PM peak hour. The previously noted Montclair Plaza Expansion/Enhancement Project analyzed this level of traffic and found no impacts on intersections in the area. However, because construction phasing of future projects under the Proposed Amendment is currently unknown, it is possible that construction traffic in combination with traffic from phased buildout of the Proposed Amendment will cause some intersections to reach unacceptable LOS. This effect would be short term and temporary in nature due to the construction, but nonetheless may cause an impact. Given these conclusions, there would be a **new significant and unavoidable impact** during construction.

B. Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

New Significant and Unavoidable Impact. The Proposed Amendment area is within the San Bernardino County Congestion Management Program area. SANBAG's adopted minimum LOS threshold is LOS E, except for some intersections already operating at LOS F, which are listed in Table 2-1 of the CMP (SANBAG 2016). Additionally, two of the project study intersections are within the Los Angeles County CMP network. Metro is the CMA for Los Angeles County. Metro's adopted minimum threshold is also LOS E. When a CMP street or highway segment falls to LOS F in either county, a deficiency plan must be prepared. Preparation of a deficiency plan is the responsibility of the local agency where the deficiency is located. The above section identifies a threshold for CMP intersections in the City of Montclair of LOS D for consistency with City policy. However, for the purposes of determining whether there is a conflict with the CMP, the threshold identified by SANBAG and Metro in the CMPs is used (LOS E). Using this standard, the following CMP intersections will be impacted by the Proposed Amendment in Existing with Project conditions:

- Central Avenue/Arrow Highway (#7) - LOS F (PM peak hour)

As demonstrated in Table 3.11-11, mitigation measure **MM-TRA-3** will reduce delay but will not mitigate this impact. Therefore, the impact is considered **significant and unavoidable.**

Additionally, the following CMP intersections will be impacted by the Proposed Amendment in Long Range with Project conditions:

- Indian Hill Boulevard / Arrow Highway (#11) – LOS F (PM peak hour)
- Central Avenue / Mission Boulevard (#18) – LOS F (AM and PM peak hour)

Mitigation measures **MM-TRA-4** and **MM-TRA-**5 will reduce delay but will not mitigate these impacts. Therefore, the impacts are considered **significant and unavoidable**.

C. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No New Impact/No Impact. The Proposed Amendment will increase population in the study area, and therefore, may cause an increase in demand for air travel. However, that demand does not directly result in an increase of commercial and private flights. The LA/Ontario International Airport can accommodate up to 10 million passengers per year. Currently, it is serving 3.8 million passengers per year. As such, there is still substantial capacity to meet new demand in the area. (Ontario Airport 2016) The forecast used by the Cable Airport Master Plan anticipated as many as 103,300 aircraft operations, and as of 2012-2013 had approximately 41,000 operations (Upland 2015b). There is remaining capacity at both airports should there be an increase in operations.

Additionally, an increased population does not inherently pose a risk to safety nor would it cause a change in air traffic patterns. The LA/Ontario Airport developed an Airport Land Use Compatibility (ALUC) Plan (Ontario 2011) to address airport impacts and develop policies to ensure the development of compatible land uses around the airport. According to the ALUC, the Proposed Amendment area is not located within the airport safety zones, nor is it located within an airspace protection zone. According to the Cable ALUC Plan, the Proposed Amendment land uses do not conflict with the land use compatibility zone criteria. Additionally, according to the Allowable Object Heights map, the Proposed Amendment area can have heights greater than 150 feet. The FAA should be notified of any construction greater than 100 feet, but this construction is not prohibited. There is no information to suggest that there would be an increase in air traffic resulting in a safety risk. Therefore, there is **no new impact/no impact**.

3.11.6 Cumulative Impacts

Cumulative impacts to transportation consider whether impacts of the Proposed Amendment together with other related past, present, and future projects, when taken as a whole, substantially affect traffic and the transportation system. The analyses presented above for the long-range scenarios uses the SBTAM travel demand model which incorporates past, present and future growth due to population, housing and new development. This cumulative growth was analyzed without the Proposed Amendment and compared to conditions with the Proposed Amendment. The results, as described in Section 3.11.5 above, show that there would be significant impacts to six intersections. With the incorporation of mitigation measures **MM-TRA-6** and **MM-TRA-7** impacts to two of the intersection (#15-AM and #17) are reduced to less than significant levels. Incorporation of mitigation measures **MM-TRA-1**, **MM-TRA-3**, **MM-TRA-4**, and **MM-TRA-6** improve operational conditions at the other four intersections (#1, #7, #15-PM and#18), but do not fully mitigate impacts. Therefore, cumulative transportation/traffic impacts would be a **new significant and unavoidable impact**.

3.11.7 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. The following mitigation measure from the 2006 NMDSP EIR will be incorporated for the Proposed Amendment.

MM-T-7 **Construction Activity.** Designate a haul route and staging plan for review by the City that avoids sensitive noise receptors, such as schools, hospitals and elderly housing. The haul route must also have the purpose of avoiding conflicts between equipment and pedestrians and vehicles.

New mitigation measures for the Proposed Amendment are described below.

Existing with Project Conditions

MM-TRA-1 **Monte Vista Avenue / Arrow Highway (#1):** Modify the traffic signal to include westbound right-turn and southbound right-turn overlap phasing.

MM-TRA-2 **Monte Vista Avenue / I-10 Eastbound off-Ramp/Palo Verde Street (#5):** New proposed interchange currently in design coordinated by SANBAG, Caltrans, and the City of Montclair.

MM-TRA-3 **Central Avenue / Arrow Highway (#7):** Modify the traffic signal to include eastbound right-turn and westbound right-turn overlap phasing.

MM-TRA-4 Central Avenue / Mission Boulevard (#18): Implement the following intersection improvements:

- Traffic signal modification to include westbound right-turn overlap phasing.
- Increase cycle length to 140 seconds.

Long Range with Project Conditions

MM-TRA-5 Indian Hill Boulevard / Arrow Highway (#11): Implement the following intersection improvements:

- Restripe to convert existing northbound (2nd) shared thru/right-turn lane to (2nd) dedicated through lane and a dedicated right turn lane. (Requires 10-foot lanes.)
- Traffic signal modification to include eastbound right-turn overlap phasing.

MM-TRA-6 Central Avenue / Arrow Route (#15): Implement the following intersection improvements:

- Traffic signal modification to include northbound right-turn overlap phasing.
- Increase cycle length to 100 seconds.
- Restripe to convert existing shared westbound thru/right-turn lane to one dedicated westbound thru lane and shared westbound thru/right-turn lane.

MM-TRA-7 Central Avenue / Holt Boulevard (#17): Implement the following intersection improvements:

- Traffic signal modification to include eastbound right-turn, westbound right-turn and southbound right-turn overlap phasing.
- Increase cycle length to 110 seconds.

3.11.8 Significance After Mitigation

Table 3.11-12 below provides a summary of the resulting LOS after mitigation.

According to Table 3.11-12, with the implementation of mitigation measures **MM-TRA-1** through **MM-TRA-4**, Proposed Amendment impacts are reduced, but are not fully mitigated in the Existing with Project scenario. Impacts at the following intersections cannot be fully mitigated, even with improvements that reduce delay: Central Avenue/Arrow Highway and Monte Vista Avenue/I-10 Eastbound Off-Ramp/Palo Verde Street intersection. Therefore, Proposed Amendment impacts are considered **significant and unavoidable**.

With the implementation of mitigation measures **MM-TRA-1** through **MM-TRA-7**, Proposed Amendment impacts are reduced, but are not fully mitigated in the Long Range with Project scenario. Impacts at the following intersections cannot be fully mitigated even with improvements that reduce delay: Monte Vista Avenue/Arrow Highway, Central Avenue/Arrow Highway, Central Avenue/Arrow Route, and Central Avenue/Mission Boulevard. Therefore, Proposed Amendment impacts are considered **significant and unavoidable.**

Table 3.11-12
Summary of Impacts with and without Mitigation

Impacted Intersection	Peak Hour	No Project		Project		With Mitigation		Impact Mitigated
		Delay or V/C[1]	*LOS*	*Delay or V/C*	*LOS*	*Delay or V/C*	*LOS*	
Existing Conditions								
1. Monte Vista Avenue /Arrow Highway*	PM	65.7	E	67.2	E	63.5	E	Yes
5. Monte Vista Avenue / I-10 Eastbound Off-Ramp/Palo Verde Street*	PM	35.1	D	68.9	E	46.2	D	Partially
7. Central Avenue /Arrow Highway*	PM	28.3	C	110.9	F	87.0	F	Partially
18. Central Avenue /Mission Boulevard*	PM	54.1	D	56.2	E	53.1	D	Yes
Long Range Conditions								
1. Monte Vista Avenue /Arrow Highway*	PM	55.5	E	79.5	E	73.9	E	Partially
7. Central Avenue /Arrow Highway*	PM	30.0	C	59.6	E	45.6	D	Partially
11. Indian Hill Boulevard/ Arrow Highway**	PM	1.10	F	1.13	F	1.10	F	Yes
15. Central Avenue /Arrow Route	AM	45.7	D	60.9	E	40.7	D	Yes
	PM	46.4	D	62.4	E	50.4	D	Partially
17. Central Avenue / Holt Boulevard*	PM	64.0	E	67.2	E	41.2	D	Yes
18. Central Avenue /Mission Boulevard*	AM	76.1	E	106.1	F	103.8	F	No
	PM	87.9	F	121.3	F	119.4	F	Partially

Source: Stantec 2016.
Notes: *San Bernardino County CMP Intersections; ** Los Angeles County CMP Intersections.
1. All intersections use the HCM methodology and therefore report delay as a measure of LOS, except intersections #11 and #12, which use the ICU methodology per the Los Angeles CMP guidelines and therefore report V/C as a measure of LOS.

Additionally, with the implementation of mitigation measure MM-T-7 from the 2006 NMDSP EIR, potential pedestrian and vehicular conflict impacts during construction from haul trucks would be minimized with the preparation of a haul route and staging plan to be reviewed by the City. The plan would ensure that haul trucks avoid sensitive receptors such as schools, hospitals, and elderly housing.

3.11.9 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act (CEQA), as amended.

Caltrans. 2002. Guide for the Preparation of Traffic Impact Studies. December 2002.

City of Claremont (Claremont). 2009. City of Claremont General Plan: Circulation Element. 2009.

City of Montclair (Montclair). 1999. City of Montclair General Plan: Circulation Element. 1999.

City of Montclair. 2015. Initial Study/Mitigated Negative Declaration: Montclair Plaza Expansion/Enhancement Project. April 2015.

City of Ontario (Ontario). 2011. LA/Ontario International Airport Land Use Compatibility Plan (ALUC). April 19, 2011.

City of Upland (Upland). 2015a. City of Upland General Plan: Circulation Element. September 2015.

City of Upland (Upland). 2015b. Airport Land Use Compatibility Plan. September 14 2015.

ITE (Institute of Transportation Engineers). 2012. The Trip Generation Handbook, 9th ed. Washington DC: ITE. September 2012.

Ontario International Airport Authority (Ontario Airport). 2016. Frequently Asked Questions. 2016. http://www.flyontario.com/general-information/faq Accessed November 22, 2016.

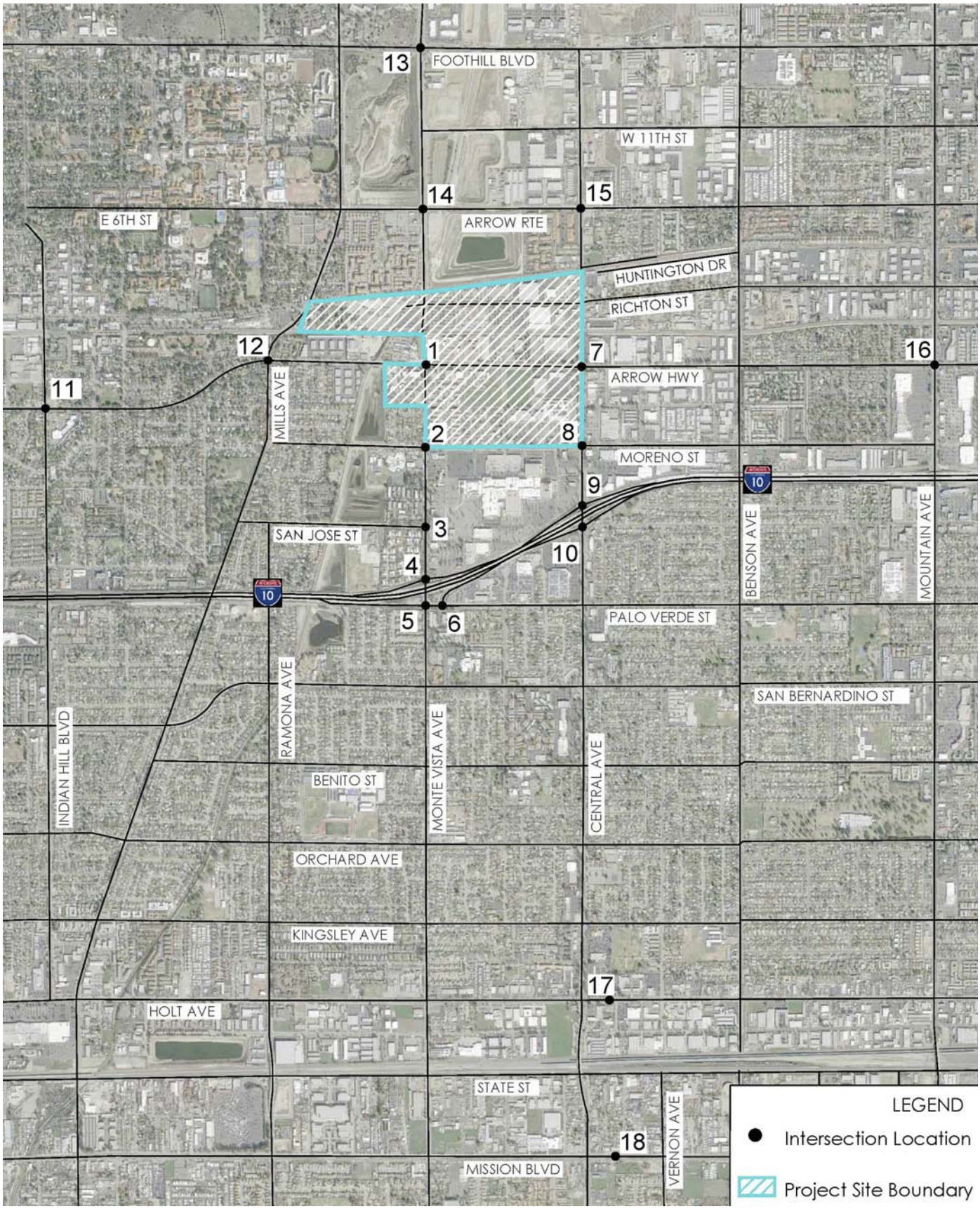
San Bernardino Associated Governments (SANBAG). 2016. San Bernardino Congestion Management Program (CMP) 2016 Update. June 2016.

Southern California Association of Governments (SCAG). 2016. Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). April 7, 2016.

Stantec. 2016. North Montclair Downtown Specific Plan Amendment Project Traffic Study. December 2016.

TRB (Transportation Research Board). 2010. Highway Capacity Manual 2010. Fifth ed. TRB of the National Academies. Accessed June 16, 2016: http://hcm.trb.org/.

INTENTIONALLY LEFT BLANK



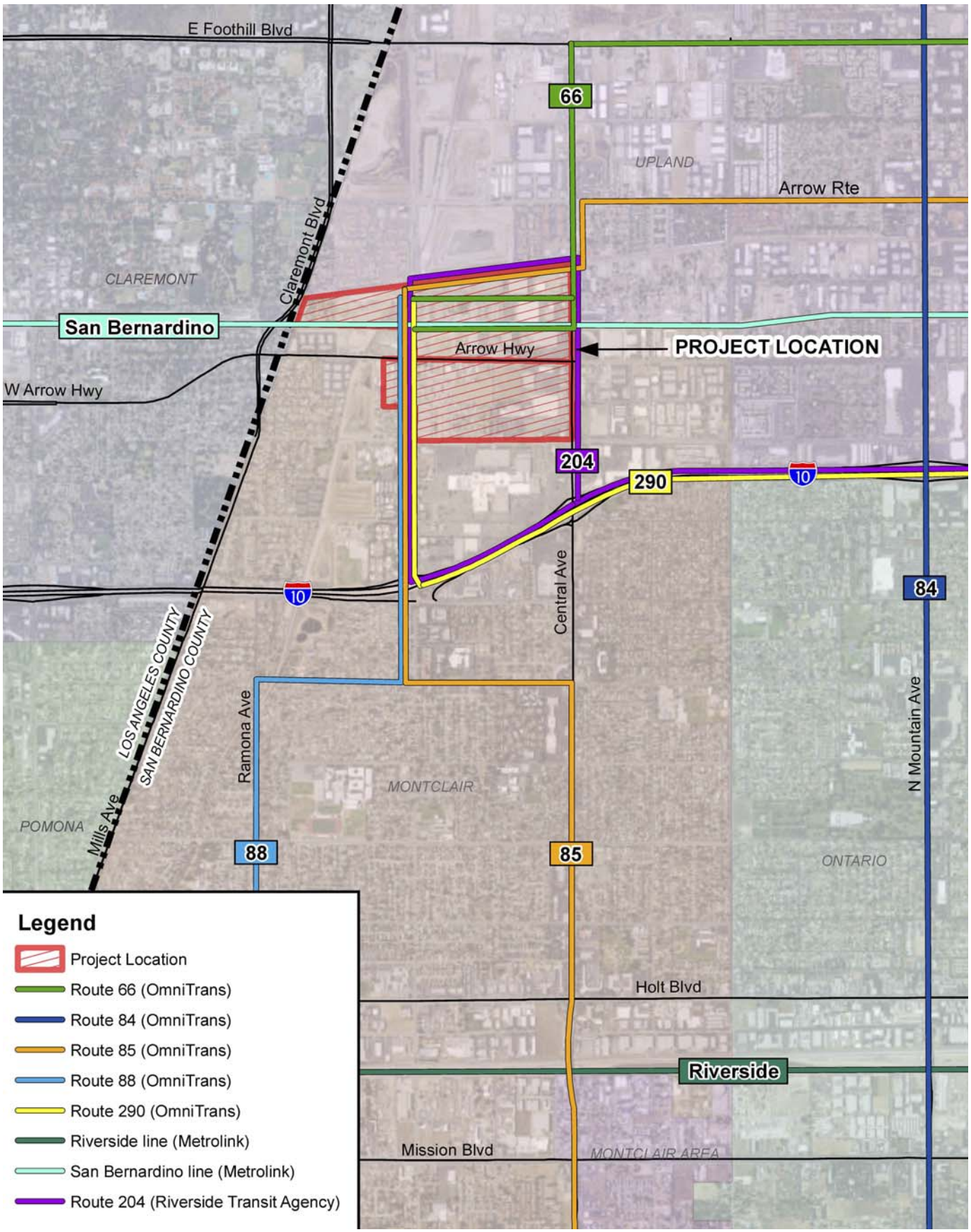
SOURCE: Stantec, Nov. 2016

DUDEK

FIGURE 3.11-1
Study Area

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



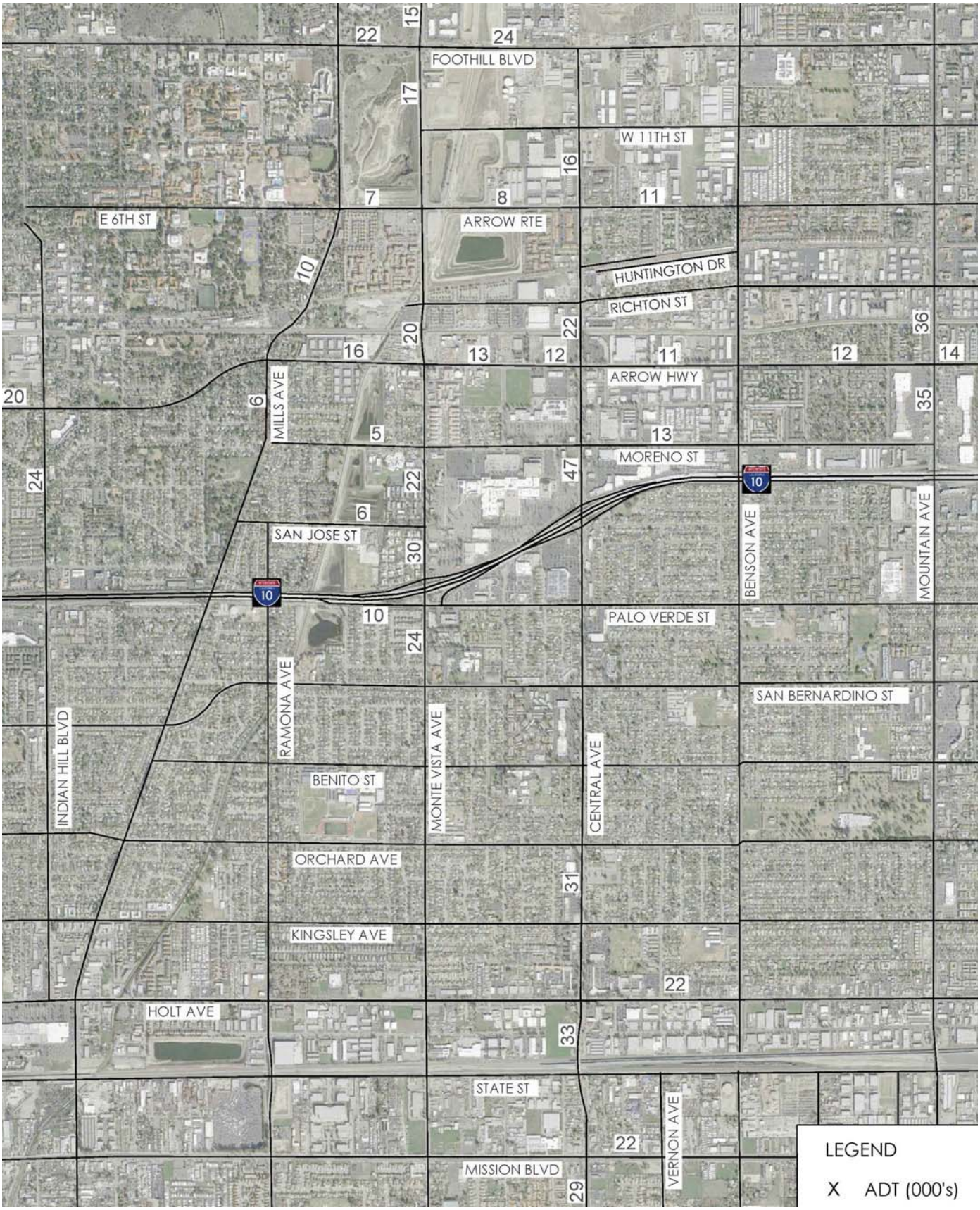
DUDEK

SOURCE: Stantec, Nov. 2016

FIGURE 3.11-2
Transit Service

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Stantec, Nov. 2016

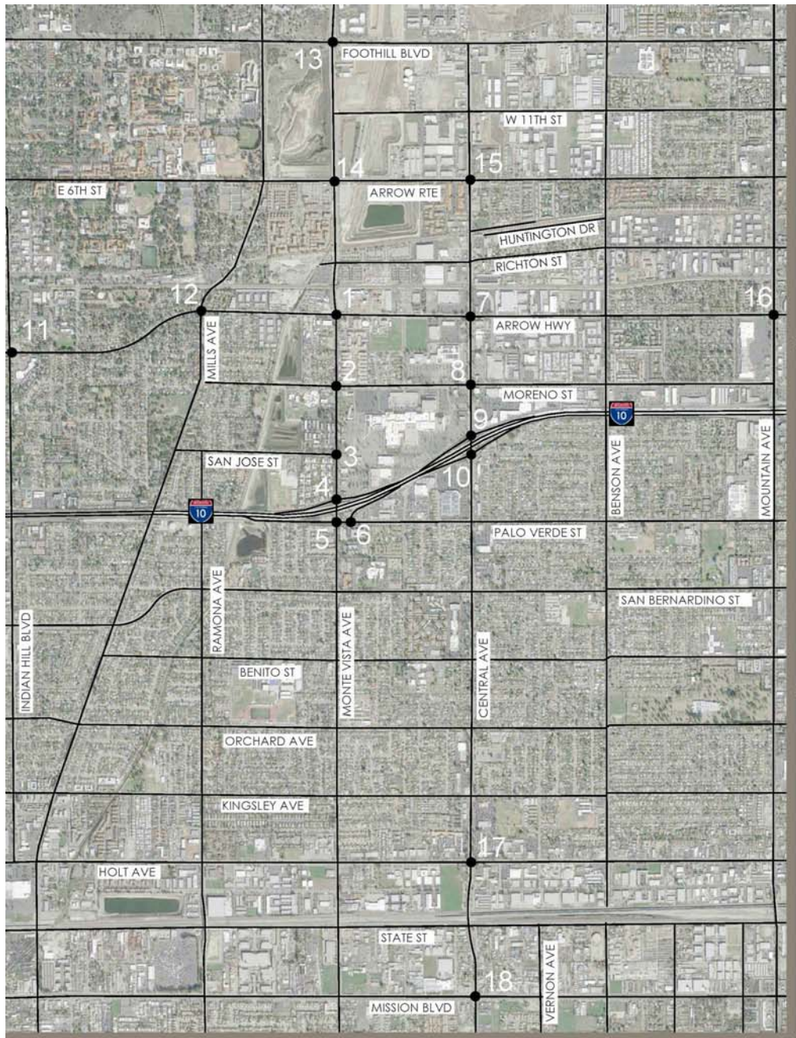
DUDEK

FIGURE 3.11-3

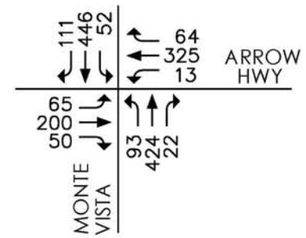
Existing Average Daily Traffic

North Montclair Downtown Specific Plan Amendment Project

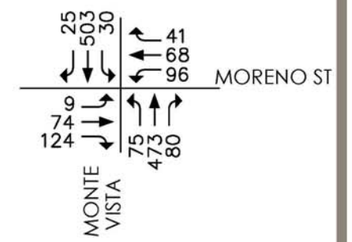
INTENTIONALLY LEFT BLANK



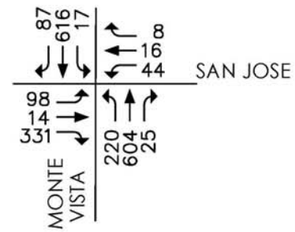
1.Monte Vista Ave & Arrow Hwy



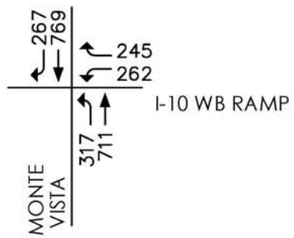
2. Monte Vista Ave & Moreno St



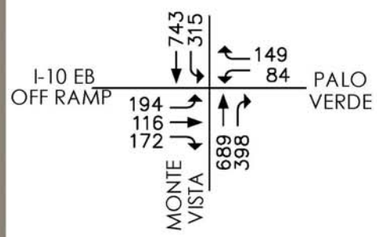
3. Monte Vista Ave & San Jose St



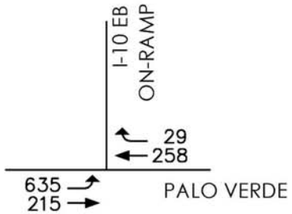
4. Monte Vista Ave & I-10 WB Ramps



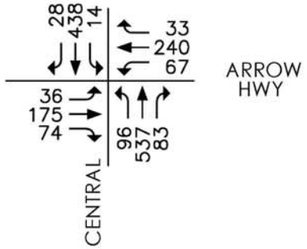
5. Monte Vista Ave & Palo Verde St



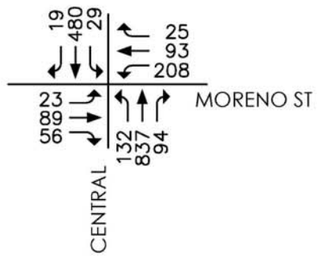
6. Palo Verde St & I-10 EB Ramp



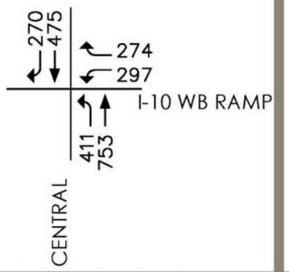
7. Central Ave & Arrow Hwy



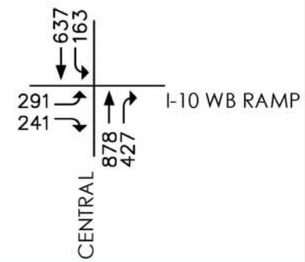
8. Central Ave & Moreno St



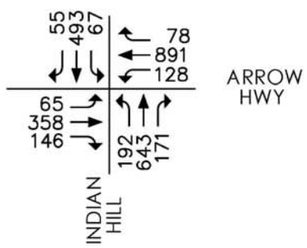
9. Central Avenue & I-10 WB Ramps



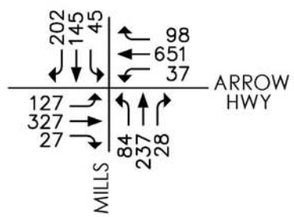
10. Central Avenue & I-10 EB Ramps



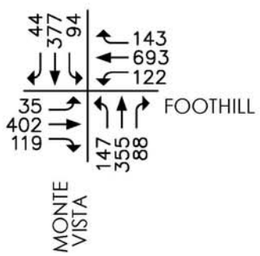
11. Indian Hill Blvd & Arrow Hwy



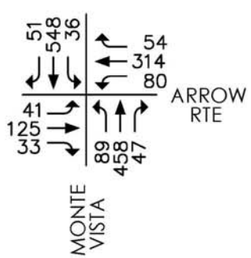
12. Mills Ave & Arrow Hwy



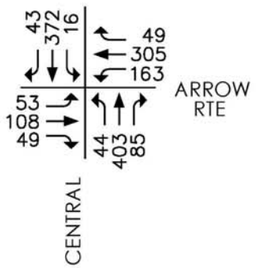
13. Monte Vista Ave & Foothill Blvd



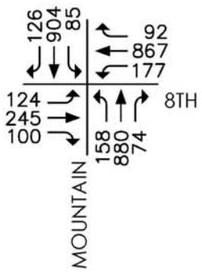
14. Monte Vista Ave & Arrow Rte



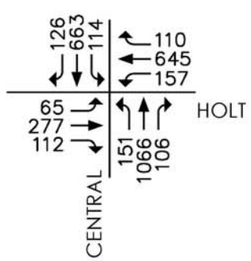
15. Central Ave & Arrow Rte



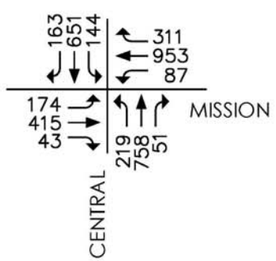
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



SOURCE: Stantec, Nov. 2016:

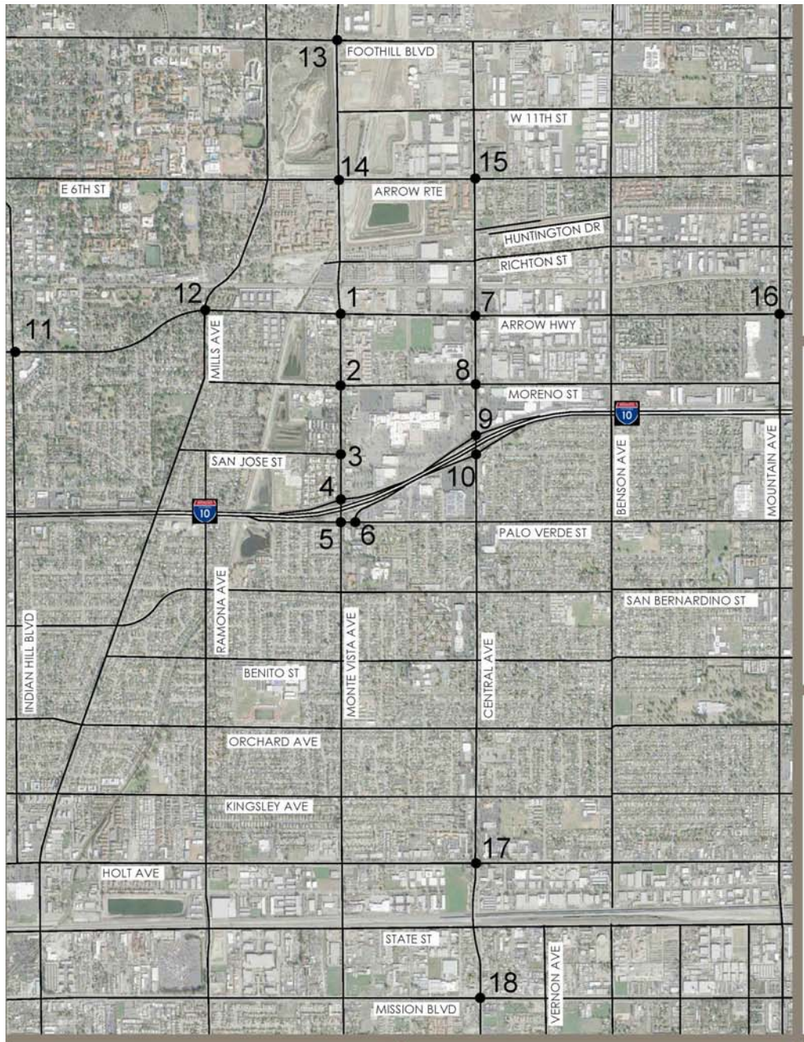
DUDEK

FIGURE 3.11-4

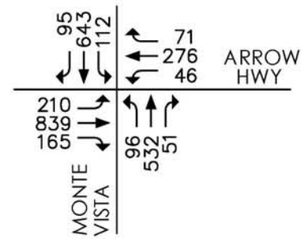
Existing AM Peak Hour Traffic Volumes

North Montclair Downtown Specific Plan Amendment Project

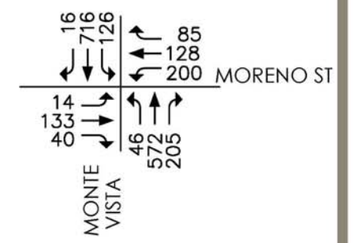
INTENTIONALLY LEFT BLANK



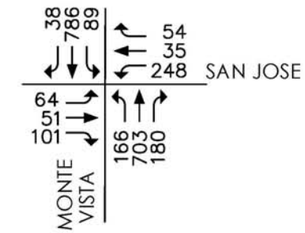
1.Monte Vista Ave & Arrow Hwy



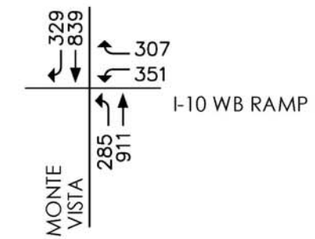
2. Monte Vista Ave & Moreno St



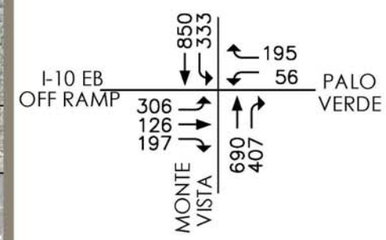
3. Monte Vista Ave & San Jose St



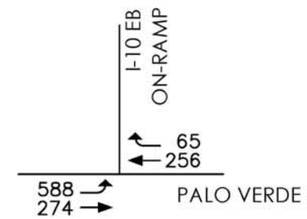
4. Monte Vista Ave & I-10 WB Ramps



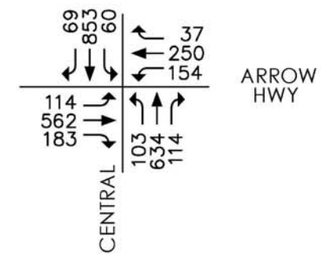
5. Monte Vista Ave & Palo Verde St



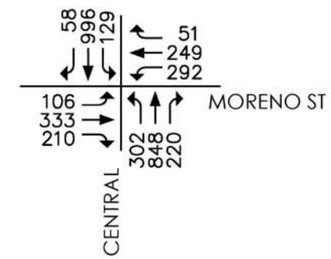
6. Palo Verde St & I-10 EB Ramp



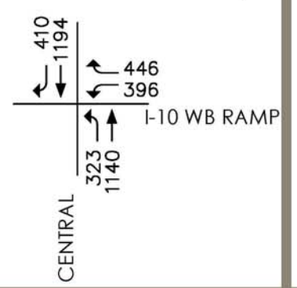
7. Central Ave & Arrow Hwy



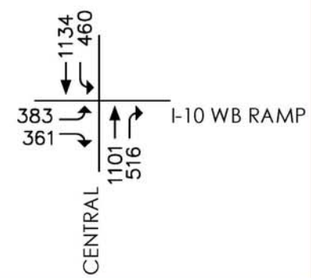
8. Central Ave & Moreno St



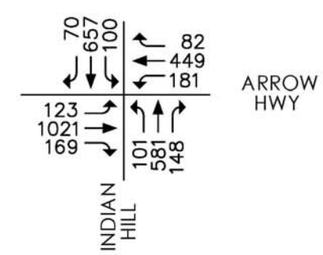
9. Central Avenue & I-10 WB Ramps



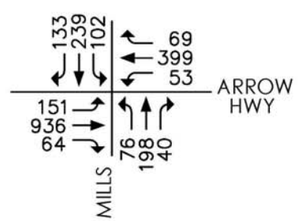
10. Central Avenue & I-10 EB Ramps



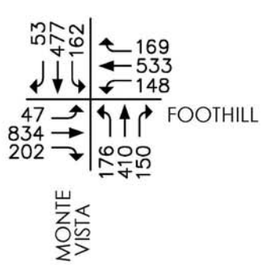
11. Indian Hill Blvd & Arrow Hwy



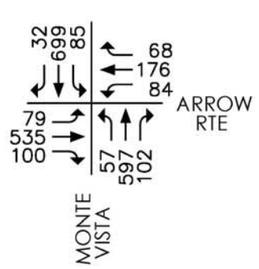
12. Mills Ave & Arrow Hwy



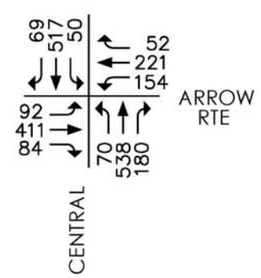
13. Monte Vista Ave & Foothill Blvd



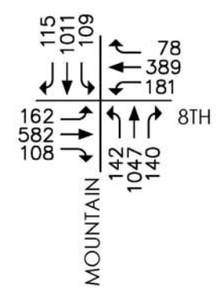
14. Monte Vista Ave & Arrow Rte



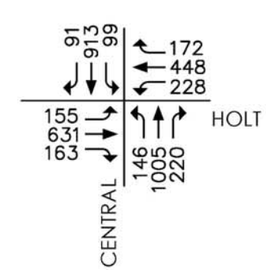
15. Central Ave & Arrow Rte



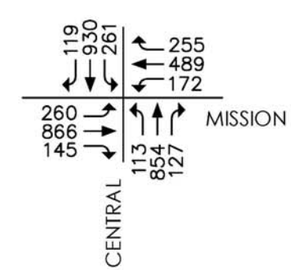
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



SOURCE: Stantec, Nov. 2016:

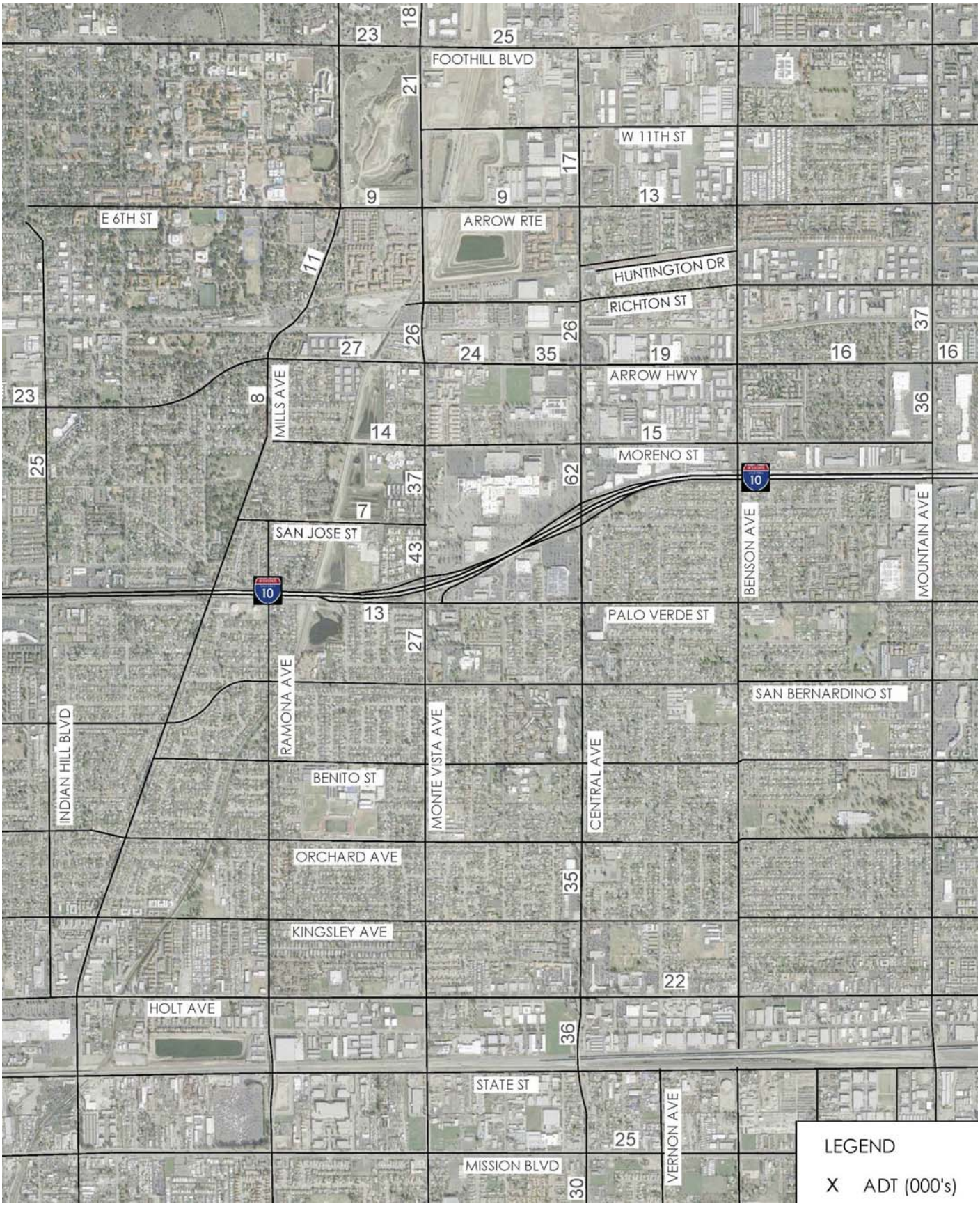
DUDEK

FIGURE 3.11-5

Existing PM Peak Hour Traffic Volumes

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Stantec, Nov. 2016

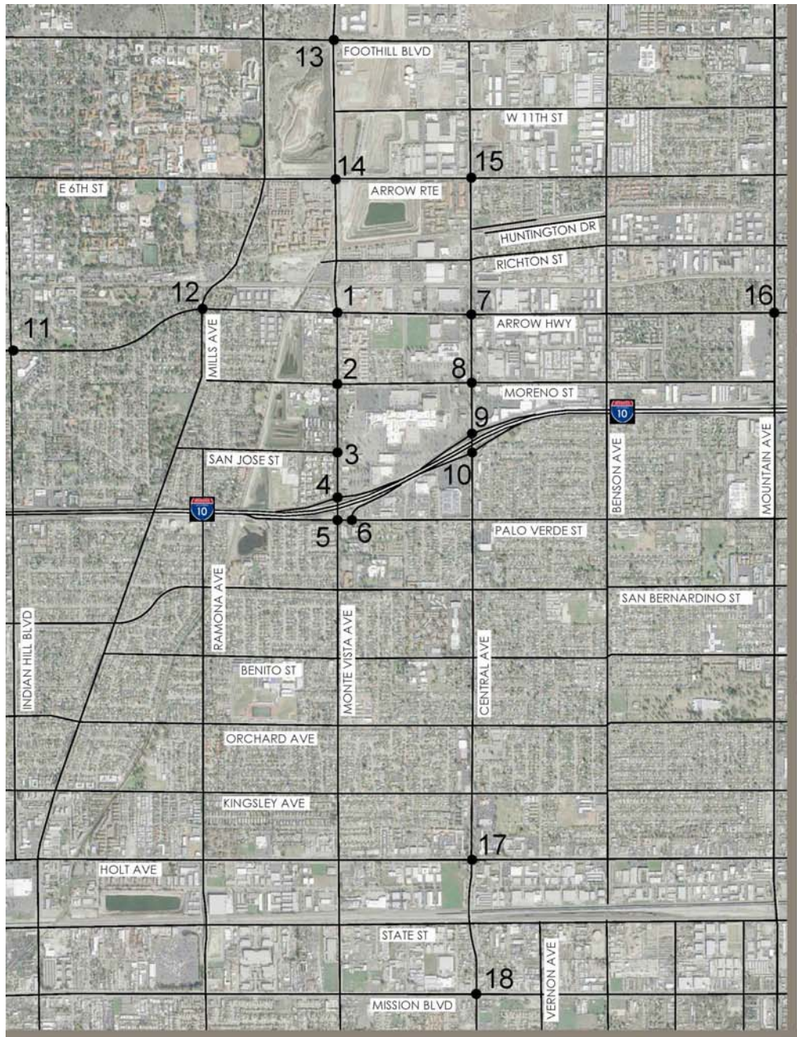
DUDEK

FIGURE 3.11-6

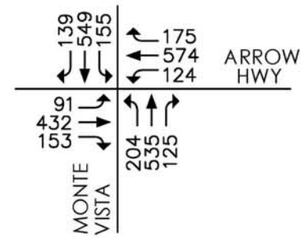
Existing with Project Average Daily Traffic

North Montclair Downtown Specific Plan Amendment Project

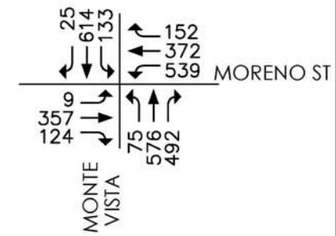
INTENTIONALLY LEFT BLANK



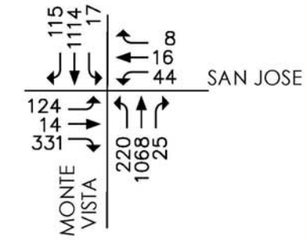
1.Monte Vista Ave & Arrow Hwy



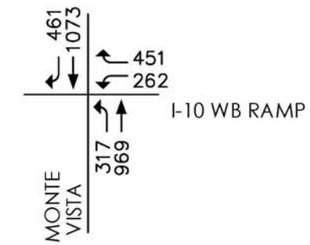
2. Monte Vista Ave & Moreno St



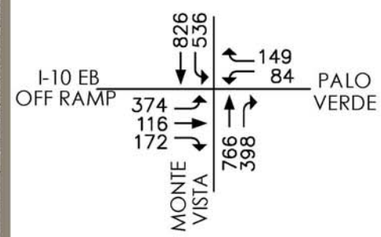
3. Monte Vista Ave & San Jose St



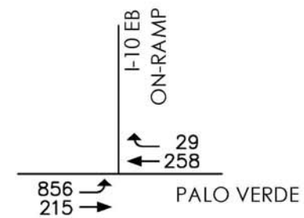
4. Monte Vista Ave & I-10 WB Ramps



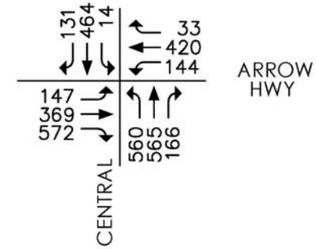
5. Monte Vista Ave & Palo Verde St



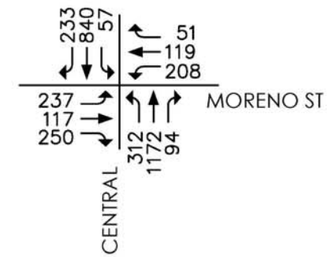
6. Palo Verde St & I-10 EB Ramp



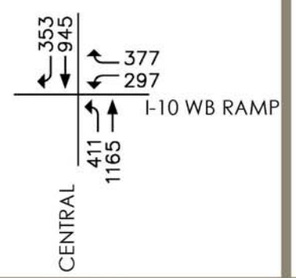
7. Central Ave & Arrow Hwy



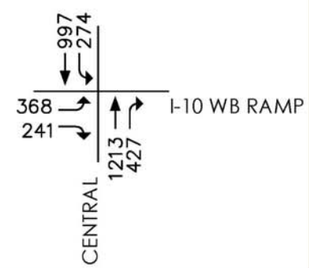
8. Central Ave & Moreno St



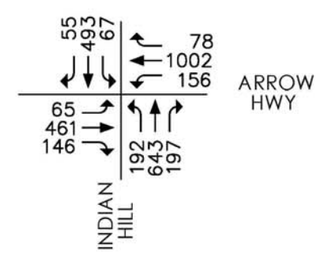
9. Central Avenue & I-10 WB Ramps



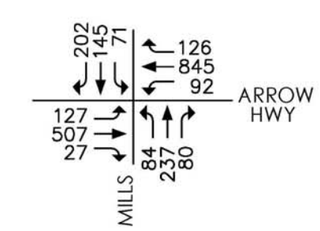
10. Central Avenue & I-10 EB Ramps



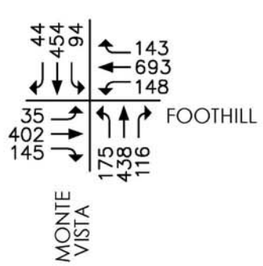
11. Indian Hill Blvd & Arrow Hwy



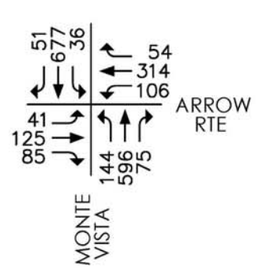
12. Mills Ave & Arrow Hwy



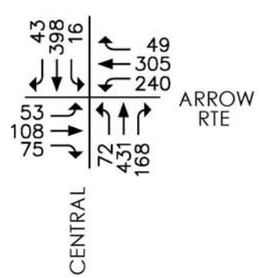
13. Monte Vista Ave & Foothill Blvd



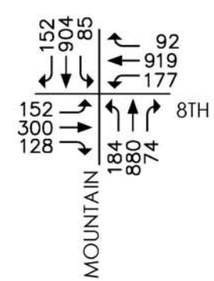
14. Monte Vista Ave & Arrow Rte



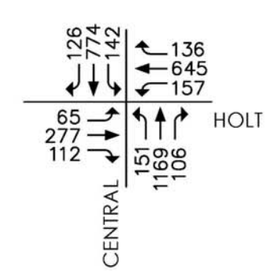
15. Central Ave & Arrow Rte



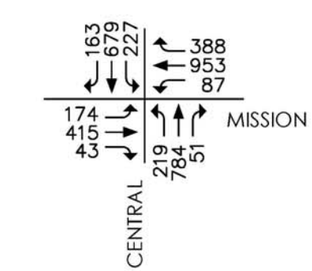
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



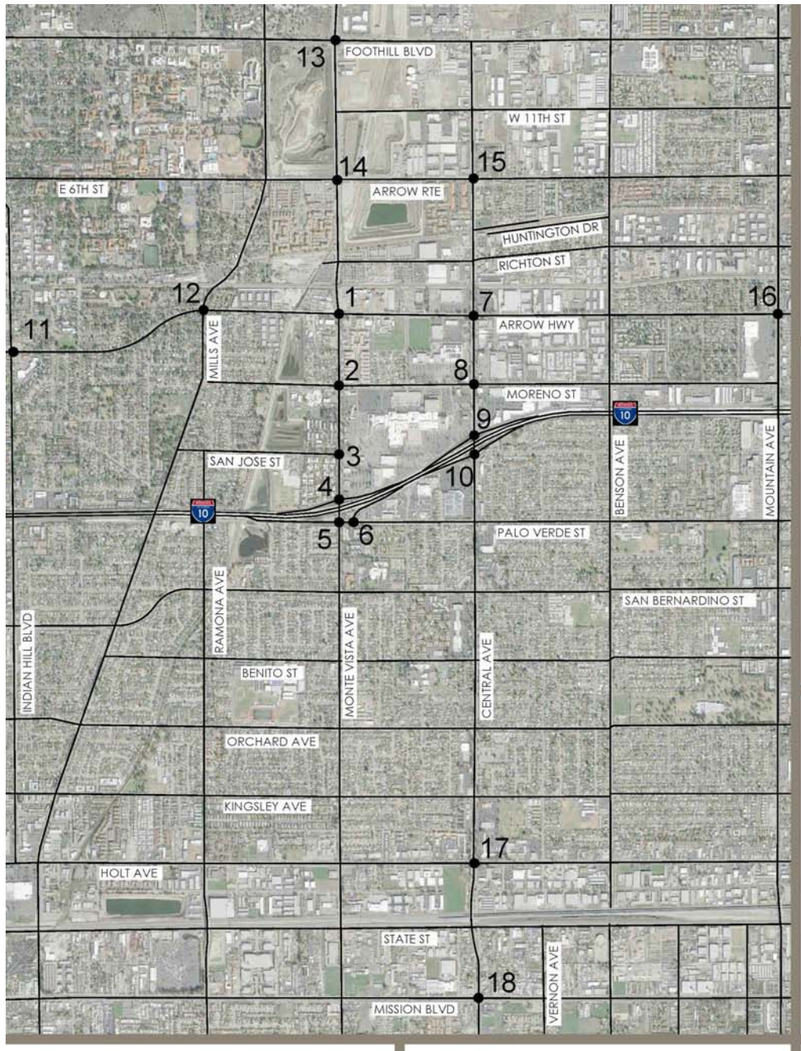
SOURCE: Stantec, Nov. 2016:

DUDEK

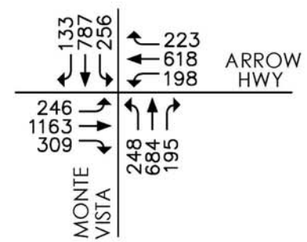
FIGURE 3.11-7

Existing with Project AM Peak Hour Volumes

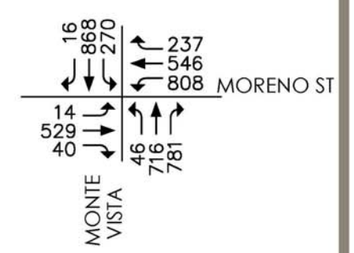
INTENTIONALLY LEFT BLANK



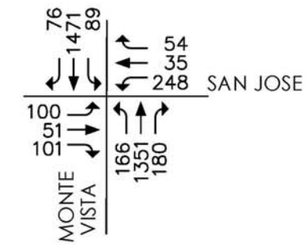
1.Monte Vista Ave & Arrow Hwy



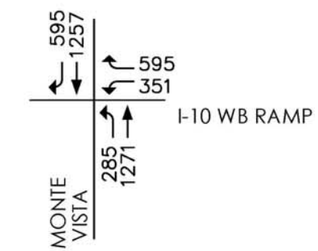
2. Monte Vista Ave & Moreno St



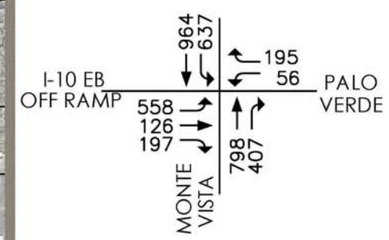
3. Monte Vista Ave & San Jose St



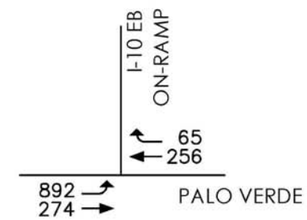
4. Monte Vista Ave & I-10 WB Ramps



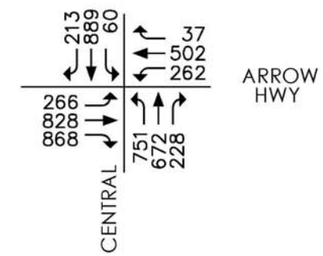
5. Monte Vista Ave & Palo Verde St



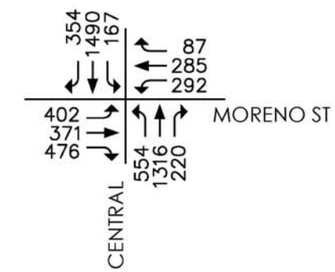
6. Palo Verde St & I-10 EB Ramp



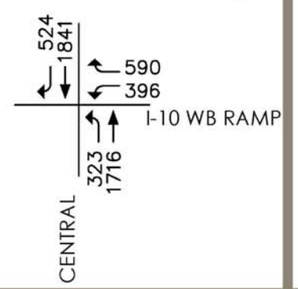
7. Central Ave & Arrow Hwy



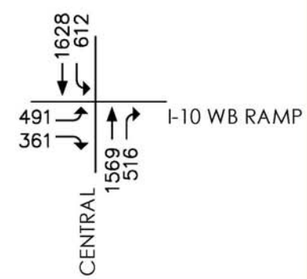
8. Central Ave & Moreno St



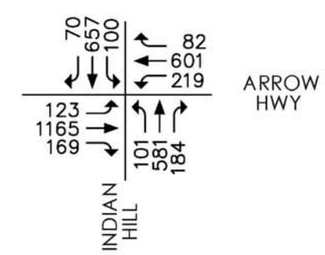
9. Central Avenue & I-10 WB Ramps



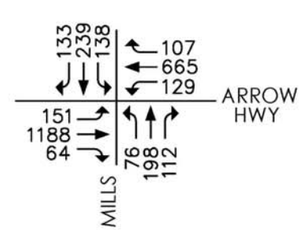
10. Central Avenue & I-10 EB Ramps



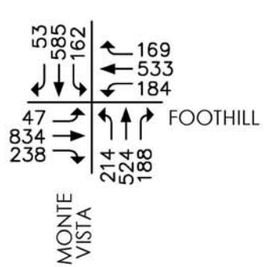
11. Indian Hill Blvd & Arrow Hwy



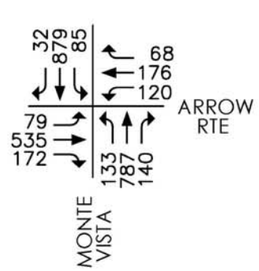
12. Mills Ave & Arrow Hwy



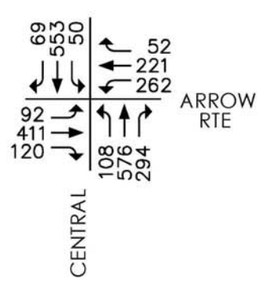
13. Monte Vista Ave & Foothill Blvd



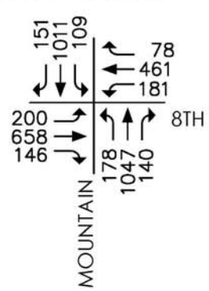
14. Monte Vista Ave & Arrow Rte



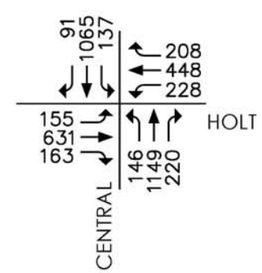
15. Central Ave & Arrow Rte



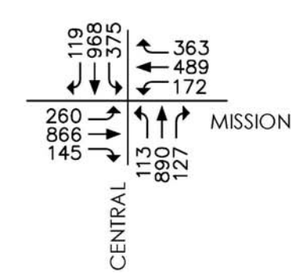
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



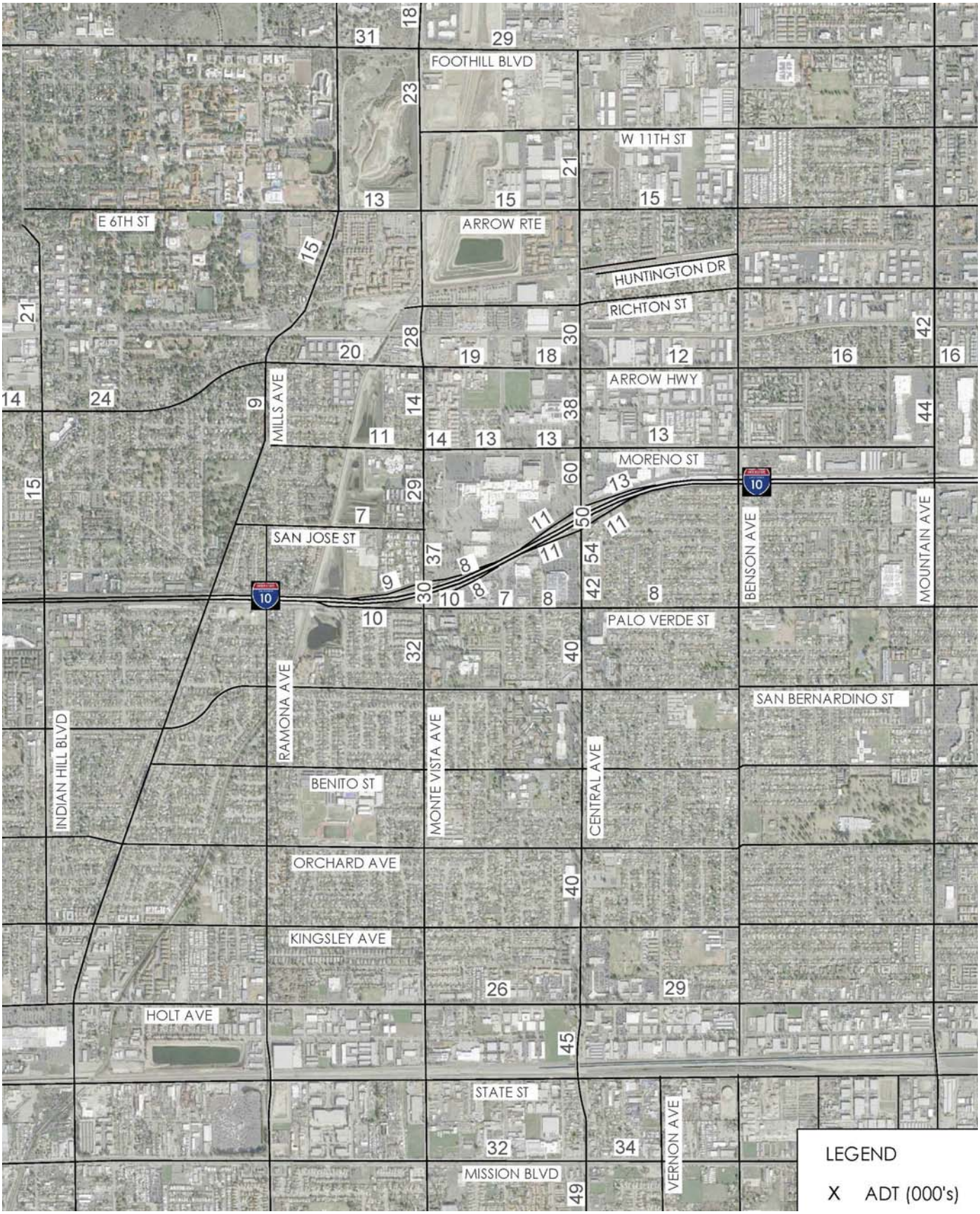
SOURCE: Stantec, Nov. 2016:

DUDEK

FIGURE 3.11-8

Existing with Project PM Peak Hour Volumes

INTENTIONALLY LEFT BLANK



SOURCE: Stantec, Nov. 2016

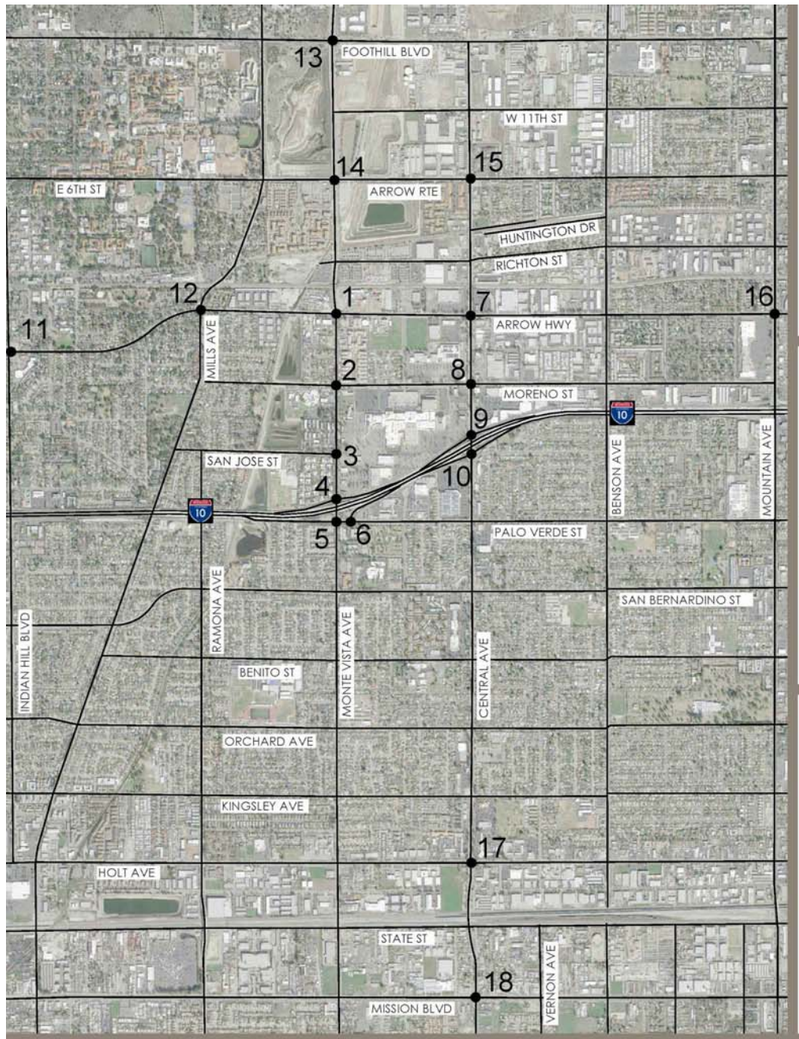
DUDEK

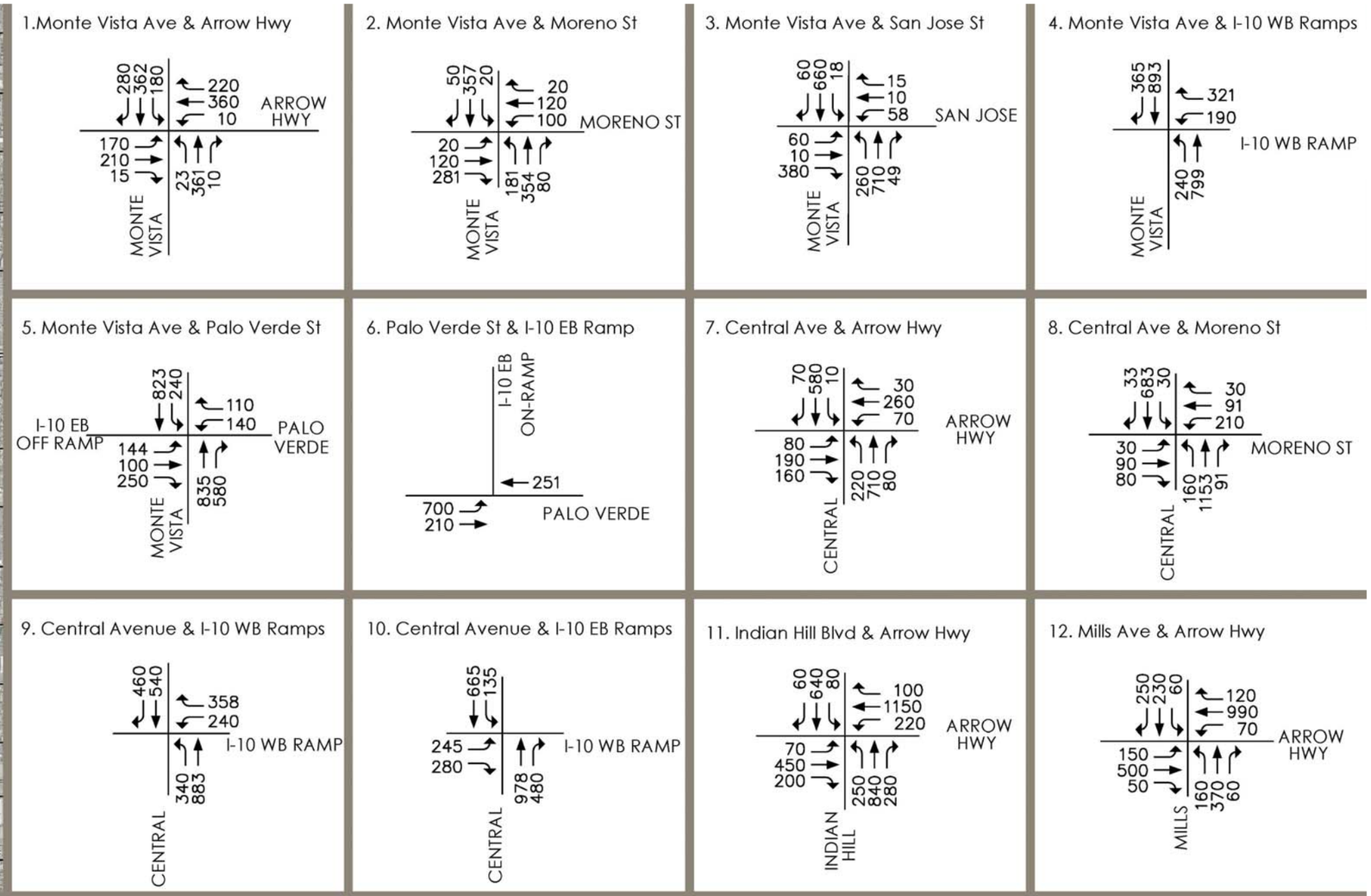
FIGURE 3.11-9

General Plan without Project Average Daily Traffic

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK





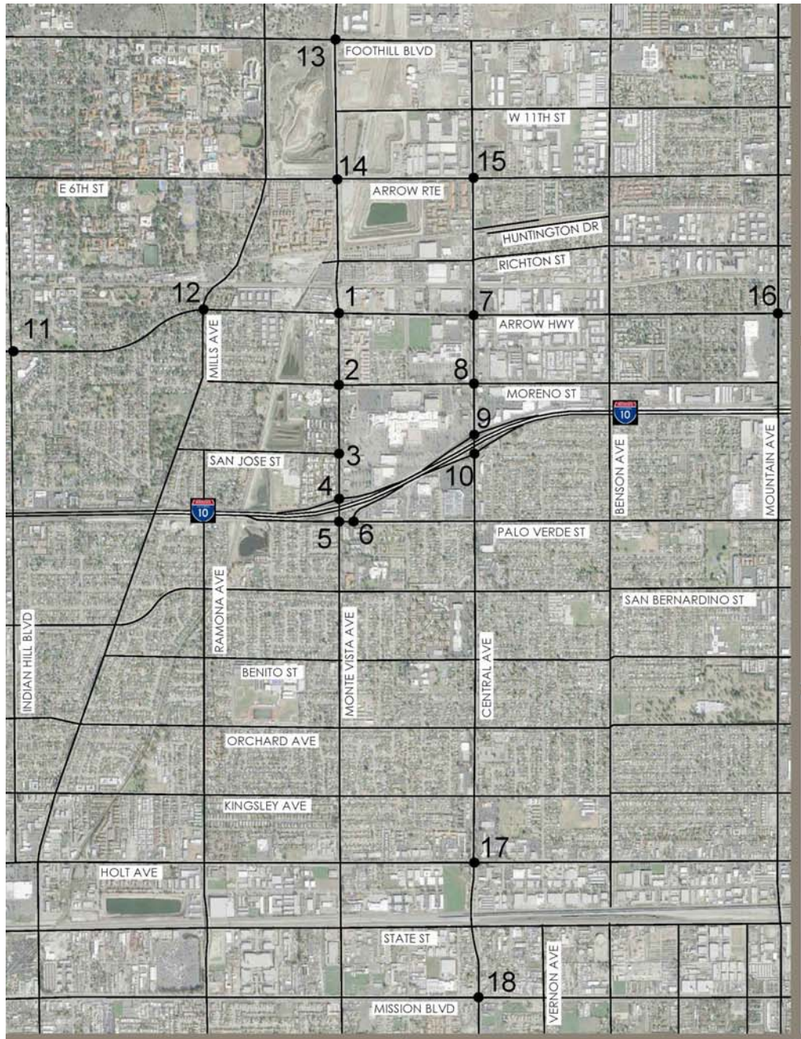
SOURCE: Stantec, Nov. 2016:

DUDEK

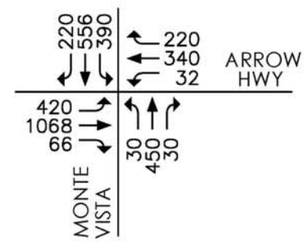
FIGURE 3.11-10

General Plan without Project AM Peak Hour Volumes

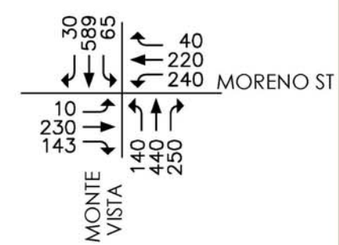
INTENTIONALLY LEFT BLANK



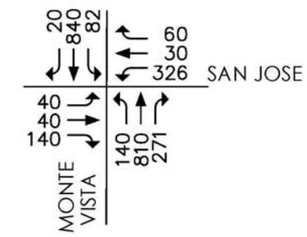
1.Monte Vista Ave & Arrow Hwy



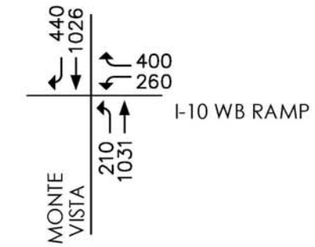
2. Monte Vista Ave & Moreno St



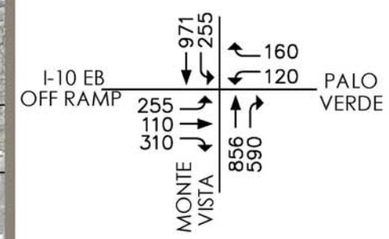
3. Monte Vista Ave & San Jose St



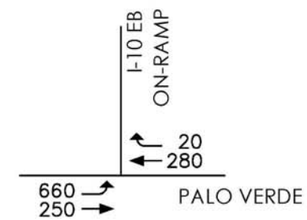
4. Monte Vista Ave & I-10 WB Ramps



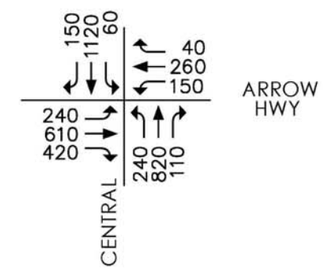
5. Monte Vista Ave & Palo Verde St



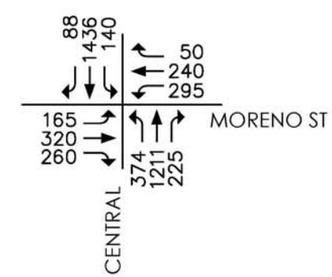
6. Palo Verde St & I-10 EB Ramp



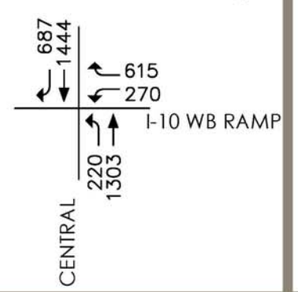
7. Central Ave & Arrow Hwy



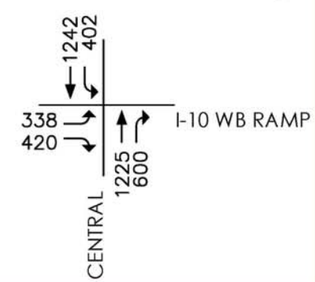
8. Central Ave & Moreno St



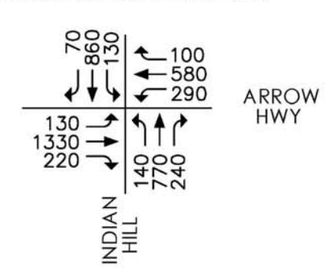
9. Central Avenue & I-10 WB Ramps



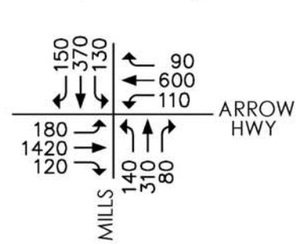
10. Central Avenue & I-10 EB Ramps



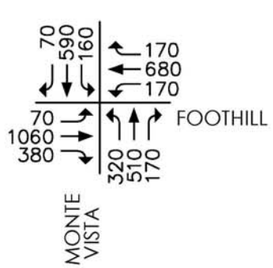
11. Indian Hill Blvd & Arrow Hwy



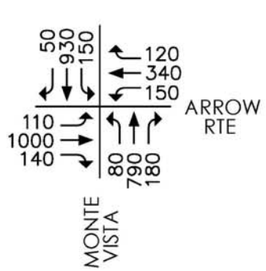
12. Mills Ave & Arrow Hwy



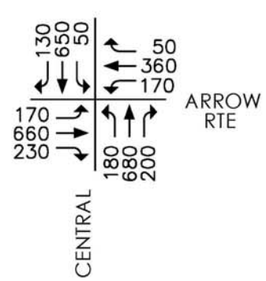
13. Monte Vista Ave & Foothill Blvd



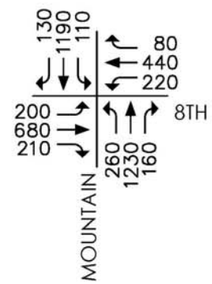
14. Monte Vista Ave & Arrow Rte



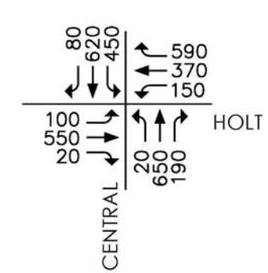
15. Central Ave & Arrow Rte



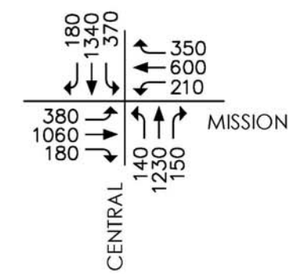
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



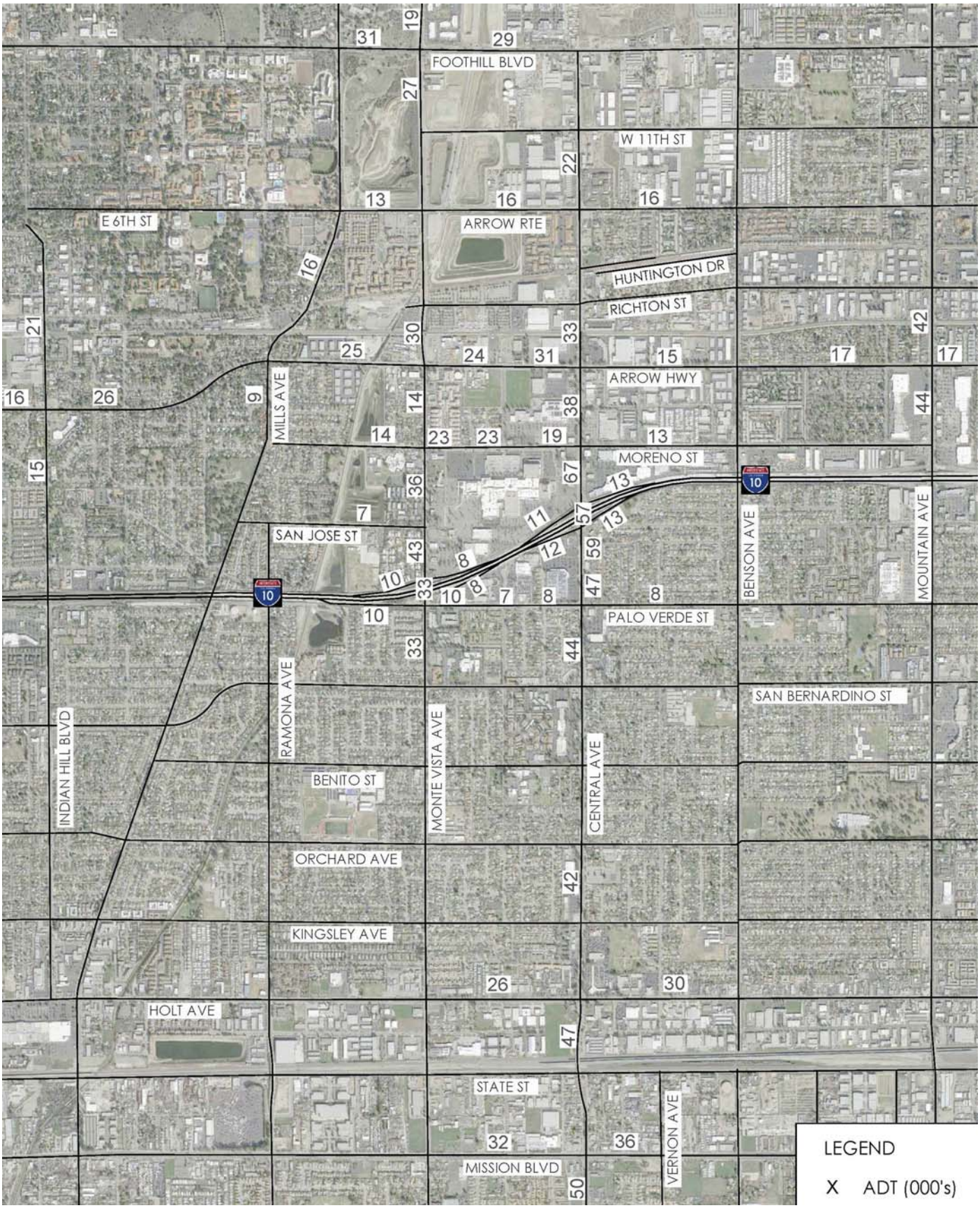
SOURCE: Stantec, Nov. 2016:

DUDEK

FIGURE 3.11-11

General Plan without Project PM Peak Hour Volumes

INTENTIONALLY LEFT BLANK



SOURCE: Stantec, Nov. 2016

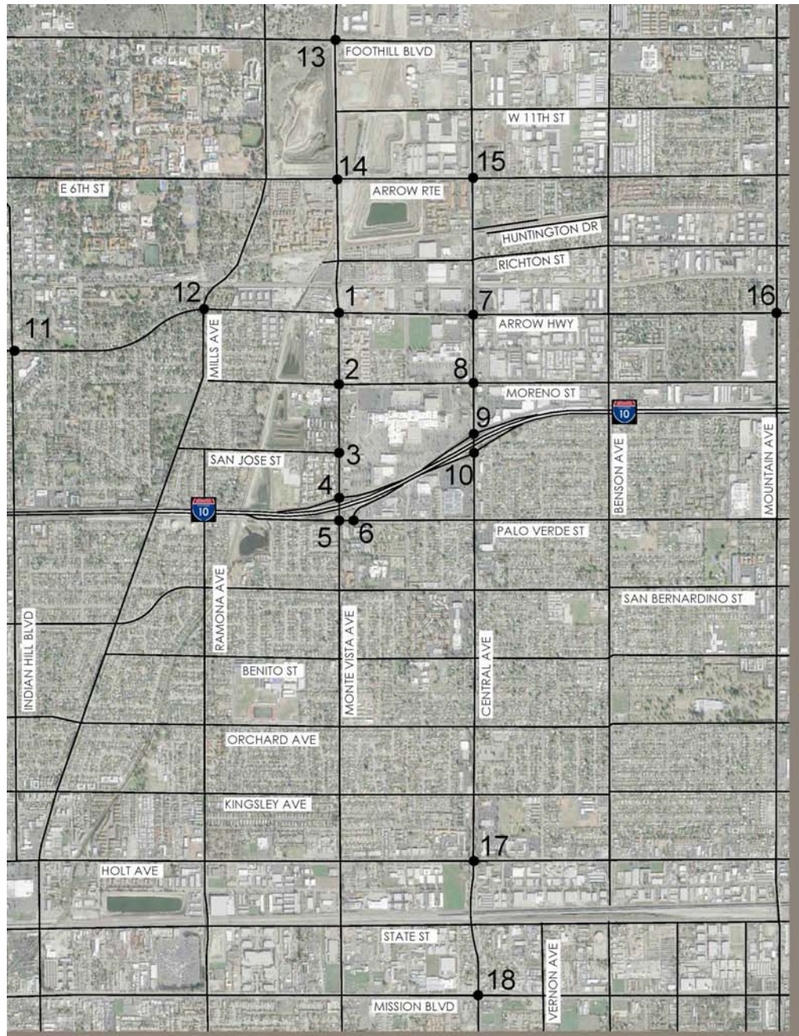
DUDEK

FIGURE 3.11-12

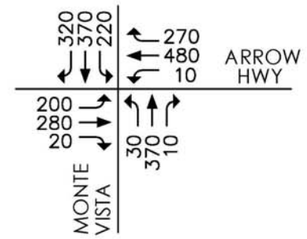
General Plan with Project Average Daily Traffic

North Montclair Downtown Specific Plan Amendment Project

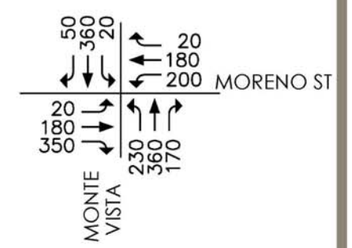
INTENTIONALLY LEFT BLANK



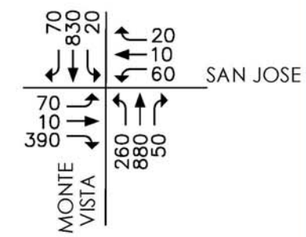
1.Monte Vista Ave & Arrow Hwy



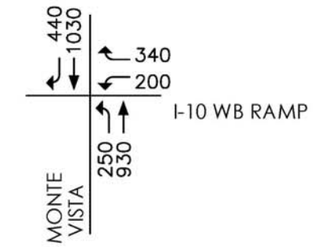
2. Monte Vista Ave & Moreno St



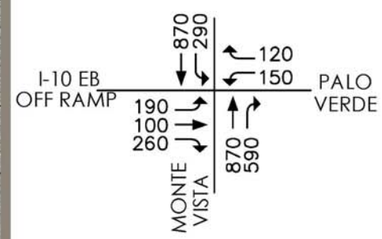
3. Monte Vista Ave & San Jose St



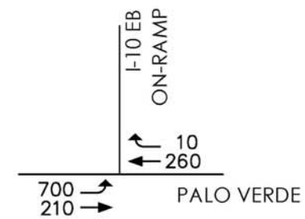
4. Monte Vista Ave & I-10 WB Ramps



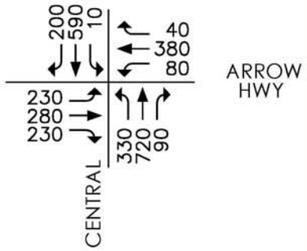
5. Monte Vista Ave & Palo Verde St



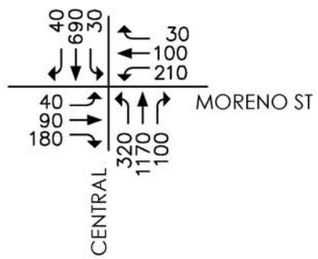
6. Palo Verde St & I-10 EB Ramp



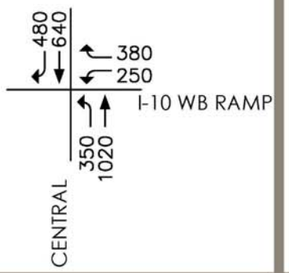
7. Central Ave & Arrow Hwy



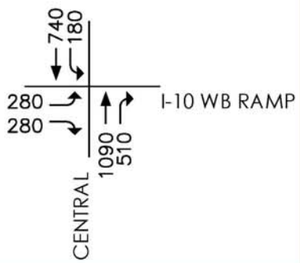
8. Central Ave & Moreno St



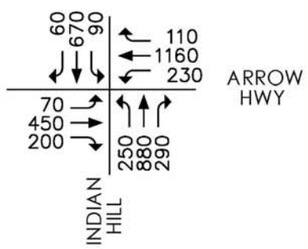
9. Central Avenue & I-10 WB Ramps



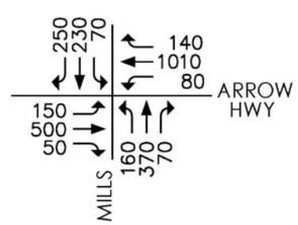
10. Central Avenue & I-10 EB Ramps



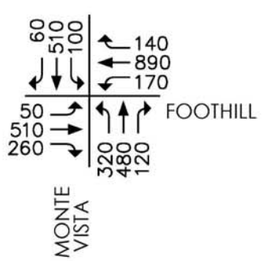
11. Indian Hill Blvd & Arrow Hwy



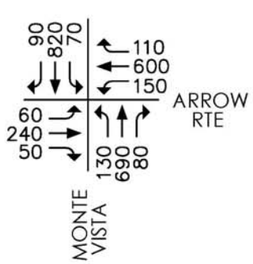
12. Mills Ave & Arrow Hwy



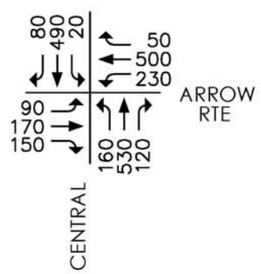
13. Monte Vista Ave & Foothill Blvd



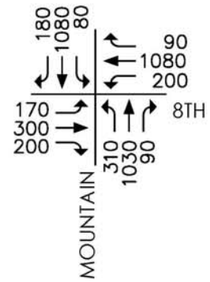
14. Monte Vista Ave & Arrow Rte



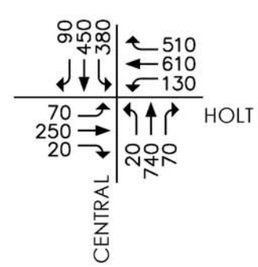
15. Central Ave & Arrow Rte



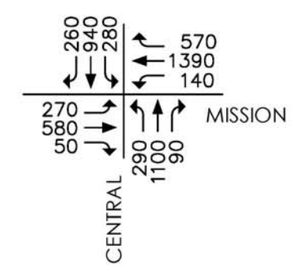
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



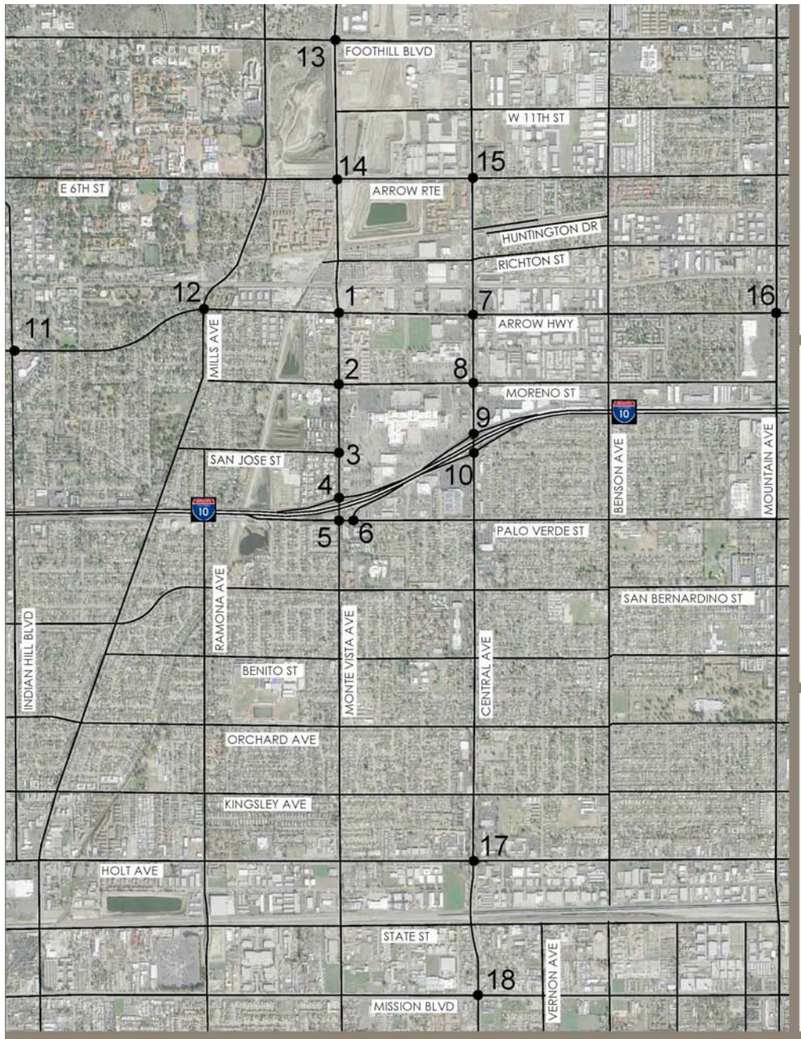
SOURCE: Stantec, Nov. 2016:

DUDEK

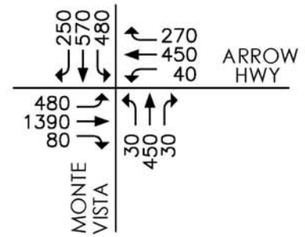
FIGURE 3.11-13

General Plan with Project AM Peak Hour Volumes

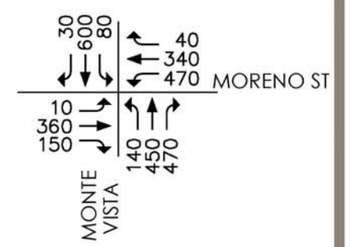
INTENTIONALLY LEFT BLANK



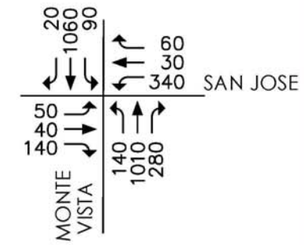
1.Monte Vista Ave & Arrow Hwy



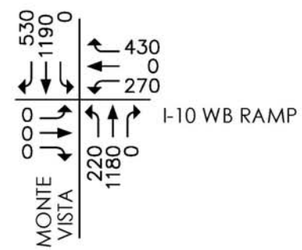
2. Monte Vista Ave & Moreno St



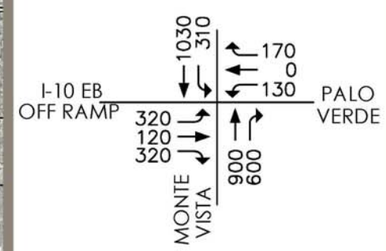
3. Monte Vista Ave & San Jose St



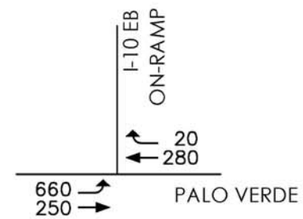
4. Monte Vista Ave & I-10 WB Ramps



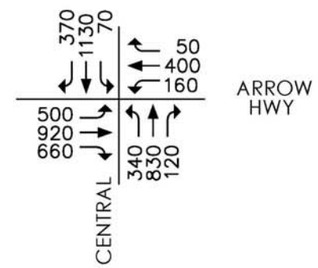
5. Monte Vista Ave & Palo Verde St



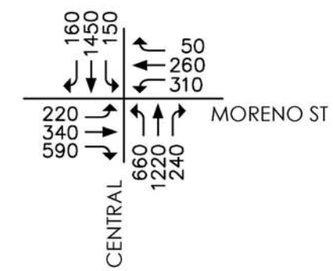
6. Palo Verde St & I-10 EB Ramp



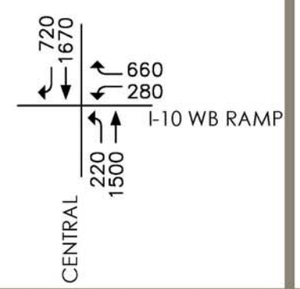
7. Central Ave & Arrow Hwy



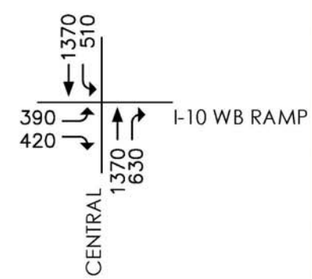
8. Central Ave & Moreno St



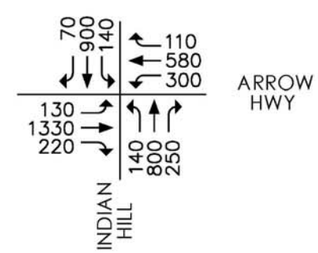
9. Central Avenue & I-10 WB Ramps



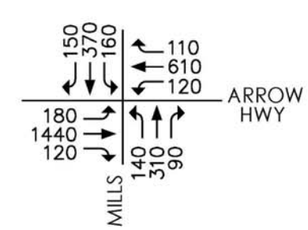
10. Central Avenue & I-10 EB Ramps



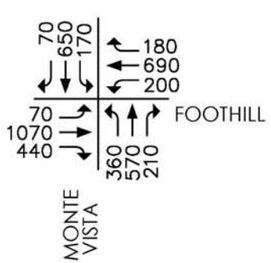
11. Indian Hill Blvd & Arrow Hwy



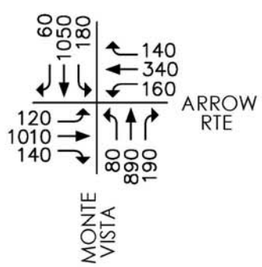
12. Mills Ave & Arrow Hwy



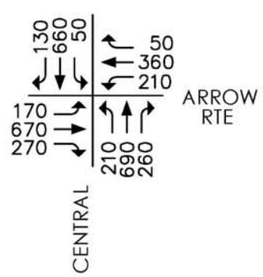
13. Monte Vista Ave & Foothill Blvd



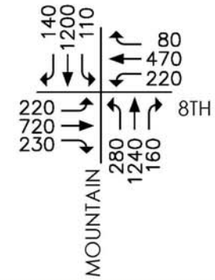
14. Monte Vista Ave & Arrow Rte



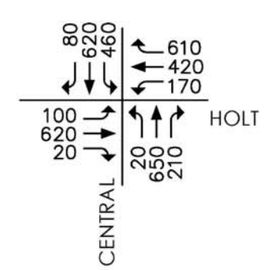
15. Central Ave & Arrow Rte



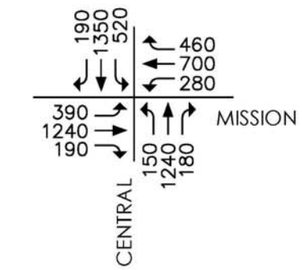
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



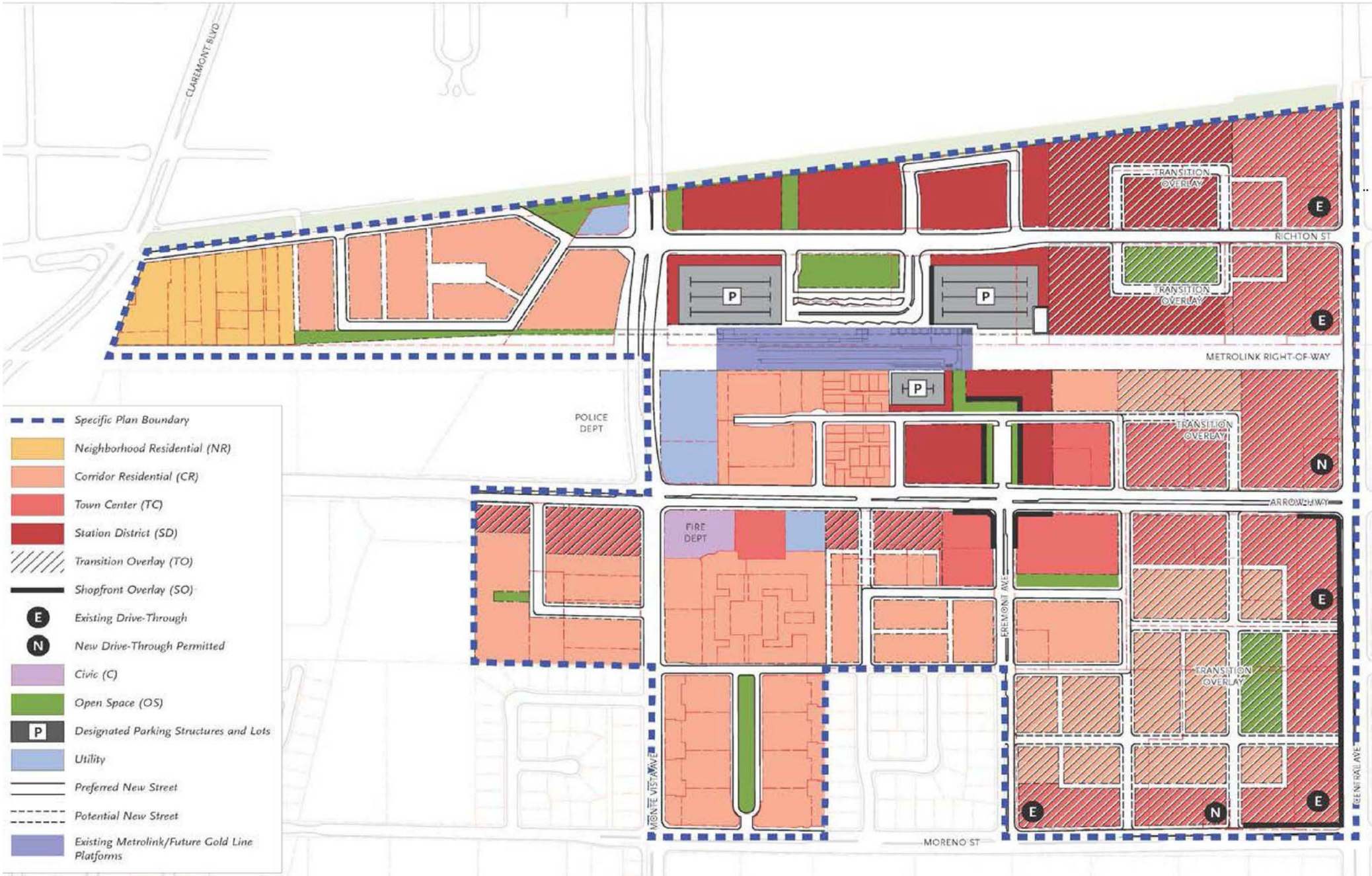
SOURCE: Stantec, Nov. 2016:

DUDEK

FIGURE 3.11-14

General Plan with Project PM Peak Hour Volumes

INTENTIONALLY LEFT BLANK



SOURCE: Stantec, Nov. 2016:

DUDEK

FIGURE 3.11-15
Site Circulation

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK

3.12 UTILITIES AND SERVICE SYSTEMS

This section describes the utilities and service systems that would serve the proposed North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) site. The October 2016 Initial Study (Appendix A) for the Proposed Amendment included an analysis of the following issue areas as they relate to utilities and service systems: exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board; the wastewater treatment provider's capacity to serve the project; the landfill's permitted capacity to accommodate the project's solid waste disposal needs; and compliance with federal, state, and local statutes and regulations related to solid waste. It was concluded in the Initial Study, that there were no new impacts/no impacts for these issue areas. As such, analysis within this section identifies associated regulatory requirements and identifies the potential impacts to water, wastewater treatment, and storm water drainage facilities or the expansion of existing facilities, as well as water supply related to implementation of the Proposed Amendment.

3.12.1 Existing Conditions

Water Service

Potable and recycled water are provided by the Monte Vista Water District (MVWD) for most of the Proposed Amendment area. A small northwestern portion of the Proposed Amendment area is served by the Golden State Water Company. Both entities are under the regulatory obligations to treat the water to appropriate standards set by the U.S. Environmental Protection Agency (EPA), the State Water Resources Control Board, and the California Regional Water Quality Control Board (RWQCB). The MVWD currently serves a 9.56-square mile portion of the Chino Basin and derives most of its water from the Chino Groundwater Basin (MVWD 2016).

The Chino Groundwater Basin has a total underground water storage capacity of approximately 6 million acre-feet and currently holds approximately 5 million acre-feet of groundwater. The Chino Basin Judgment, adopted by the California Superior Court in 1978 under stipulation by local groundwater producers, designated a safe yield for the basin of 140,000 acre-feet, which is the amount of groundwater that can be pumped from the basin each year without causing undesirable results. Purchasing imported water from the Metropolitan Water District of Southern California (MWD), through the Inland Empire Utilities Agency (IEUA), for basin recharge generally makes up any excess of pumping over the safe yield. However, supplemental water may be obtained from any available source, including recycled water and imported water. The Chino Basin Judgment also allows for the transfer and storage of excess rights and supplemental supplies. Currently, the District relies on approximately 75 percent of its water supply from 12 active groundwater wells and other local supplies and 25 percent from imported water. The MVWD retail area includes the City of Montclair, portions of the City of Chino, and unincorporated areas of San Bernardino County (MVWD 2016).

Over the past ten years, retail customers within the MVWD have achieved a substantial and sustained reduction in water demands. Retail customer demands are 36 percent less than in 2007. However, the MVWD's combined retail and wholesale service area population over the next 25 years is projected to grow 19 percent. Growth in the retail service area includes a continued increase in multi-family housing projects in proportion to single-family residential properties, including the substantial development of high density multi-family residential properties (maximum of 2,800) included in the proposed project (pages ES-1, 2-5 of MVWD 2016).

Over the past 15 years, MVWD has increased its water supply capacity to over 50 million gallons per day. Key investments in local groundwater, surface water, and recycled water have focused on building a diverse, drought-resilient water supply portfolio and reducing reliance on imported water. The District is dependent on four sources for its long-term water supply, including:

- Groundwater produced from the Chino Groundwater Basin, an adjudicated basin managed by the Chino Basin Watermaster;
- Imported State Water Project surface water received from the MWD, through the IEUA and the Water Facilities Authority (WFA);
- Entitlement water deliveries from San Antonio Water Company (SAWCO), including groundwater produced from local adjudicated groundwater basins and surface water produced from the San Antonio Creek Watershed; and
- Recycled water from IEUA.

Sewer System

The IEUA contracts with the City of Montclair for wastewater services. The IEUA manages the Regional Sewage Service System, within its 242 square mile service area, to collect, treat, and dispose of wastewater delivered by the City. IEUA's facilities serve seven contracting agencies, including the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, and Upland, as well as the Cucamonga Valley Water District. A system of regional trunk and interceptor sewers convey sewage to regional wastewater treatment plants, which are all owned and operated by the IEUA. However, the sewer main line facilities within the City of Montclair are owned and maintained by the City (MVWD 2016, IEUA 2016).

Based on the City of Montclair General Plan Housing Element, IEUA's Westside Interceptor collects all of the reclaimable wastewater generated within the City. Sewage from Montclair is treated by the IEUA at two locations, including the Carbon Canyon Wastewater Reclamation Facility (CCWRF), in Chino, and Regional Plant No. 1 (RP-1), in South Ontario (City of Montclair 2014). These wastewater treatment plants produce disinfected and filtered tertiary treated recycled water, in compliance with California's Title 22 regulations. In 2015, treatment

plants RP-1, CCWRF, and two other treatment plants within IEUA's jurisdiction (RP-4, RP-5), collected approximately 2,464 acre-feet of wastewater for treatment (MVWD 2016, IEUA 2016).

Storm Drain System

The Proposed Amendment area is located in the northwest portion of the Santa Ana River Basin, which consists of 2,780 square miles, drained primarily by the Santa Ana and San Jacinto rivers. Several streams and tributaries also traverse the Santa Ana River Basin. Most of the water in the basin consists of runoff from the San Gabriel Mountains, located to the north of the City of Montclair, although sheet flow also occurs as a result of direct precipitation.

The topography of the Proposed Amendment area is generally flat, but slopes gently toward the south-southwest, at an average gradient of 2 percent. Surface water resources in the planning area are limited, as there are no large standing bodies of water and no streams with continuous flows. The southwesterly-flowing San Antonio Wash, which originates in the San Bernardino Mountains to the north, traverses the western portion of the project site. The San Antonio Wash is a former natural channel that is now a concrete-lined drainage, which empties into the Santa Ana River and eventually into the Pacific Ocean (City of Montclair 1999).

Several groundwater recharge basins exist throughout Montclair, which provide retention and recharge capacity for the City. There are four recharge basins within the City, located downstream of the Proposed Amendment area, and one recharge basin within the City of Upland, located immediately upstream of the Proposed Amendment area. The recharge basins in the City are generally located along the San Antonio Wash.

Existing land uses in the Proposed Amendment area include a mix of vacant and active major retail and limited industrial, single-family housing, and transit-related facilities. Approximately 58 percent of the Proposed Amendment area is developed with urban uses, including impermeable surfaces such as roads, parking lots, and buildings. The remainder of the Proposed Amendment area consists of several large plots of undeveloped land. The predominance of impermeable surfaces prevents water from percolating into the ground, increasing the amount of runoff reaching the storm drain infrastructure. Undeveloped land has a much higher rate of recharge.

3.12.2 Regulatory Setting

Federal

Federal Clean Water Act of 1972, 33 U.S.C., Section 1251 et seq.

The 1972 Federal Water Pollution Control Act and its 1977 amendments, collectively known as the Clean Water Act (Act), established national water quality goals and the basic structure for

regulating discharges of pollutants into the waters of the United States. The Act also created a National Pollutant Discharge Elimination System (NPDES) of permits that specified minimum standards for the quality of discharged waters. The Act required states to establish standards specific to water bodies and designated the types of pollutants to be regulated, including total suspended solids and oil. The Act authorized the U.S. EPA to issue the NPDES permits.

Safe Drinking Water Act of 1974

The Safe Drinking Water Act of 1974 was implemented by the EPA and is the primary federal regulation controlling drinking water quality in every public water system in the United States. The Safe Drinking Water Act authorized the EPA to establish and enforce guidelines for drinking water to protect against both naturally occurring and manmade contaminants.

The Safe Drinking Water Act was originally implemented in 1974 with significant amendments in 1986 and 1996. The Safe Drinking Water Act originally set standards for the treatment of individual constituents, including pesticides, trihalomethanes, arsenic, selenium, radionuclides, nitrates, toxic metals, bacteria, viruses, and pathogens. The amendments to the Safe Drinking Water Act made some significant changes, most of which resulted in more stringent protection of drinking water sources. The amended Safe Drinking Water Act also greatly enhanced the existing law by implementing operator training, funding for water system improvements, and public information as important components of safe drinking water.

State

California Water Code (CWC) Sections 1610 – 10656, Urban Water Management Planning Act

California urban water providers are required by state law to develop an Urban Water Management Plan (UWMP) to ensure they have sufficient water supplies available to meet the long-term needs of its various categories of customers during normal, dry, or multiple-dry years. The Urban Water Management Plan Act requires urban water suppliers, which provide water for municipal purposes to more than 3,000 customers or supply more than 3,000 acre-feet of water annually, to develop an UWMP every five years, in the years ending in zero and five (MVWD 2016).

In the Act, the California Legislature declared that the waters of the state are a limited and renewable resource subject to ever increasing demands; that the conservation and efficient use of urban water supplies are of a statewide concern; that successful implementation of plans is best accomplished at the local level; that conservation and efficient use of water shall be actively pursued to protect both the people of the state and their water resources; that conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions; and that urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use (MVWD 2016).

The MVWD 2015 UWMP has been prepared in compliance with these requirements of the Act, as well as the additional reporting requirements of the Water Conservation Act of 2009. The MVWD 2015 UWMP is an update of its 2010 UWMP and incorporates substantial information from the MVWD 2008 Water Master Plan, 2011 Recycled Water Master Plan, and other local and regional planning documents. The UWMP is intended to serve as a general, flexible, and open-ended document that periodically can be updated to reflect changes in regional water supply trends, conservation policies, and water use efficiency policies (MVWD 2016).

Senate Bill 610 – Costa, Water Supply Planning

Senate Bill (SB) 610, which was implemented January 2002, requires development that qualifies as a "Project" under Water Code 10912 to be supported in CEQA documentation with a Water Supply Assessment report, drafted to specifically identify the public water system that would supply water to the project and analyze the availability and reliability of water supply to the development. The Water Supply Assessment is to include the following, as applicable:

1. Discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years, during a 20-year planning timeframe, will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses.
2. Identification of existing water supply entitlements, water rights, or water service contracts, secured by the purveying agency, and water received in prior years pursuant to those entitlements, rights, and contracts.
3. Description of the quantities of water received in prior years by the public water system, under the existing water supply entitlements, water rights, or water service contracts.
4. Documentation of water supply entitlements, water rights, or water service contracts.
5. Identification of other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system.
6. If groundwater is included for the supply for a proposed project, description and analysis of: 1) groundwater basin(s), 2) amount and location of groundwater pumped by the public water system for the past five years, 3) amount and location of groundwater projected to be pumped from the basin, and 4) sufficiency of groundwater from the basin.
7. Inclusion of the water supply assessment in any environmental document prepared for the project.
8. Evaluation of any information included in that environmental document, followed by a determination whether the projected water supplies would be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.

A Water Supply Assessment was completed for the North Montclair Downtown Specific Plan 2006 EIR (Psomas 2006).

Senate Bill X7-7

Senate Bill (SB) X7-7, which became effective on February 3, 2010, is the water conservation component to the Delta legislative package (SB 1, Delta Governance/Delta Plan). The bill implements water use reduction goals established in 2008 to achieve a 20 percent statewide reduction in urban per capita water use by December 31, 2020. The bill requires each urban retail water supplier to develop urban water use targets to help meet the 20 percent goal by 2020 and an interim 10 percent goal by 2015. The bill establishes methods for urban retail water suppliers to determine targets to help achieve water reduction targets. The retail water supplier must select one of the four compliance options. The retail agency may choose to comply with SB X7-7 as an individual or as a region in collaboration with other water suppliers. Under the regional compliance option, the retail water supplier must report the water use target for its individual service area.

Distribution and Water Rights

California Water Code Section 10910 (d)(2) requires the identification of existing water supply entitlements, water rights, or water service contracts; federal, state, and local permits for construction of necessary infrastructure, and any regulatory approvals required in order to be able to deliver the water supply. Extraction and distribution of groundwater resources is governed by common law and the California constitution rather than a particular agency, such as the State Water Resources Control Board, which exercises control over surface waters. However, the groundwater basin has been adjudicated; therefore, there is a determination of specific rights to groundwater resources under the jurisdiction of a Watermaster.

Local

Montclair General Plan

The Housing Element of the Montclair General Plan, Appendix B, Section 7, *On- and Off-site Improvements*, requires the developer to dedicate lands within the property that is needed for streets and alleys, including access rights and abutters' rights, drainage, public utility easements, and other public easements. The applicant is required to provide improvements, including storm drains, adequate domestic water supply, and sanitary sewers for each lot. Improvements shall include relocation or replacement of existing relevant infrastructure, as appropriate.

Montclair Municipal Code

The Uniform Building Code (UBC)/Uniform Plumbing Code (UPC) establishes requirements for sanitary sewage facilities in structures, including pipe size. The City of Montclair has adopted these codes in their Unified Development Code. In order to obtain final occupancy approval, a project must be deemed compliant with the UBC by City building inspectors. In addition to the UBC and UPC, the City utilizes the California Plumbing Code.

Montclair Code of Ordinances, Article I, Section 9.20, Sewer System, apply to the design, construction, alteration, use, and maintenance of the City sewer system, including but not limited to, main line sewers, building sewers, building laterals, wastewater pretreatment systems, regional wastewater treatment plants, gravity separation interceptors, and other appurtenances. The purpose of this ordinance is to provide for the maximum beneficial use of the City sewer system, groundwater resources, and effluent-receiving waterways, through regulation of wastewater discharges, by establishing terms, limits, and conditions of discharge.

Montclair Code of Ordinances, Article I, Section 9.24.080, Installation of Drainage Facility, requires the owner of land to install drainage facilities for the removal of surface and storm waters, in lieu of construction of these facilities.

3.12.3 Thresholds of Significance

The October 2016 Initial Study (Appendix A) for the proposed project included an analysis of the following significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). It was concluded in the Initial Study, that there were no new impacts/no impacts for the following significance criteria. Therefore, the following significance criteria are not included as part of this EIR.

A. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? No New Impact/No Impact

E. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? No New Impact/No Impact

F. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? No New Impact/No Impact

G. Comply with federal, state, and local statutes and regulations related to solid waste? No New Impact/No Impact

The following significance criteria, included for analysis in this EIR, are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and will be used to determine the significance of potential impacts to utilities and service systems. Impacts to utilities and service systems would be significant if the proposed project would:

B. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

C. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

D. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.

3.12.4 Impacts Analysis

B. Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than Significant Impact with New Mitigation Required. Incremental upgrades, expansions, or replacements of potable water service and wastewater collection system infrastructure may be required as lots are subdivided or consolidated and as higher density land uses are constructed. Future projects under the Proposed Amendment would result in a substantial increase in high density residential units and commercial properties. The addition of 2,688 dwellings units and an additional 782,285 square feet of commercial uses within the Proposed Amendment area would require installation of new potable water service lines. Water service is provided by the MVWD. An evaluation of available water supplies is provided below under item (D). Increased density of residential and commercial land uses would potentially mandate construction of new water mains within City streets and would require construction of additional water laterals to new developments. It is unlikely that water service would be disrupted for existing customers during installation of new infrastructure.

Installation of new water mains and laterals consists of either trenching to the depth of pipe placement or using a variety of different trenchless technology, which causes substantially less ground disturbance. Trenching results in a temporary stockpiling of soil along the length of the trench, pending backfilling, which could result in potential short-term erosion induced siltation of nearby waterways. Trenchless technology only requires temporary stockpiling of soil adjacent to excavations on both ends of long sections of pipe. Standard Best Management Practices, installed as part of an NPDES-mandated

Storm Water Pollution Prevention Plan, would reduce potential water quality impacts to less than significant levels.

The addition of new dwelling units and commercial uses in association with the Proposed Amendment would also require an increase in the size and change in the location of new sewer mains, pumps, and laterals. Main collection lines would be upgraded to accommodate the increased flow volume. Upgrades to street infrastructure may also require reconfiguration of wastewater infrastructure. Impacts would generally be confined to street disruptions, as well as potential short-term erosion-related impacts, as described for the installation of new water service lines. It is unlikely that wastewater service would be disrupted for existing customers during installation of new infrastructure.

On-site wastewater is collected and treated by the IEUA. Since Fiscal Year (FY) 2006-07, wastewater flows to the IEUA have decreased by approximately 10 percent, but remained steady since FY 2010-11, due to economic conditions and conservation efforts associated with the drought. In FY 2014-15, treated influent in the IEUA was approximately 53.4 million gallons per day (mgd). Projected treated influent flow is expected to increase consistently through 2035, at which time treated influent flow is projected to be 73.5 mgd. By 2060, IEUA inflow is anticipated to be 87.9 mgd (IEUA 2015).

More specific to the City of Montclair, based on the City of Montclair General Plan Housing Element, sewage from Montclair is treated by the IEUA at the CCWRF, in Chino, and RP-1, in South Ontario. The projected average influent wastewater flow at the CCWRF is expected to increase from 6.9 mgd, in 2020, to 7.9 mgd, in 2060. Similarly, the projected influent wastewater at RP-1 is expected to increase from 30.4 mgd, in 2020, to 36.3 mgd, in 2060. Such increases in inflow will require a number of facilities expansions over the next 20 years. A preliminary treatment plant expansion schedule indicates that approximately $424 million dollars will be spent on facility upgrades through 2035. Upgrades will include 1) repair and rehabilitation projects for existing facilities, and 2) expansion projects to provide additional capacity (City of Montclair 2014; IEUA 2015, 2016).

Forecast flows are based on historical wastewater flow trends, per dwelling unit wastewater generation factors, and expected future growth numbers provided by contracting agencies. The projected inflow increases were planned and designed using the raw wastewater generation factor of 270 gallons per day, per equivalent dwelling unit (GPD/EDU), as specified in the Regional Sewerage Service Contract. Although the IEUA plans its regional system around this service contract, new developments are using less water due to water-conserving devices and new water use efficiency laws. The IEUA expects average flows throughout the service area to remain well below the 270

GPU/EDU, even as the economy improves, due to rising water costs, reduced imported water supply availability, and increased water conservation measures (IEUA 2015).

Future development under the Proposed Amendment would be charged service connection fees and monthly usage fees by the MVWD and IEUA, for water and wastewater services, respectively, which would be collected by the City, in part to continue providing adequate potable water and wastewater treatment capacity within their service areas. The fees are generally proportional to impacts of the project. Such fees would ensure adequate water infrastructure and wastewater treatment capacity to meet the City's regional housing needs allocation for the project planning period. As cumulative increases in demand within the service area require facility upgrades, the MVWD and IEUA would include those fees in their capital improvement plans. Such fees would ensure that capital improvements are completed sufficiently to accommodate increased water demand and wastewater inflows associated with the Proposed Amendment. However, until such improvements have been completed, impacts are considered potentially significant, but mitigable, as per the 2006 NMDSP EIR. The following mitigation measure was included in the 2006 NMDSP EIR:

> Prior to permit approval for any specific project, the developer shall obtain verification of adequate collection and treatment capacity from the City and the District and shall determine the appropriate level of development impact fees, if any. Fees, if exacted, will pay for the development's fair share of infrastructure improvements necessary to serve that new development and will help ensure that potential shortfalls are addressed prior to, or concurrent with, new development.

This mitigation measure would be relevant to future development under the Proposed Amendment as it would 1) ensure that adequate wastewater collection and treatment capacity is available, and 2) ensure that adequate fees are collected, if necessary, such that capital improvements are completed sufficiently to accommodate increased wastewater inflows. With the incorporation of this mitigation measure, impacts would be less than significant with respect to wastewater infrastructure and treatment capacity. However, the aforementioned mitigation measure from the 2006 NMDSP EIR did not address potable water infrastructure. Therefore, with the implementation of mitigation measure **MM-UTIL-1**, impacts to water facilities are considered **less than significant with new mitigation required**.

C. Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than Significant Impact with New Mitigation Required. Implementation of the Proposed Amendment would result in the development of the majority of the existing, approximately 10 percent undeveloped land in the planning area with urban uses. The conversion of this land from permeable to impermeable surfaces would decrease the recharge capacity of the project site, thus increasing surface runoff. In addition, the Proposed Amendment would increase the density of development by allowing for land uses that include an additional 2,688 residential units and an additional 782,285 square feet of commercial space in the planning area, in comparison to the 2006 Adopted NMDSP. The quality of surface runoff may be better as a result of the Proposed Amendment, as surface level parking areas proposed or built under the 2006 NMDSP, which would contribute oil and grease to surface runoff, could become parking garages, residential properties, or commercial properties, with less ground level paved areas. Similarly, the Proposed Amendment could replace some of the approximately 650,000 square feet of retail and industrial uses along the west side of Central Avenue to allow for more mixed-use and residential areas. The latter typically results in less polluted runoff than industrial uses. However, the overall increase in impermeable surfaces would result in increased surface water runoff.

Existing stormwater infrastructure may not be sufficiently dispersed or sized to accommodate the increased flow at buildout. Insufficient drainage capacity could result in localized flooding in streets and adjacent properties. In addition, increases in impermeable surfaces and resulting increases in stormwater volumes may also adversely impact stormwater infrastructure located outside of the planning area, namely the San Antonio Wash, by increasing the volume and velocity of flow in this and other receiving waterbodies downstream of the project site. Impacts are considered potentially significant but mitigable.

The 2006 NMDSP EIR included mitigation measure **MM-HYD-1**, which after implementation would result in increased permeability, thereby lessening increased runoff resulting from future projects developed under the Proposed Amendment. As identified in Section 3.6 Hydrology and Water Quality, mitigation measure **MM-HYD-1** would apply to future projects under the Proposed Amendment.

The 2006 NMDSP EIR also included mitigation measure **MM-HYD-2** to address potential off-site (i.e., downstream of the NMDSP area) increased surface flows resulting from increased impermeable surfaces within the NMDSP area. As identified in Section

3.6 Hydrology and Water Quality, mitigation measure **MM-HYD-2** would apply to future projects under the Proposed Amendment.

Incorporation of permeable surfaces into the design of stormwater infrastructure would reduce surface runoff, increase groundwater recharge, and reduce polluted runoff. Implementation of source control BMPs, treatment control BMPs, and a Water Quality Management Plans would also contribute in reducing polluted and sediment-laden stormwater from entering downstream waterways, including the San Antonio Wash, such that no significant impacts would occur.

Verification of adequate stormwater capacity prior to permit approval would ensure that flooding would not occur within the Proposed Amendment area as a result of inadequate drainage facilities associated with new development. However, mitigation measures included in the 2006 NMDSP EIR did not address potential off-site (i.e., downstream of the Proposed Amendment area) flooding resulting from proposed increased development densities and associated increased surface runoff. Therefore, with the implementation of mitigation measures **MM-HYD-1** and **MM-HYD-2** from the 2006 NMDSP EIR, as well as new mitigation measure **MM-UTIL-2**, impacts to water facilities are considered **less than significant with new mitigation required**.

D. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No New Impact/No Impact.

Water Supply and Demand

Future development under the Proposed Amendment would result in 2,688 additional dwellings units and an additional 782,285 square feet of commercial uses within the Proposed Amendment area. Developments greater than 500 dwelling units require preparation of a water supply assessment, which includes a water supply and demand comparison for normal year, single dry year, and multiple dry years, per California Senate Bill 610, Costa-Water Supply Assessment. The assessment must document the sufficiency of available water supply for the proposed project, now and for a 20-year planning period. Such information is available in the MVWD 2015 UWMP (MVWD 2016).

Section 4 of SB 610 (Water Code Section 10910(c)(2)) provides the ability of a water supplier to utilize the required information from the most recently adopted UWMP if the projected water demand associated with the proposed project was accounted for in that UWMP. Since the Proposed Amendment was accounted for in the MVWD 2015 UWMP

(pages ES-1, 2-5), the water supply and demand comparisons provided in the UWMP have been used to establish sufficiency of water supplies for the Proposed Amendment.

Table 3.12-1 provides a supply and demand comparison for the MVWD during normal year, single dry year, and multiple dry years.

Table 3.12-1
Supply and Demand Comparisons (AFY), Monte Vista Water District

		2020	2025	2030	2035	2040
Normal Year						
Total Supply		51,790	51,749	51,778	51,828	51,828
Total Demand		35,200	35,396	35,730	36,081	36,364
	Difference	**16,590**	**16,353**	**16,048**	**15,748**	**15,464**
Single Dry Year						
Total Supply		51,646	51,605	51,634	51,684	51,684
Total Demand		35,200	35,396	35,730	36,081	36,364
	Difference	**16,446**	**16,209**	**15,904**	**15,604**	**15,320**
Multiple Dry Years						
Year 1	Total Supply	51,646	51,605	51,634	51,684	51,684
	Total Demand	35,200	35,396	35,730	36,081	36,364
	Difference	**16,446**	**16,209**	**15,904**	**15,604**	**15,320**
Year 2	Total Supply	51,547	51,507	51,536	51,586	51,586
	Total Demand	35,200	35,396	35,370	36,081	36,364
	Difference	**16,347**	**16,111**	**15,806**	**15,505**	**15,221**
Year 3	Total Supply	51,547	51,507	51,536	51,586	51,586
	Total Demand	35,200	35,396	35,370	36,081	36,364
	Difference	**16,347**	**16,111**	**15,806**	**15,505**	**15,221**

The water supply and demand projections in Table 3.12-1 demonstrate that the MVWD can expect its available supplies to significantly exceed anticipated demands over the 25-year planning period. As a result of these surplus supplies, the MVWD should not experience any problems in meeting its demands during normal, single, or multiple dry year periods over the next 25 years (MVWD 2016).

Water Shortage Contingency Plan

The MVWD Water Shortage Contingency Plan is incorporated into District Ordinance 33, which establishes year-round water use efficiency best practices and stage water supply shortage measures. This plan addresses emergency shortages, including catastrophic interruptions, and contains mandatory prohibitions, penalties, and consumption reduction methods. The MVWD stages of action present the measures by

which customers are required to implement mandatory water conservation practices during a declared water shortage. The MVWD may declare a shortage due to imported water supply cutbacks by MWD, as well as extended drought, equipment failure, act of terrorism, and/or natural disaster (MVWD 2016).

In January 2014, Governor Brown proclaimed a State of Emergency in recognition of record-setting drought conditions across California and the western United States. On April 1, 2015, he issued an executive order requiring a mandatory 25 percent reduction in urban water use across California, which is an unprecedented action in California history. In May 2015, the MVWD Board of Directors declared a Significant Water Supply Shortage in response to Governor Brown's order (MVWD 2016).

Consistent with the Water Conservation Act of 2009, the MVWD is required to reduce water use on a gallons-per-person daily basis by 20 percent, compared to a ten-year baseline average. This goal has been accomplished since Governor Brown issued the executive order in April 2015. While the MVWD anticipates that overall water demands to slowly increase as drought conditions improve and the current emergency order is lifted, the MVWD will work with its customers to maintain and enhance their water use efficiency in order to comply with State requirements and MVWD policies (MVWD 2016).

Reliability of MVWD Water Supplies

Because Chino Basin groundwater comprises the majority of MVWD water supplies, reliability of supplemental water sources is not critical to continued delivery of water to the City of Montclair. However, MVWD maintains these supplemental supplies as a buffer against prolonged drought. Reliability of these diversified supplemental supplies varies among the sources.

The MVWD and all southern California communities and water agencies are facing increasing challenges in their role as stewards of publicly owned water resources. The region faces a growing gap between its water requirements and its dependable water supplies. Increased environmental regulations and the collaborative competition for water from outside the region have resulted in reduced supplies of imported water. Continued population and economic growth increase water demand within the region, putting an even larger burden on water supplies. Fortunately, the MVWD and other regional agencies have invested hundreds of millions of dollars to develop, manage, and maintain a robust portfolio of reliable water supplies. These include the Chino Groundwater Basin, which is one of the largest groundwater basins in southern California and which has been sustainably managed for nearly 40 years. In addition, a regional recycled water program that provides drought-

resistant, highly treated, non-potable water for both direct use and groundwater recharge, as well as other local surface and groundwater resources (MVWD 2016).

Due to ongoing investments in reliable supplies, the MVWD and other regional agencies are able to reduce use of imported water during times of drought, as well as store significant amounts of surplus water during wet years for use in dry years. Over the decades, Chino Basin producers have saved nearly 400,000 acre-feet of water stored in the groundwater basin that can be safely accessed during periods of extended drought. In addition, the MVWD implements water use efficiency programs, including turf replacements, landscape irrigation survey and retrofits, efficient appliance rebates, and innovative rate structures.

The reliability of Chino Basin groundwater is based on long-term hydrology and is not directly impacted by single year or multi-year droughts. However, SAWCO's local surface water supplies can be impacted by short-term drought events. In addition, the northern California climate can impact imported surface water supply reliability, but MWD has mitigated these impacts. Recycled water is considered "drought proof" and is not impacted by climate (MVWD 2016). Because Chino Basin groundwater comprises the majority of MVWD water supplies, those supplies are reliable relative to water agencies that rely on surface water supplies.

Conclusion

The water supply and demand projections in Table 3.12-1 demonstrate that the MVWD can expect its available water supplies to significantly exceed anticipated demands over the 25-year planning period. As a result of these surplus supplies, the MVWD should not experience any problems in meeting its demands during normal, single, or multiple dry year periods over the next 25 years. This fact, in combination with the existing drought contingency plan and reliability of the Chino Basin groundwater and supplemental water supplies, there would be **no new impact/no impact** related to water supply. No mitigation is required.

3.12.5 Cumulative Impacts

Water Service and Wastewater Disposal

As development continues within the MVWD and IEUA service areas, incremental improvements to the capacity of both water service and wastewater collection and treatment facilities would be required. New project construction would be evaluated on a project-specific basis, based on available capacity with respect to water service infrastructure and cumulative wastewater load on the sewer system at the time of evaluation. Future development under the Proposed Amendment, in combination with past, present, and reasonably foreseeable future

projects, would be charged service connection fees and monthly usage fees by the MVWD and IEUA, which would be collected by respective municipalities, in part to continue providing adequate water service and wastewater treatment capacity within their service areas. The fees are generally proportional to impacts of the individual projects. Such fees would ensure adequate water service capacity and wastewater treatment capacity to meet the municipality's regional housing needs. As cumulative increases in demand within the service area require facility upgrades, the MVWD and IEUA would include those fees in their capital improvement plans. Such fees would ensure that capital improvements are completed sufficient to accommodate increased wastewater inflows associated with the Proposed Amendment and past, present, and reasonably foreseeable future projects. However, until such improvements have been completed, the Proposed Amendment could make a cumulatively considerable contribution to potentially significant cumulative impacts.

Mitigation measures from the 2006 NMDSP EIR would ensure that adequate wastewater infrastructure capacity will be available and ensure that adequate fees are collected, if necessary, such that capital improvements are completed sufficiently to accommodate increased wastewater treatment demands. Similarly, implementation of mitigation measure **MM-UTIL-1** would ensure that adequate water service infrastructure capacity is available and that adequate fees are collected, if necessary, such that capital improvements are completed sufficiently to accommodate increased water service demands. Incorporation of this mitigation measure would reduce the Proposed Amendment's contribution to potentially significant impacts such that **no significant cumulative impacts would occur and no new mitigation is required.**

Storm Drains

Continued development in the City would increase the amount of impermeable surfaces, potentially resulting in increased volume and velocity of runoff. Future development under the Proposed Amendment, in combination with past, present, and reasonably foreseeable cumulative projects, may also increase the amount of impermeable surfaces, due to increased density of land uses, potentially resulting in cumulative increases in runoff. Therefore, the Proposed Amendment's contribution to cumulative drainage impacts is considered significant but mitigable.

Mitigation measures from the 2006 NMDSP EIR would incorporate permeable surfaces into the design of stormwater infrastructure, which would reduce surface runoff, increase groundwater recharge, and reduce polluted runoff. Implementation of source control BMPs, treatment control BMPs, and Water Quality Management Plans would also contribute in reducing polluted and sediment-laden stormwater from entering downstream waterways, including the San Antonio Wash, such that no significant impacts would occur.

Implementation of mitigation measure **MM-UTIL-2** would ensure that downstream flooding would not occur in association with the Proposed Amendment, by mandating that detention

basins be constructed to restrict off-site (i.e., downstream of the Proposed Amendment Area) surface flow volumes and rates to less than or equal to pre-construction conditions.

The contribution of past, present, and reasonably foreseeable cumulative projects is unknown, as it is not clear whether those projects combined would potentially result in downstream flooding as a result of inadequate stormwater facilities. However, each of those projects would be subject to the regulations and provisions of the San Bernardino Flood Control District, which control runoff such that post-construction surface flows are less than or equal to pre-construction conditions. In addition, with the implementation of mitigation measures from the 2006 NMDSP EIR and **MM-UTIL-2**, the Proposed Amendment's contribution to potentially significant cumulative impacts would be reduced such that **no significant cumulative impacts** would occur and **no new mitigation is required.**

Water Supply

With respect to water supply, reasonably foreseeable cumulative projects would be governed by Senate Bill 610, as applicable, and project specific water supply analyses. The Chino Groundwater Basin, which would provide the majority of the water for the Proposed Amendment, is an adjudicated basin that limits the allowable extraction that could occur in any given year and assigned water rights to basin pumpers. Based on continued groundwater management by the Chino Basin Watermaster, supplemental water supplies to the MVWD, in combination with compliance with cumulative project-specific CEQA review, Senate Bill 610 requirements, and adjudicated water rights, cumulatively **no new impact/no impact** would occur with respect to water supply. No mitigation is required.

3.12.6 Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires EIRs to describe feasible measures that can minimize significant adverse impacts. The following mitigation measures from the 2006 NMDSP EIR will be incorporated for the Proposed Amendment.

MM-HYD-1 **Project Level Water Quality Management Plans.** All projects developed under the Proposed Amendment shall submit a WQMP to be implemented during the project planning, design, approval, permitting, construction, acceptance, and occupancy phases. These WQMPs may include, but are not limited to, the following BMPs:

Site Design BMPs

(To be included during the site planning and approval process)

- Maximize permeable area by using alternative materials or surfaces with a lower Coefficient of Runoff, or "C-factor."

- Construct walkways, trails, patios, parking areas, alleys, driveways, low traffic streets, and other low-traffic areas with open-jointed paving materials or permeable surfaces, such as pervious concrete, porous asphalt, and granular materials. Also, incorporate landscape areas into the drainage design of these areas.
- Minimize use of impervious surfaces, such as decorative concrete in landscape design.
- Where soils conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration.
- Use natural drainage systems and increase the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales.

Source Control BMPs

- Education for Property Owners, Tenants, and Occupants on good housekeeping practices to protect stormwater quality.
- Street Sweeping Private Streets and Parking Lots
- Roof Runoff Controls and Efficient Irrigation

Treatment Control BMPs

- Design landscape drainage features so that they promote infiltration of runoff, but do not inject runoff so that it bypasses the natural processes of filtering and transformation that occur in the soil.
- Pretreat runoff to reduce risk of contamination of groundwater.
- Project WQMPs shall follow the outline established by the San Bernardino County Stormwater Program's Model Water Quality Management Plan Guidance document.

Construction Activity

NPDES permits are required for all projects in excess of one acre. Erosion control measures are required when run-off could impact area drainages. Potential measures include the use of straw bales, siltation fences, berms, and basins. Mitigation measures shall be addressed on a project by project basis, depending on size and level of disturbance. No specific measures are recommended at this level.

MM-HYD-2 **Stormwater Infrastructure**. Prior to grading permit approval, project proponents, if applicable, shall be required to document sufficient stormwater

capacity. If sufficient capacity is not available at the time of the project proposal, the proponent, in cooperation with the City and/or other affected agencies, shall document necessary improvements. Improvements shall be made prior to, or concurrent with, new development.

New mitigation measures for the Proposed Amendment are described below:

MM-UTIL-1 Prior to permit approval for any specific project, the developer shall obtain verification from the City and MVWD that adequate potable water supply infrastructure will be constructed and determine the appropriate level of development impact fees, if any. Fees, if exacted, will pay for the development's fair share of infrastructure improvements necessary to serve that new development and will help ensure that potential shortfalls are addressed prior to, or concurrent with, new development.

MM-UTIL-2 Surface water detention basins shall be designed such that off-site (i.e., downstream of the Proposed Amendment area) post-construction runoff (both volume and rate) is less than or equal to pre-construction runoff, for 5-year through 100-year storm events. In addition, basin specifications and outflow rates shall be consistent with County Flood Control District standard conditions.

3.12.7 Significance After Mitigation

The 2006 NMDSP EIR included mitigation measure **MM-HYD-1**, which after implementation would result in increased permeability, thereby lessening increased runoff resulting from future projects developed under the Proposed Amendment. The 2006 NMDSP EIR also included mitigation measure **MM-HYD-2**, which after implementation would address potential off-site, downstream increased surface flows resulting from increased impermeable surfaces within the Proposed Amendment area. Implementation of mitigation measure **MM-UTIL-1** would ensure that adequate water service infrastructure capacity will be available and ensure that adequate fees are collected, if necessary, such that capital improvements are completed sufficiently to accommodate increased water service demands. Implementation of mitigation measure **MM-UTIL-2** would ensure that downstream flooding would not occur in association with the Proposed Amendment, by mandating that detention basins be constructed to restrict off-site (i.e., downstream of the Proposed Amendment Area) surface flow volumes and rates to less than or equal to pre-construction conditions. Therefore, with implementation of mitigation measures **MM-UTIL-1** and **MM-UTIL-2**, potentially significant water service infrastructure and off-site flood-related impacts would be **less than significant with new mitigation required.**

3.12.8 References

Arcadis. 2016. *Final 2015 Urban Water Management Plan*, June. https://18x37n2ovtbb3434n48jhbs1-wpengine.netdna-ssl.com/wp-content/uploads/2016/07/FINAL-IEUA-WFA-2015-UWMP-2016-07-07.pdf. Site accessed October 28, 2016.

City of Montclair. 2014. *Housing Element, 2014-2021.* Adopted February 3. http://www.cityofmontclair.org/civica/filebank/blobdload.asp?BlobID=7007. Site accessed October 29, 2016.

_____. 1999. City of Montclair General Plan. Prepared by the Community Development Department in cooperation with L.D. King, Inc. http://www.cityofmontclair.org/civica/filebank/blobdload.asp?BlobID=6283. Site accessed October 24, 2016.

Inland Empire Utilities Agency. 2016. *Final 2015 Urban Water Management Plan*, June. https://18x37n2ovtbb3434n48jhbs1-wpengine.netdna-ssl.com/wp-content/uploads/2016/07/FINAL-IEUA-WFA-2015-UWMP-2016-07-07.pdf. Site accessed October 28, 2016.

_____. 2015. *Draft Fiscal Year 2015/16 Ten-Year Capital Improvement Plan*, January. https://18x37n2ovtbb3434n48jhbs1-wpengine.netdna-ssl.com/wp-content/uploads/2015/01/TYCIP-draft-2.pdf. Site accessed October 29, 2016.

Monte Vista Water District. 2016. *2015 Urban Water Management Plan*, Public Review Draft, May. https://www.mvwd.org/download.cfm?ID=1673. Site accessed October 26, 2016.

Psomas. 2016. *Water Supply Assessment for North Montclair Downtown Specific Plan, Final Draft.* Prepared for Monte Vista Water District, January 4.

3.13 ENERGY CONSUMPTION

CEQA provides that an environmental impact report shall include a detailed statement identifying all significant effects on the environment of a proposed project, and mitigation measures proposed to minimize significant effects on the environment, including, but not limited to, "measures to reduce the wasteful, inefficient, and unnecessary consumption of energy" (Pub. Resources Code, section 21100(b)(1),(3)).

Appendix F of the State CEQA Guidelines on Energy Conservation includes recommendations for information that should be included in an EIR to "assure that energy implications are considered in project decisions" (State CEQA Guidelines, section 15000 et seq.). Appendix F directs that EIRs should include "discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3))" (State CEQA Guidelines, section 15000 et seq.).

Appendix F of the State CEQA Guidelines lists potential energy impacts that may be relevant to the Energy Conservation analysis in an EIR. Where a listed item is applicable or relevant to a proposed project, the EIR should consider it. This analysis applied the following relevant listed items from Appendix F, subdivision (II)(C), to the discussion of impacts: energy requirements and energy use efficiencies of the Proposed Amendment by fuel type and amount for each stage of the implementation of the Proposed Amendment; the effects of the Proposed Amendment on local and regional energy supplies and on requirements for additional capacity; the effects of the Proposed Amendment on peak and base period demands for electricity and other forms of energy; compliance with existing energy standards; the effects of the Proposed Amendment on energy resources; and the Proposed Amendment's projected transportation energy use requirements and overall use of efficient transportation alternatives.

In accordance with Appendix F, this Supplemental EIR includes relevant information and analyses that address the energy implications of the Proposed Amendment. This section presents a summary of the project's anticipated energy needs, impacts, and conservation measures. Neither the 2006 NMDSP EIR, nor the October 2016 Initial Study (Appendix A) for the Proposed Amendment, identified the potential impacts of the NMDSP or Proposed Amendment on energy consumption. Therefore, this section evaluates the impacts to energy consumption associated with future development under the Proposed Amendment

3.13.1 Existing Conditions

The Proposed Amendment, including vehicular trips to and from the proposed project area, would result in the consumption of energy in a variety of forms, namely electricity, natural gas, and petroleum. Appendix F of the CEQA Guidelines, Part II, Section B, states that the

"Environmental Setting[] may include existing energy supplies and energy use patterns in the region and locality." Consistent with this recommendation, this subsection characterizes existing energy supplies and energy use patterns for electricity, natural gas, and petroleum.

Electricity

According to the California Energy Commission (CEC) *California Energy Demand Updated Forecast 2015–2025*, California used approximately 280,536 gigawatts per hour of electricity in 2014 (CEC 2016a). Electricity usage in California for different land uses varies substantially by the types of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Due to the state's energy efficiency standards and efficiency and conservation programs, California's per capita electricity use has remained stable for more than 30 years, while the national average has steadily increased (CEC 2011).

Southern California Edison (SCE) provides electricity to Montclair residents and businesses, including those located in the Proposed Amendment area. SCE, a subsidiary of Edison International, serves approximately 180 cities in 11 counties across central and Southern California. SCE administers various energy efficiency and conservation programs that may be available to residents, businesses, and other organizations in City of Montclair (City of Montclair 2016). According to the California Public Utilities Commission (CPUC), approximately 76 billion kilowatt-hours (kWh) of electricity were used in SCE's service area in 2014. Demand forecasts anticipate that approximately 75 billion kWh of electricity will be used in SCE's service area in 2020 (CPUC 2016).

SCE receives electric power from a variety of sources. According to CPUC's 2016 Biennial Renewables Portfolio Standard (RPS) Program Update, 23.2% of SCE's power came from eligible renewables, such as biomass/waste, geothermal, small hydroelectric, solar, and wind sources during the 2014–2016 compliance period (CPUC 2016). This is an increase from the 19.9% that SCE maintained for the 2011–2013 compliance period (CPUC 2014). SCE maintains a lower percentage of renewable energy procurement when compared with California's two other large Investor-Owned Utilities. The other two large utilities, Pacific Gas and Electric Company and San Diego Gas and Electric Company, procured 28% and 36% of their electric power, respectively, from eligible renewables in the 2014–2016 compliance period (CPUC 2016). SCE also maintains a slightly lower percentage of renewables relative to statewide procurement. The California Energy Commission estimates that about 26% of the state's electricity retail sales in 2015 came from renewable energy (CEC 2016b). The RPS Program establishes a goal for California to increase the amount of electricity generated from renewable energy resources to 20% by 2010 and to 33% by 2020. Recent legislation revised the current RPS target for California to obtain 50% of total retail electricity sales from renewable sources by 2030, with interim targets of 40% by 2024, and 45% by 2027 (CPUC 2016).

Within San Bernardino County, annual non-residential electricity use is approximately 10 billion kWh per year, as reported by the state's Energy Consumption Data Management System for 2015 (ECDMS 2017).

Natural Gas

According to the U.S. Energy Information Administration, California used approximately 2,417.5 trillion Btu of natural gas in 2014 (EIA 2017a). By sector, industrial uses utilize 35.9% of the state's natural gas, followed by 35.5% for electric power, 16.9% for residential uses, 10.1% for commercial uses, and 1.6% for transportation uses (EIA 2017a). While the supply of natural gas in the United States and production in the lower 48 states has increased greatly since 2008, California produces little, and imports 90% of its supply of natural gas (CEC 2017c). Gas supplies are generally imported via pipelines from the Southwest, the Rocky Mountains, and Canada.

The Southern California Gas Company (SoCalGas) provides the City with natural gas service. SoCalGas' service territory encompasses approximately 20,000 square miles and more than 500 communities. A SoCalGas service yard is located in San Bernardino, at 155 G Street (City of SoCalGas 2017). In the California Energy Demand mid-energy demand scenario, natural gas demand is projected to have an annual growth rate of 0.03% in SoCalGas' service territory. As of 2012, approximately 7,357 million therms[1] were used in SoCalGas' service area per year. Around the time of development allowed under the Proposed Amendment in 2020, natural gas demand is anticipated to be approximately 7,388 million therms per year in SoCalGas' service area (CEC 2017). In 2020, the total capacity of natural gas available to SoCalGas is estimated to be 3.9 billion cubic feet per day[2] (California Gas and Electric Utilities 2017). This amount is approximately equivalent to 3.98 billion thousand British thermal units kBTU per day or 39.8 million therms per day. Over the course of a year, the available capacity would therefore be 14.5 billion therms per year, which is well above the existing and future anticipated natural gas demand in SoCalGas' service area. Within the City of Montclair, an estimated 10,969,597 residential consumers' annual natural gas consumption is approximately 2,653,224 therms (Natural Gas Local, 2017).

Petroleum

Transportation accounts for nearly 40 percent of California's energy consumption according to the California Energy Commission (CEC 2017). In California, petroleum fuels refined from crude oil are the dominant source of energy for transportation sources. According to the U.S. Energy Information Administration, California used approximately 629 million barrels of petroleum in 2014 (EIA 2017b). This equates to a daily use of approximately 1.7 million barrels of petroleum. There are 42

[1] One Therm is equal to 100,000 Btu or 100 kBtu.

[2] One cubic foot of natural gas has approximately 1,020 BTUs of natural gas or 1.02 kBTUs of natural gas.

U.S. gallons in a barrel, so California consumes approximately 72 million gallons of petroleum per day, adding up to an annual consumption of 26 billion gallons of petroleum.

By sector, transportation accounts for 86.7% of California's petroleum consumption, followed by 11.6% for industrial uses, 1.0% for commercial, 0.8% for residential, and 0.02% for electric power uses (EIA 2017b). Petroleum usage in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. Production of petroleum in the United States was 15 million barrels per day in 2015, which equates to 630 million gallons per day (EIA 2017a). California has implemented policies to improve vehicle efficiency and to support use of alternative transportation, which are described in Section 3.13.2, below. As such, the California Energy Commission anticipates an overall decrease of gasoline demand in the state over the next decade.

3.13.2 Regulatory Setting

3.13.2.1 Federal

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2010, fuel economy standards were set at 27.5 miles per gallon for new passenger cars and 23.5 miles per gallon for new light trucks. Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 was signed into law. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the act includes other provisions related to energy efficiency:

- Renewable fuel standard (RFS) (Section 202)
- Appliance and lighting efficiency standards (Sections 301–325)
- Building energy efficiency (Sections 411–441)

This federal legislation requires ever-increasing levels of renewable fuels to replace petroleum (Section 202, RFS). The U.S. Environmental Protection Agency (EPA) is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United

States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the Energy Independence and Security Act of 2007 (EISA), the RFS program was expanded in several key ways that laid the foundation for achieving significant reductions of greenhouse gas (GHG) emissions through the use of renewable fuels, for reducing imported petroleum, and for encouraging the development and expansion of our nation's renewable fuels sector. The updated program is referred to as RFS2 and includes the following:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required the EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces (EPA 2017).

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish carbon dioxide (CO_2) emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units and (2) stationary combustion turbines. The rule includes state-specific CO_2 goals reflecting the CO_2 emission performance rates and guidelines for the development, submittal, and implementation of state plans that establish emission standards or other measures to implement the CO_2 emission performance rates. Initial plan compliance with state emission goals begins in 2022 with full compliance with final goals required in 2030. The goals are established by state in units of

pounds of CO_2 per net megawatt-hour (MWh) or total short tons of CO_2. For California, the goals for 2030 are 828 pounds of CO_2 per net megawatt-hour or 96.8 million short tons of CO_2. California Air Resources Board (CARB) anticipates that the state's plan will rely heavily on existing programs such as the cap-and-trade program, Renewable Portfolio Standard, energy efficiency standards, and Mandatory GHG Reporting Regulation (for compliance determinations) (CARB 2015).

Concurrently, EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil fuel-fired electric utility generating units. Separate standards of performance were set for fossil fuel-fired electric utility steam-generating units and fossil fuel-fired stationary combustion turbines. The standards apply to new units commencing construction after January 8, 2014, or existing units commencing modification or reconstruction after June 18, 2014. The rule applies only to units with a base load rating greater than 250 million Btu of fossil fuel per hour and serving a generator or generators capable of selling greater than 25 MW of electricity to a utility power distribution system. Implementation of the Clean Power Plan has been stayed by the US Supreme Court pending resolution of several lawsuits.

EPA and NHTSA Joint Rule for Vehicle Standards

On April 1, 2010, the EPA and the National Highway Traffic Safety Administration (NHTSA) announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles model years 2012 through 2016. The joint rule is intended to reduce GHG emissions and improve fuel economy. The EPA promulgated the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA promulgated Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. This final rule follows the EPA and Department of Transportation's joint proposal on September 15, 2009, and is the result of the President Obama's May 2009 announcement of a national program to reduce GHGs and improve fuel economy. The final rule became effective on July 6, 2010 (EPA and NHTSA 2010).

The EPA GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO_2) per mile in model year 2016, equivalent to 35.5 mpg if the automotive industry were to meet this CO_2 level through fuel economy improvements alone. The CAFE standards for passenger cars and light trucks will be phased in between 2012 and 2016, with the final standards equivalent to 37.8 mpg for passenger cars and 28.8 mpg for light trucks, resulting in an estimated combined average of 34.1 mpg. Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime

of the vehicles sold under the program. The rules will simultaneously reduce GHG emissions, improve energy security, increase fuel savings, and provide clarity and predictability for manufacturers (EPA and NHTSA 2010).

In August 2012, the EPA and NHTSA approved a second round of GHG and CAFE standards for model years 2017 and beyond (EPA and NHTSA 2012). These standards will reduce motor vehicle GHG emissions to 163 grams of CO_2 per mile, which is equivalent to 54.5 mpg if this level were achieved solely through improvements in fuel efficiency, for cars and light-duty trucks by model year 2025. A portion of these improvements, however, will likely be made through improvements in air-conditioning leakage and through use of alternative refrigerants, which would not contribute to fuel economy. The first phase of the CAFE standards (for model years 2017 to 2021) are projected to require, on an average industry fleet-wide basis, a range from 40.3 to 41.0 mpg in model year 2021. The second phase of the CAFE program (for model years 2022 to 2025) is projected to require, on an average industry fleet-wide basis, a range from 48.7 to 49.7 mpg in model year 2025. The second phase of standards has not been finalized due to the statutory requirement that NHTSA set average fuel economy standards not more than five model years at a time. The regulations also include targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including the following:

- Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles
- Incentives for hybrid technologies for large pickups and for other technologies that achieve high fuel economy levels on large pickups
- Incentives for natural gas vehicles
- Credits for technologies with potential to achieve real-world GHG reductions and fuel economy improvements that are not captured by the standards' test procedures

3.13.2.2 State

Title 24 of the California Code of Regulations

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Energy consumption by new buildings in California is regulated by the State Building Energy Efficiency Standards, included in Title 24. The efficiency standards apply to new construction of both residential and non-residential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit process. Local government agencies may adopt and enforce energy standards for new buildings, provided these standards meet or exceed those provided in Title 24 guidelines. The standards are updated periodically to allow consideration and possible incorporation of new energy-efficiency technologies and methods. The

premise for the standards is that energy-efficient buildings require less electricity, natural gas, and other fuels. The Title 24, Part 6, standards are updated every three years. The most recent amendments to Title 24, Part 6, referred to as the 2016 standards, will become effective on January 1, 2017. The previous amendments were referred to as the 2013 standards and are currently effective. The 2013 standards are 21.8% and 16.8% more efficient for electricity and natural gas in non-residential construction as compared to the 2008 standards. The project will comply with Title 24 Part 6 per state requirements.

Title 24 also includes Part 11, known as California's Green Building Standards (CALGreen). The CALGreen standards took effect in January 2011, and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, as well as schools and hospitals. The mandatory standards require:

- 20% mandatory reduction in indoor water use
- 50% of construction and demolition waste must be diverted from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards

Future projects allowed under the Proposed Amendment would be subject to compliance with the more stringent 2016 Title 24 standards. The 2016 Title 24 standards, which became effective in January 2017, are expected to result in a 5% decrease in energy usage relative to the 2013 standards. Future projects allowed under the Proposed Amendment would be constructed after January 1, 2016 and would therefore be subject to these more stringent requirements.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented per the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements through more strict water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements through even more strict water conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 30% cement reduction, and cool/solar reflective roofs.

Senate Bill 1368

On September 29, 2006, Governor Arnold Schwarzenegger signed into law Senate Bill 1368 (Perata, Chapter 598, Statutes of 2006). The law limits long-term investments in baseload generation by the state's utilities to those power plants that meet an emissions performance standard jointly established by the CEC and the CPUC.

The CEC has designed regulations that:

- Establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 pounds CO_2 per megawatt-hour. This would encourage the development of power plants that meet California's growing energy needs while minimizing their emissions of GHGs;
- Require posting of notices of public deliberations by publicly owned utilities on long-term investments on the CEC website. This would facilitate public awareness of utility efforts to meet customer needs for energy over the long-term while meeting the state's standards for environmental impact; and
- Establish a public process for determining the compliance of proposed investments with the emissions performance standard (EPS) (Perata, Chapter 598, Statutes of 2006).

Assembly Bill 1493

Adopted in 2002 by the state legislature, Assembly Bill (AB) 1493 ("Pavley" regulations) required that the California Air Resources Board (CARB) develop and adopt, no later than January 1, 2005, regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles.

The first California request to implement GHG standards for passenger vehicles, known as a waiver request, was made in December 2005 and was denied by the EPA in March 2008. That decision was based on a finding that California's request to reduce GHG emissions from passenger vehicles did not meet the Clean Air Act requirement of showing that the waiver was needed to meet "compelling and extraordinary conditions."

The EPA granted California the authority to implement GHG emission reduction standards for new passenger cars, pickup trucks, and sport utility vehicles on June 30, 2009. On September 24, 2009, CARB adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. These amendments are part of California's commitment to a nationwide program to reduce new passenger vehicle GHGs from 2012 through 2016. CARB's September 2009 amendments will allow for California's enforcement of the Pavley rule while providing vehicle manufacturers with new compliance

flexibility. The amendments also prepare California to harmonize its rules with the federal rules for passenger vehicles.

It is expected that the Pavley regulations will reduce GHG emissions from California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel efficiency and reducing motorists' costs.

Executive Order S-1-07

Issued on January 18, 2007, Executive Order S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2-equivalent (CO_2E) grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The Low Carbon Fuel Standard is anticipated to lead to the replacement of 20% of the fuel used in motor vehicles with alternative fuels by 2020.

Senate Bill 375

In August 2008, the legislature passed, and on September 30, 2008, Governor Schwarzenegger signed, SB 375 (Steinberg), which addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. Regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, as determined by CARB, are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see Executive Order S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations will be responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on

global warming and the growth-inducing impacts of those projects when the projects are consistent with the SCS or alternative planning strategy.

In September 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for the Southern California Association of Governments (SCAG) are an 8% reduction in emissions per capita by 2020 and a 13% reduction by 2035. Achieving these goals through adoption of a SCS is the responsibility of the metropolitan planning organizations. SCAG prepared its RTP/SCS, which was adopted by the SCAG Regional Council on April 4, 2012. The plan quantified a 9% reduction by 2020 and a 16% reduction by 2035. On June 4, 2012, the CARB executive officer issued an executive order accepting SCAG's quantification of GHG reductions and the determination that the SCS would achieve the GHG emission reduction targets established by CARB. On April 7, 2016, SCAG adopted the 2016–2040 RTP/SCS which looks to build on the success of the 2012–20135 RTP/SCS. Targets for SCAG region in the updated plan includes an 8% per capita reduction in GHG emissions from automobiles and light trucks by 2020, an 18% reduction by 2035, and a 21% reduction by 2040 compared with 2005 levels (SCAG 2017).

Truck and Bus Regulation, On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation

On December 12, 2008, CARB approved the Truck and Bus Regulation to significantly reduce particulate matter (PM), and oxides of nitrogen (NO_x) emissions from existing diesel vehicles operating in California. Amendments to this regulation were approved by CARB on April 25, 2014.

The regulation applies to nearly all diesel fueled, dual-fueled, or alternative diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds that are privately or federally owned and for privately and publicly owned school buses. The purpose of this regulation is to reduce emissions of diesel PM, NO_x, and other criteria pollutants from in-use diesel-fueled vehicles.

Heavier trucks and buses with a GVWR greater than 26,000 pounds must comply with a schedule by engine model year or owners can report to show compliance with more flexible options. Starting January 1, 2012, heavier trucks were required to meet the engine model year schedule shown in Table 4.14-1. Fleets that comply with the schedule must install the best available PM filter on 1996 model year and newer engines and replace the vehicle 8 years later. Trucks with 1995 model year and older engines must be replaced starting in 2015. Replacements with a 2010 model year or newer engines meet the final requirements, but owners can also replace with used trucks that have a future compliance date on the schedule. For example, a replacement with a 2007 model year engine complies until 2023. By 2023, all trucks and buses must have 2010 model year engines with few exceptions. No reporting is required if complying with this schedule (CARB 2014).

Table 3.13-1
Compliance Schedule by Engine Model Year for Vehicles with a GVWR 26,000 Pounds or Less

Engine Model Year	Requirements for Heavier Trucks from January 1
Pre-1994	No requirements until 2015, then 2010 engine or better
1994–1995	No requirements until 2016, then 2010 engine or better
1996–1999	PM filter from 2012 to 2020, then 2010 engine or better
2000–2004	PM filter from 2013 to 2021, then 2010 engine or better
2005–2006	PM filter from 2014 to 2022, then 2010 engine or better
2007–2009*	No requirements until 2023, then 2010 engine or better
2010*	Meets final requirement

Source: CARB 2014
* Must have had a PM filter by January 1, 2014, if not originally equipped.

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2011). To improve air quality, CARB will propose new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The zero-emissions vehicles (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years. The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

Executive Order B-16-12

Governor Brown issued Executive Order S-16-12 on March 23, 2012. The Executive Order requires that state entities under the governor's direction and control support and facilitate the rapid commercialization of ZEVs. It orders CARB, the CEC, the CPUC, and other relevant agencies work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve the following by 2015:

- The state's major metropolitan areas will be able to accommodate ZEVs, each with infrastructure plans and streamlined permitting

- The state's manufacturing sector will be expanding ZEV and component manufacturing
- The private sector's investment in ZEV infrastructure will be growing
- The state's academic and research institutions will be contributing to ZEV research, innovation and education.

CARB, the CEC, and CPUC, are also directed to establish benchmarks to help achieve the following goals by 2020:

- The state's ZEV infrastructure will be able to support up to one million vehicles
- The costs of ZEV will be competitive with conventional combustion vehicles
- ZEVs will be accessible to mainstream consumers
- There will be widespread use of ZEVs for public transportation and freight transport
- Transportation sector GHG emissions will be falling as a result of the switch to ZEVs
- Electric vehicle charging will be integrated into the electricity grid
- The private sector's role in the supply chain for ZEV component development and manufacturing will be expanding.

Benchmarks are also to be established to help achieve the following goals by 2025:

- Over 1.5 million ZEVs will be on California roads and their market share will be expanding
- Californians will have easy access to ZEV infrastructure
- The ZEV industry will be a strong and sustainable part of California's economy
- California's clean, efficient vehicles will annually displace at least 1.5 billion gallons of petroleum fuels.

On a statewide basis, the Executive Order establishes a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050.

Cap-and-Trade Program

To achieve the goals of AB 32, the *Climate Change Scoping Plan: A Framework for Change* included an early action to develop a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system. The cap-and-trade regulation, which is a key element of California's climate plan, took effect in January 2012 and compliance obligation began in January 2013. The cap-and-trade program sets a statewide limit on sources responsible for 85% of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy.

The program is designed to provide covered entities the flexibility to seek out and implement the lowest-cost options to reduce emissions. The first phase of the cap-and-trade regulation included electricity generated in and imported into California, large combustion sources (i.e., generally those emitting more than 25,000 MT CO_2E per year), and certain industrial sectors. The second phase added providers of transportation fuels and other combustion fuels (e.g., natural gas, propane) to the cap-and-trade program. The regulation requires that emissions generated by these facilities and combustion of fuels be reduced over time under a declining "cap."

Renewable Energy Sources

Established in 2002 under Senate Bill (SB) 1078, and accelerated by SB 107 (2006) and SB 2 (2011), California's Renewables Portfolio Standard obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33% of their electricity from renewable energy sources by 2020. Eligible renewable resources are defined in the 2013 Renewables Portfolio Standard (RPS) to include biodiesel; biomass; hydroelectric and small hydro (30 megawatts or less); Los Angeles Aqueduct hydro power plants; digester gas; fuel cells; geothermal, landfill gas; municipal solid waste; ocean thermal, ocean wave, and tidal current technologies; renewable derived biogas; multi-fuel facilities using renewable fuels; solar photovoltaic; solar thermal electric; wind; and other renewables that may be defined later. Governor Jerry Brown signed SB 350 on October 7, 2015, which expands the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the California Independent System Operator into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the California Independent System Operator to those markets, pursuant to a specified process.

According to CPUC's 2016 Biennial RPS Program Update, 23.2% of SCE's power came from eligible renewables during the 2014–2016 compliance period. As noted in Section 3.13.1, SCE's percent use of renewables is lower than the overall statewide percentage, and is also lower than the percent of renewables procured by Pacific Gas and Electric Company and San Diego Gas and Electric Company in the 2014–2016 compliance period (CEC 2016b; CPUC 2016). By 2020, SCE is required to produce 33% of its electricity from renewable sources. This represents the off-site renewable sources available to the project through electricity provided by SCE.

3.13.2.3 Local

City of Montclair General Plan

The City of Montclair General Plan (City of Montclair 1999) includes various policies related to reducing energy and energy conservation. Applicable policies include the following:

Circulation Element

Policy CE-1.1.10 Promote the provision of public modes of transportation between strategic locations such as the Montclair Plaza Shopping Center, and other traffic generators such as the Montclair Transcenter and potential Metrolink station on the Riverside Line.

Policy CE-1.1.14 Develop a more detailed bicycle route plan. Develop a zoning standard to require bicycle racks at public facilities as well as at commercial centers. Where a bicycle route is proposed along a roadway, consider striping for safety purposes, where possible.

Air Quality Element

Policy AQ-2.1.1 Encourage and facilitate mixed use and self-sufficient development which are pedestrian and transit-oriented. The areas north of the Montclair Plaza and within the Montclair Transcenter have been identified by the "North Montclair Specific Plan" as viable sites for such developments.

Policy AQ-2.1.2 Encourage trip reduction through programs such as compressed work weeks, flex schedules, carpooling, and telecommunication.

Policy AQ-2.4.2 Develop a City shuttle between regional land uses, park-n-ride facilities, and neighborhoods, in conjunction with Omnitrans existing service.

Policy AQ-2.4.3 Provide bicycle and pedestrian pathways and facilities to encourage non-motorized trips.

Policy AQ-2.5.1 Provide incentives for ridesharing and non-single occupancy vehicles for those vehicles who use public parking lots.

Policy AQ-2.6.1 Purchase vehicles which use clean fuels for use as part of the City fleet.

Conservation Element

Policy CO-1.1.9 Maintain and expand recycling programs to result in continued diversion of materials to landfill, reuse of materials and conservation of natural resources.

The City of Montclair's General Plan identifies opportunities for energy conservation (City of Montclair 1999). Energy conservation is considered a very important method whereby housing can continue to be affordable in the coming years. This Energy Conservation section within the General Plan states that homes which are designed to conserve energy will require less fossil fuel (electricity, gas and oil) to heat or cool and with the rapidly rising costs of these fuels, conservation efforts are expected to become more and more important. The section lists some basic residential energy conservation strategies, which should be encouraged and/or required in housing construction:

- Locate housing in reasonable close to proximity to employment centers, services, schools, parks and other facilities in order to reduce unnecessary automobile usage.
- Locate housing in areas served by public transportation and provide facilities which may better facilitate the use of that transportation.
- Construct homes utilizing full insulation and weatherization standards as required by State and federal regulations.
- Design subdivisions which will provide adequate solar access for planned and future use of solar energy. Subdivision designs which best provide for solar access include a predominant east/west street pattern, orientation of the major access of homes so as to align within 25 degrees of due south, and provide adequate open space to the south of each home so as to provide a "window" to the sun.
- Design homes which can easily accommodate passive and active solar principles and apparatus. Examples of such design include double thickness window glazing, natural flow-through ventilation, clerestory windows, and adequate, well-located southerly exposure roof area.
- Incorporate landscape around homes as a passive solar element in order to provide natural winter heating and summer cooling. The location of deciduous trees on the south side of a home is a particularly good tool for this purpose.
- Incorporate water conservation planning and design into the construction of homes. Low-flow water restrictors and the use of native, drought-resistant plant materials are ways of accomplishing this conservation.
- Make use of refuse separation techniques and collection points in order to recycle such items as aluminum, glass, and paper.

- Provide assistance to owners of existing housing in order to retrofit for energy conservation devices and technologies.

The General Plan states that any or all of the above strategies may be utilized in achieving energy conservation, in addition to any others which may accomplish conservation. Special care should be taken, however, to assure that energy conservation requirements do not significantly affect the affordability of housing. This affordability determination should analyze the initial cost of the measure, current and projected energy supplies, and cost effectiveness of the measure, and length of time before the measure's cost effectiveness will exceed the initial cost.

Housing Element 1999

Policy HE-1.1.27 Develop housing in a manner which will allow the maximum use of alternative energy sources (e.g. solar, wind, cogeneration).

This policy states that project approvals and construction plan review shall include energy conservation consideration and full implementation of state energy requirements (Title 24).

Housing Element 2014

The City's Housing Element was updated in February of 2014. The new Housing Element called for analysis of opportunities for energy conservation with respect to residential development. The new Housing Element included the following policy:

Policy Action 3.3 Energy Conservation – The City will encourage residents to participate in energy conservation incentive programs through local utility companies by providing information on available programs at City Hall and the City's website. To further promote efficient use of energy resources, the City shall investigate the feasibility and effectiveness of offering additional incentives or developing other conservation strategies.

The City of Montclair continues to promote energy conservation efforts in construction of new housing and the rehabilitation of older units. Energy conservation serves to reduce energy costs, and therefore overall housing costs. The City's Building Division reviews construction drawings for compliance with Title24. Compliance with Title 24 of the California Code of Regulations on the use of energy efficient appliances and insulation has reduced energy demand stemming from new residential development. Included in Title 24 is the California Green Building Standards Code (CalGreen).

SCE, which provides electricity in the City of Montclair, offers public information and technical assistance to developers and homeowners regarding energy conservation. SCE also provides

incentives for energy efficient new construction and home improvements. Through the Residential Multifamily Energy Efficiency Rebate Program, property owners and managers receive incentives on a broad list of energy efficiency improvements in lighting, HVAC, insulation and window categories. Owners of existing homes can receive monetary incentives for purchasing Energy Star® qualified appliances or making other energy saving improvements such as installing a whole-house fan. The City of Montclair supports SCE in its efforts to provide public information and technical assistance to developers and homeowners regarding energy conservation measures and programs.

SoCalGas, which also provides service to Montclair, offers various rebates and savings programs that promote reduced energy consumption and sustainable design. Rebates include energy efficient appliances upgrade for both single-family and multi-family residential units.

One of the more recent strategies in building energy-efficient homes is the use and adoption of green building guidelines and programs by cities and developers. Some of the more popular programs within the housing industry include:

- U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) green building programs;
- Build It Green's Green Point Rated program;
- National Association of Home Builders Model Green Home Building program;
- U.S. Environmental Protection Agency's Energy Star® for Homes program; and
- Building Industry Institute's California Green Builder program.

Many of these programs have been designed to reduce the impacts associated with the construction and operation of residential buildings through reduction in energy and water use, use of innovative technologies, reduced maintenance costs, and improved occupant satisfaction. The LEED for Homes program includes standards for new single-family and multi-family home construction. This program and other similar programs have been applied to numerous single-family and multi-family residential projects throughout California and nationwide.

The following items present a variety of ways in which Montclair can further promote energy conservation:

- Provide information regarding rebate programs and energy audits available through the utility companies;
- Refer residents and businesses to green building certification programs such as LEED for Homes;

- Develop incentives, such as expedited plan check, for developments that are utilizing green building;
- Promote funding opportunities for green buildings, including available rebates and funding through the California Energy Commission; and
- Provide resource materials regarding green building and energy conservation.

The General Plan's Conservation Element states that reduction, reuse and recycling of materials such as green waste, paper, glass, aluminum, and plastic helps in the conservation of natural resources and energy.

The General Plan's Implementation Plan identifies a list of issues to be considered and further clarified. One of the issues listed was to identify local opportunities to accommodate alternative fuels (e.g. compressed natural gas, electric), local shuttles and other transit and alternative/mixed land use planning.

City of Montclair's Green Building Standards Code

The City adopted the California Green Building Standards Code, as published by the California Building Standards Commission, as the Green Building Standards Code of the City of Montclair in 2013. This code regulates and controls the planning, design, operation, use and occupancy of every newly constructed building or structure in the City. Future projects that would be allowed under the Proposed Amendment would be required to comply with the City's Green Building Standards Code.

3.13.3 Thresholds of Significance

The CEQA Guidelines provide no specific thresholds for impacts associated with energy consumption. However, Appendix F of the State CEQA Guidelines provides guidance for evaluating whether a development project may result in significant impacts with regard to energy. Based on Appendix F of the State CEQA Guidelines, a project could have a significant impact on energy consumption if the project would:

A. Result in wasteful, inefficient, or unnecessary consumption of energy.

B. Conflict with existing energy standards and regulations.

C. Place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity.

3.13.4 Impacts Analysis

A. Would the project result in wasteful, inefficient, or unnecessary consumption of energy?

Implementation of the Proposed Amendment would increase the demand for electricity and natural gas in the Proposed Amendment area, as well as gasoline consumption during construction and operation of future development relative to existing uses.

Electricity

Less Than Significant Impact.

Construction Use

The construction phase of future projects allowed under the Proposed Amendment would need temporary electric power for as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers. This electric power would be provided by SCE. The electricity used for such activities would be temporary and would be substantially less than that required for project operations and would have a negligible contribution to the projects' overall energy consumption.

Operations Use

The operational phase of future projects allowed under the Proposed Amendment could require electricity for multiple purposes including, but not limited to, building heating and cooling, lighting, appliances, and electronics. Additionally, the supply, conveyance, treatment, and distribution of water would indirectly result in electricity usage.

Future development projects that would be allowed under the Proposed Amendment would be subject to project approvals and construction plan review by the City that shall include energy conservation considerations and the full implementation of the state energy requirements required under Title 24. Compliance with Title 24 of the California Code of Regulations on the use of energy efficient appliances and insulation has reduced energy demand stemming from new development. Future projects would be subject to compliance with the more stringent 2016 Title 24 standards and many will exceed energy efficiency code requirements through project design. The 2016 Title 24 standards, which became effective in January 2017, are expected to result in a 5% decrease in energy usage relative to the 2013 standards. Future projects allowed under the Proposed Amendment would be constructed after January 1, 2016 and would be subject to these more stringent requirements.

Included in Title 24 is the California Green Building Standards Code (CalGreen). One of the more recent strategies adopted by the City in building energy-efficient homes is referring residents and businesses to green building guidelines and programs by developers, such as the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) green building programs. Many of these programs have been designed to reduce the impacts associated with the construction and operation of buildings through reduction in energy and water use, use of innovative technologies, reduced maintenance costs, and improved occupant satisfaction. The LEED for Homes Program includes standards for new multi-family home construction like that allowed under the Proposed Amendment. This program and other similar programs have been applied to numerous multi-family residential projects throughout the City.

In addition, SCE, which provides electricity in the City of Montclair, offers public information and technical assistance to developers and homeowners regarding energy conservation and provides incentives for energy efficient new construction and home improvements. The Residential Multifamily Energy Efficiency Rebate Programs is available to property owners where they receive incentives on a broad list of energy efficiency improvements in lighting, HVAC, insulation and window categories. The City supports SCE in its efforts to provide public information and technical assistance to developers and homeowners regarding energy conservation measures and programs.

The City also actively promotes energy conservation through developing incentives, such as expedited plan check, for developments that are utilizing green building; promoting funding opportunities for green buildings, including available rebates and funding through the California Energy Commission; and providing resource materials regarding green building and energy conservation. With these promotional methods it is not expected that the development projects allowed under the Proposed Amendment would result in the wasteful, inefficient, or unnecessary consumption of energy.

In addition, prior to the approval of future projects allowed under the Proposed Amendment, individual projects may undergo environmental review as required by CEQA. Part of the environmental review process will be to assess the energy needs of the proposed project. Most projects will be required to provide a detailed site-specific energy needs assessment using a model such as the California Emissions Estimator Model (CalEEMod). The energy needs assessment will evaluate the typical electricity use for the proposed land use(s) and estimate the energy consumption associated with the existing uses on the proposed project site. The energy use estimates for the proposed project will then be compared to those of the existing conditions and to regional and local supply and demand that has been forecasted in the future. The energy needs assessment will calculate the estimated energy consumption and the percentage change of annual energy demand

and include recommendations related to any needed energy infrastructure, measures that should be taken to increase the energy efficiency for the construction and operation of the proposed project, and other recommendations to ensure that construction and operation of the proposed project does not result in the inefficient use of energy resources. As such, impacts from the wasteful, inefficient or unnecessary consumption of electricity are considered **less than significant**. No mitigation is required.

Natural Gas

Less Than Significant Impact.

Construction Use

Fuels used for the construction of future projects allowed under the Proposed Amendment would primarily consist of diesel and gasoline, which are discussed below under the "petroleum" subsection. Minor amounts of natural gas may be consumed as a result of a project's construction, but this amount would be substantially less than that required for a proposed project's operation and would have a negligible contribution to the project's overall energy consumption.

Operation Use

The operation of future projects allowed under the Proposed Amendment may require natural gas for various purposes, including building heating and cooling, service water heating, kitchen appliances, and laundry equipment. The amount of natural gas used for a project's operations is anticipated to decrease over time due to the newer, energy-efficient building design and increasing stringency of modern energy standards. Like electricity, future projects would be subject to project approvals and construction plan review by the City that shall include energy conservation considerations and the full implementation of the state energy requirements required under Title 24. Future development projects would be constructed after January 1, 2017 and would be subject to the more stringent requirements of the 2016 Title 24 standards that are expected to result in a 5% decrease in energy usage relative to the 2013 standards. In addition, many projects would incorporate a project design or project specific sustainable design features to minimize natural gas usage.

Prior to the approval of future projects allowed under the Proposed Amendment, individual projects may undergo environmental review as required by CEQA. Part of the environmental review process will be to assess the energy needs of the proposed project. Most projects will be required to provide a detailed site-specific energy needs assessment using a model such as the CalEEMod. The energy needs assessment will evaluate the

existing natural gas used on the proposed project site and will compare it to the natural gas required for the proposed land use(s). The needs assessment will then calculate the percentage change caused by the proposed project and assess whether the regional and local natural gas supply and demand that has been forecasted for the area can accommodate the proposed project. The energy needs assessment will include recommendations related to any needed energy infrastructure, measures that should be taken to increase the energy efficiency for the construction and operation of the proposed project, and other recommendations to ensure that construction and operation of the proposed project does not result in the inefficient use of natural gas. As such, impacts from the wasteful, inefficient or unnecessary consumption of natural gas is considered **less than significant**. No mitigation is required.

Petroleum

Less Than Significant Impact.

Construction Use

Many of the future projects allowed under the Proposed Amendment would utilize heavy-duty construction equipment for demolition and construction activities. This equipment relies on diesel fuel, as would haul trucks involved in removing the materials from demolition and excavation. Construction workers would also travel to and from the project site throughout the duration of construction in gasoline-powered passenger vehicles. Fuel would also be consumed by construction vendors traveling to and from the project site throughout the construction period. The number of construction workers required would vary based on the project's construction phases and activity. Therefore, future projects allowed under the Proposed Amendment would consume more gallons of petroleum during their construction phases than under existing conditions. While construction activities would consume petroleum-based fuels, consumption of such resources would be temporary and would cease upon the completion of construction. Further, the petroleum consumption related to project construction would be typical of construction projects and is not anticipated to necessitate new petroleum resources beyond what are typically consumed in California.

Further, due to the fact that future projects allowed under the Proposed Amendment would be built on an urban infill site, construction worker trip and haul truck trip distances are anticipated to be reduced as compared to sites that are not located in urban centers. The Proposed Amendment area is well served by public transportation services and more construction workers would be anticipated to use public transportation to access the future project sites during construction as compared to other sites that have fewer

public transportation opportunities. Therefore, construction worker trips and associated petroleum consumption would be expected to be reduced compared to similar construction projects in suburban locations.

Operation Use

During operations, the majority of fuel consumption resulting from future projects allowed under the Proposed Amendment would involve the use of motor vehicles traveling to and from the project sites, as well as fuels used for alternative modes of transportation that may be used by employees, visitors, and guests of the proposed projects. It should be noted that over the lifetime of future projects allowed under the Proposed Amendment, the fuel efficiency of the vehicles being used by the visitors, employees, and guests is expected to increase. As such, the amount of gasoline consumed as a result of vehicular trips to and from the project sites during operation would decrease over time. There are numerous regulations in place that require and encourage increased fuel efficiency. For example, CARB has adopted a new approach to passenger vehicles by combining the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. The new approach also includes efforts to support and accelerate the numbers of plug-in hybrids and ZEVs in California (CARB 2013). As such, operation of future projects allowed under the Proposed Amendment is expected to use decreasing amounts of petroleum over time, due to advances in fuel economy.

Additionally, due to the urban setting of the Proposed Amendment area, it is expected that visitors, guests, and employees may use transit or non-vehicular modes of transportation to travel to and from the Proposed Amendment area. The area is already served by a variety of bus transit lines extending along the major roadways in the area. Also, use of transit and non-vehicular modes of transportation (such as the Foothill Gold Line Light Rail Line) is anticipated to increase over time, as local and regional plans and policies facilitating increased use and development of transit and non-vehicular transportation modes are implemented.

Although the proposed projects allowed under the Proposed Amendment would increase the use of petroleum during construction and operation, vehicles would use less petroleum due to advances in fuel economy over time. The projects would be accessible via a variety of major bus lines, transit lines, and would enhance the pedestrian-friendliness of the project area. As such, while the Proposed Amendment would generate more vehicle trips when compared to existing conditions, it would add non-vehicular transportation amenities to the Proposed Amendment area that are not currently present, such as a new transit and pedestrian connections, enhanced streetscape, and pedestrian-friendly frontage design. They would also provide more housing opportunities close to

transit centers, which would decrease residents' reliance on and use of vehicles. Furthermore, when viewed on a regional scale, future projects allowed under the Proposed Amendment would be urban infill projects that are located within a major population center. When compared with new development projects sited on previously undeveloped land and away from population centers, infill projects are generally expected to involve fewer vehicles miles traveled during operation. Given these considerations, the petroleum consumption associated with future projects allowed under the Proposed Amendment would not be considered inefficient or wasteful.

In addition, prior to the approval of future projects allowed under the Proposed Amendment, individual projects may undergo environmental review as required by CEQA. Part of the environmental review process will be to assess the energy needs of the proposed project. Most projects will be required to provide a detailed site-specific energy needs assessment using a model such as the CalEEMod. For construction, the energy needs assessment will estimate the assumed heavy-duty construction equipment usage during each phase of a project's construction, the total consumption of diesel fuel utilized by the construction equipment during the project's construction period, the number of vehicle haul trips required over the course of the construction period, the vehicle miles traveled per trip, and the amount of fuel that will be consumed during construction by vendors and workers. For operation, the energy needs assessment will also estimate the vehicle miles traveled associated with the operation of a future project. The petroleum use estimates for the proposed project will then be compared to those of the existing conditions and to regional and local petroleum supply and demand that has been forecasted in the future. Additionally, the needs assessment will provide recommendations related to any efficient use of petroleum during the construction and operation of the proposed project and other recommendations to ensure that construction and operation of the proposed project does not result in the inefficient use of petroleum. As such, impacts from the wasteful, inefficient or unnecessary consumption of natural gas is considered **less than significant**. No mitigation is required.

B. Would the project conflict with existing energy standards and regulations?

Less Than Significant Impact. Future projects allowed under the Proposed Amendment would be subject to, and would comply with, at a minimum, the California Building Energy Efficiency Standards (24 CCR, Part 6). Part 6 of Title 24 establishes energy efficiency standards for residential and non-residential buildings constructed in California in order to reduce energy demand and consumption. Part 11 of Title 24 sets forth voluntary and mandatory energy measures that are applicable to proposed projects under the California Green Building Standards Code. As discussed under the previous threshold, future projects allowed under the Proposed Amendment would result in an

increased demand for electricity, natural gas, and petroleum. In accordance with Title 24 Part 11 mandatory compliance, future projects allowed under the Proposed Amendment would have (a) at least 50% of its construction and demolition waste diverted from landfills;[3] (b) mandatory inspections of energy systems to ensure optimal working efficiency; (c) low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring and particle boards; and, (d) a 20% reduction in indoor water use. Because future projects would comply with the existing energy standards and regulations, impacts due to conflicts with energy standards and regulations would be **less than significant**. No mitigation is required.

C. Would the project place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity?

Electricity

Less Than Significant Impact. As described in Section 3.13.1, electricity is supplied to the Proposed Amendment area by SCE. As of 2014, approximately 76 billion kWh of electricity were used in SCE's service area. Annual retail sales of electricity in SCE's service area are forecasted to be approximately 75 billion kWh in 2020 (CPUC 2016). Upon implementation of the Proposed Amendment, the amount of electricity used in the Proposed Amendment area will increase causing an increase in SCE's existing demand total that is forecasted for electricity sales from 2017 to 2035 (near the time of Proposed Amendment buildout).

Prior to the approval of future projects allowed under the Proposed Amendment, individual projects may undergo environmental review as required by CEQA. Part of the environmental review process will be to assess the energy needs of the proposed project. Most projects will be required to provide a detailed site-specific energy needs assessment using a model such as the CalEEMod. The energy needs assessment will evaluate the typical electricity use for the proposed land use(s) and estimate the energy consumption associated with the existing uses on the proposed project site. The energy use estimates for the proposed project will then be compared to those of the existing conditions and to regional and local supply and demand that has been forecasted in the future. The energy needs assessment will calculate the estimated energy consumption and the percentage change of annual energy demand. As part of the needs assessment and construction review process, construction plans for future projects allowed under the Proposed Amendment would be reviewed by the Energy Planning Department at SCE. Facility sizing and service extension recommendations through the Proposed Amendment area will be finalized by

[3] City of Montclair standards for construction waste diversion are more stringent. In accordance with these local standards, the proposed project would be required to divert 65% of construction and demolition waste.

SCE and included as recommendations in the energy needs assessment. Therefore, the electricity needs of future projects allowed under the Proposed Amendment will be thoroughly assessed during the project's environmental review process.

Although the Proposed Amendment would increase electricity usage in the area, construction is only proposed within urban areas that have existing electricity supply and transmission capability and SCE is anticipated to have adequate infrastructure and supply to service the Proposed Amendment area. In addition, the Proposed Amendment is consistent with the City's current energy security efforts. As such, impacts from additional electricity supply are considered **less than significant**. No mitigation is required.

Natural Gas

Less Than Significant Impact. As described in Section 3.13.1, natural gas is supplied to the project site by SoCalGas. As of 2016, approximately 7,357 million therms of natural gas were used in SoCalGas' service area per year. Upon implementation of future projects allowed under the Proposed Amendment, the amount of natural gas used in the area will increase. This increase will increase SoCalGas's existing demand total forecasted for natural gas sales in 2017 to 2035 (near the time of Proposed Amendment buildout).

Prior to the approval of future projects allowed under the Proposed Amendment, individual projects may undergo environmental review as required by CEQA. Part of the environmental review process will be to assess the energy needs of the proposed project. Most projects will be required to provide a detailed site-specific energy needs assessment using a model such as the CalEEMod. The energy needs assessment will evaluate the existing natural gas used on the proposed project site and will compare it to the natural gas required for the proposed land use(s). The needs assessment will then calculate the percentage change caused by the proposed project and assess whether the regional and local natural gas supply and demand that has been forecasted for the area can accommodate the proposed project. As part of the needs assessment and the construction review process, future construction plans for projects allowed under the Proposed Amendment would be reviewed by the Planning Department at SoCalGas. Facility sizing and service extension recommendations through the Proposed Amendment area as well as other recommendations to ensure that construction and operation of the proposed project does not result in the inefficient use of natural gas will be finalized by SoCalGas and included as recommendations in the energy needs assessment. Therefore, the natural gas needs of future projects allowed under the Proposed Amendment will be thoroughly assessed during the project's environmental review process.

Although the Proposed Amendment would increase natural gas usage in the area, construction is only proposed within urban areas that have existing natural gas supply and transmission capability and SoCalGas is anticipated to have adequate infrastructure and supply to service the Proposed Amendment area. In addition, the Proposed Amendment is consistent with the City's current energy security efforts. As such, impacts from additional natural gas supply are considered **less than significant**. No mitigation is required.

Petroleum

Less Than Significant Impact. As discussed under item 3.13.4(A) above, the construction and operation of future projects allowed under the Proposed Amendment would increase the use of petroleum relative to existing conditions in the Proposed Amendment area. The United States produces approximately 630 million gallons of petroleum per day, amounting to 230 billion gallons per year. The increase in petroleum attributable to future projects allowed under the Proposed Amendment would be negligible relative to petroleum production in the United States alone. Furthermore, the proposed project is located on an urban infill site that is served by transit. The operational petroleum consumption of future projects allowed under the Proposed Amendment would also be reduced by the alternative transportation options that would not be used by the project's visitors, staff, and guests. Due to the Proposed Amendment's location within an urban center, its proximity to alternative transportation facilities, and the plans and policies that are in place at the local, regional, and state level to support the use of alternative transportation, it is anticipated that the project's operational petroleum use may be negligible and may decrease over time. Additionally, policies are in place at the state and federal level to increase fuel efficiency over time. Increasing efficiency of vehicles over the lifetime of the Proposed Amendment is also anticipated to result in incremental reductions in project's operational fuel use.

In addition, prior to the approval of future projects allowed under the Proposed Amendment, individual projects may undergo environmental review as required by the CEQA. Part of the environmental review process will be to assess the energy needs of the proposed project. Most projects will be required to provide a detailed site-specific energy needs assessment using a model such as the CalEEMod. The energy needs assessment will evaluate the existing petroleum used on the project site and will compare it to the petroleum usage required for the proposed land use(s). The needs assessment will then calculate the percentage change caused by the proposed project and assess whether the regional and local petroleum supply and demand that has been forecasted for the area can accommodate the proposed project. Therefore, the petroleum needs of future projects

allowed under the Proposed Amendment will be thoroughly assessed during the project's environmental review process.

Although the Proposed Amendment would increase petroleum usage in the area, for the reasons described above, the energy use generated by future projects is anticipated to fall well within local and regional energy supplies of petroleum. Regarding petroleum, fuel economy and use of alternative modes of transportation are expected to increase over time, and even without such reductions in future petroleum use, the petroleum use associated with future projects would be negligible relative to current use and production. Therefore, the implementation of the Proposed Amendment would not create a significant demand on petroleum supplies or require substantial additional petroleum services capacity and impacts would be **less than significant**. No mitigation is required.

3.13.5 Cumulative Impacts

Cumulative impacts to energy resources consider whether impacts of the Proposed Amendment together with other related projects, when taken as a whole, substantially affect the supplies and service capacity of energy supplies beyond the Proposed Amendment area limits and on a regional scale. As discussed above, impacts to energy resources caused by the Proposed Amendment are less than significant because future projects allowed under the Proposed Amendment would be subject to individual environmental review, project approvals, and construction plan reviews by the City that shall include energy conservation considerations and the full implementation of the state energy requirements required under Title 24 and CalGreen. In addition, the projects will also be offered a number of programs and promotional methods by the City and utility companies to encourage energy efficiency and discourage the wasteful, inefficient, or unnecessary consumption of energy. It is anticipated that energy resources that are potentially affected by related projects would also be subject to the same requirements of CEQA as future projects under the Proposed Amendment, and any impacts would be evaluated and mitigated, as applicable. These determinations would be made on a case-by-case basis, and the effects of the cumulative development on electricity, natural gas and petroleum would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, the Proposed Amendment would not contribute to any potential cumulative impacts, and cumulative impacts to energy resources are considered **less than significant.**

3.13.6 Mitigation Measures

The proposed project would result in energy impacts that are considered less than significant; therefore, there are no mitigation measures proposed for the proposed project.

3.13.7 Significance after Mitigation

Impacts would be less than significant.

3.13.8 References

ACEEE (American Council for an Energy-Efficient Economy). 2010. *Energy End-Use Patterns in Full-Service Hotels: A Case Study*. 2010. Accessed January 6, 2017. http://aceee.org/files/proceedings/2010/data/papers/1984.pdf.

California Gas and Electric Utilities (Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southwest Gas Corporation, City of Long Beach Gas & Oil Department, and Southern California Edison Company). 2016. *2016 California Gas Report*. 2016. Accessed January 6, 2017. https://www.socalgas.com/regulatory/cgr.shtml.

CARB (California Air Resources Board). 2011. Facts About The Advanced Clean Cars Program. November 9, 2011. Accessed February January 6, 2017. http://www.arb.ca.gov/msprog/zevprog/factsheets/advanced_clean_cars_eng.pdf.

CARB. 2013. "Clean Car Standards - Pavley, Assembly Bill 1493." May 6, 2013. Accessed January 6, 2017. http://arb.ca.gov/cc/ccms/ccms.htm.

CARB. 2014. "Truck and Bus Regulation, On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation." August 29, 2014. Accessed January 6, 2017. http://www.arb.ca.gov/msprog/onrdiesel/documents/FSRegSum.pdf.

CARB. 2015. Clean Power Plan Compliance Discussion Paper. September 2015. Accessed January 7, 2016. http://www.arb.ca.gov/cc/powerplants/meetings/2015whitepaper.pdf.

CEC (California Energy Commission). 2011. "What is Your Home Energy Rating?" Updated 2011. Accessed January 7, 2016. http://www.energy.ca.gov/2009publications/CEC-400-2009-008/CEC-400-2009-008-BR-REV1.PDF.

CEC. 2013. *Integrated Energy Policy Report 2013*. CEC-100-2013-001-CMF. 2013. Accessed January 7, 2016. http://www.energy.ca.gov/2013publications/CEC-100-2013-001/CEC-100-2013-001-CMF.pdf.

CEC. 2014. *California Energy Demand 2014-2024 Final Forecast*. Commission Final Report. CEC-200-2013-004-V1-CMF. January 2014. Accessed January 8, 2016. http://www.energy.ca.gov/2013publications/CEC-200-2013-004/CEC-200-2013-004-V1-CMF.pdf.

CEC. 2015. "2016 Building Efficiency Standards Adoption Hearing Presentation." June 2015. Accessed January 2016 http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10_hearing/2015-06-10_Adoption_Hearing_Presentation.pdf#page=8.

CEC (California Energy Commission). 2016a. *California Energy Demand 2016-2026, Revised Electricity Forecast*. CEC-200-2016-001-V1. January 2016. Accessed January 10, 2017. http://docketpublic.energy.ca.gov/PublicDocuments/15-IEPR-03/TN207439_20160115T152221_California_Energy_Demand_20162026_Revised_Electricity_Forecast.pdf.

CEC. 2016b. *California Energy Commission – Tracking Progress*. "Renewable Energy Overview." Last updated October 11, 2016. Accessed January 10, 2017. http://www.energy.ca.gov/renewables/tracking_progress/documents/renewable.pdf.

CEC. 2016c. "California Natural Gas Data and Statistics." Accessed January 5, 2017. http://www.energy.ca.gov/almanac/naturalgas_data/overview.html.

City of Montclair. City of Montclair General Plan 1999. Accessed January 5, 2017. http://www.cityofmontclair.com/depts/cd/planning/general_plan.asp.

City of Montclair. City of Montclair General Plan 2006 Housing Element. Accessed January 5, 2017. http://www.cityofmontclair.com/depts/cd/planning/general_plan.asp.

CPUC (California Public Utilities Commission). 2014. *Biennial RPS Program Update*. February 2014.

CPUC (California Public Utilities Commission). 2016. *Biennial RPS Program Update*. January 1, 2016.

ECDMS (Energy Consumption Data Management System). 2016. "Electricity Consumption by County." Accessed January 2, 2017. http://ecdms.energy.ca.gov/elecbycounty.aspx.

EMFAC 2014 (California Emissions Factor Model). 2014. "California Air Resources Board EMFAC Web Database." Accessed January 11, 2017. https://www.arb.ca.gov/emfac/2014/.

EIA (U.S. Energy Information Administration). 2015a. "United States' Key Energy Statistics." Accessed January 8, 2017. www.eia.gov/beta/international/country.cfm?iso=USA.

EIA. 2015b. *Annual Energy Outlook 2015*. DOE/EIA-0383(2015). April 2015. Accessed January 9, 2017. http://www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf.

EIA (U.S. Energy Information Administration). 2016a. "California State Profile and Energy Estimates – Table F19: Natural Gas Consumption Estimates, 2014." Accessed September 7, 2016. http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_use_ng.html&sid=US&sid=CA.

EIA. 2016b. "California State Profile and Energy Estimates – Table F15: Total Petroleum Consumption Estimates, 2014." Accessed January 10, 2017. http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_use_pa.html&sid=US&sid=CA.

EPA (U.S. Environmental Protection Agency). 2010. *Construction Fleet Inventory Guide*. EPA-420-B-10-025. Prepared by Eastern Research Group, Inc. July 2010.

EPA. 2014. *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2014*. EPA-420-S-14-001. October 2014. Accessed January 5, 2016. https://www3.epa.gov/fueleconomy/fetrends/1975-2014/420s14001.pdf.

EPA. 2015. *Program Overview for Renewable Fuel Standard*. Last updated September 28, 2015. Accessed January 7, 2016. https://www.epa.gov/renewable-fuel-standard-program/program-overview-renewable-fuel-standard-program.

EPA and NHTSA (U.S. Environmental Protection Agency and National Highway Traffic Safety Administration. 2010. *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule*. EPA–HQ–OAR–2009–0472. NHTSA-2009-0059. http://www.gpo.gov/fdsys/pkg/FR-2010-05-07/pdf/2010-8159.pdf.

EPA and NHTSA (U.S Environmental Protection Agency and National Highway Traffic Safety Administration). 2012. *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards*. EPA–HQ–OAR–2010–0799, NHTSA-2010-0131.

SCE (Southern California Edison). 2016. "Time-of-Use Rates for Business." Accessed September 12, 2016. https://www.sce.com/wps/portal/home/business/tools/time-of-use.
USGBC (U.S. Green Building Council). 2011. "How Does California's Green Building Code Compare to the Industry Benchmark?" by Alex Spliger. Published March 14, 2011. Accessed January 6, 2017. http://usgbclouisiana.org/news/151328/%E2%80%A2%20. http://www.sustainableindustries.com/industries%20%E2%80%A2.

USGBC. 2016. "LEED Credit Library: Energy and Atmosphere." Accessed January 8, 2017. http://www.usgbc.org/credits/new-construction/v4/energy-%26-atmosphere.

VCA Green. 2015. "Title 24 and LEED for Multi-Family: A Practical Approach to Compliance" in *California Green Building Trends.* By Moe Fakih. 2015. Accessed January 6, 2017. http://www.vca-green.com/LEED-and-Title-24-a-Practical-Guide.pdf.

INTENTIONALLY LEFT BLANK

CHAPTER 4
ALTERNATIVES

The California Environmental Quality Act (CEQA) requires that an EIR describe a range of reasonable alternatives to a proposed project that would feasibly attain most of the basic objectives of the project but would avoid or lessen any significant environmental impacts. EIRs are also required to evaluate the comparative merits of the alternatives. This chapter of the Supplemental EIR describes and evaluates alternatives to the Proposed Amendment and implements the requirements set forth in the State CEQA Guidelines for alternatives analysis. This chapter also identifies the Environmentally Superior Project Alternative as required by State CEQA Guidelines Section 15126.6(e)(2).

4.1 SELECTION OF ALTERNATIVES

The range of alternatives and methods for selection is governed by CEQA and applicable CEQA case law. As stated in State CEQA Guidelines Section 15126.6(a), the lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. This chapter includes the range of Proposed Amendment alternatives that have been selected by the lead agency (in this case, the City of Montclair) for examination, as well as its reasoning for selecting these alternatives.

As stated in Section 15126.6(a) of the State CEQA Guidelines, there is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason. This rule is described in Section 15126.6(f) of the State CEQA Guidelines and requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. As defined in Section 15126.6(f), the rule of reason limits alternatives analyzed to those that would avoid or substantially lessen one or more of the significant effects of a project. Of those alternatives, an EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. Other relevant provisions set forth in the State CEQA Guidelines state that EIRs do not need to consider every conceivable alternative to a project, nor are they required to consider alternatives that are infeasible.

4.1.1 Proposed Amendment

As described above, project objectives and the significant impacts of a project are key determiners of the alternatives that are initially examined by the lead agency and the alternatives that are ultimately carried forward for detailed analysis in an EIR. To that end, this subsection includes (a) a summary of the Proposed Amendment’s characteristics to facilitate comparison between the Proposed Amendment and its alternatives, (b) the list of Proposed Amendment objectives, and (c) a summary of the Proposed Amendment’s significant impacts.

Proposed Amendment Summary

The City of Montclair (City) has decided to amend the North Montclair Downtown Specific Plan (Proposed Amendment). The Proposed Amendment would involve amending the 2006 North Montclair Downtown Specific Plan (NMDSP) to allow for the future development of projects that are tied to the Montclair Transcenter and the anticipated extension of the Foothill Gold Line that will extend light rail line to the City. The Proposed Amendment would shift or relocate a portion of the density planned in the northern area of the NMDSP to allow for additional mixed-use transit oriented development (TOD) projects along the new Foothill Gold Line Extension. The Proposed Amendment would also expand the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 40 acres of land that currently comprise the Turner Specific Plan on the west side of Central Avenue at Richton Street between Central Avenue and Monte Vista Avenue. In both of these areas, appropriate land use zones, density levels, and street patterns would be determined and incorporated into the NMDSP. The Proposed Amendment would allow for a maximum number of 5,888 dwelling units, which is 2,688 more dwelling units than allowed under the current NMDSP. The Proposed Amendment would also allow for a total of 1,681,285 square feet of non-residential uses, which is 782,285 square feet more non-residential uses than allowed under the current NMDSP. The Proposed Amendment would also assign land use designations to properties within the planning area where there currently are none or where a new land use mix is more appropriate.

Proposed Amendment Objectives

As discussed in the 2006 NMDSP, the main vision or intent of the NMDSP is to create:

> "A walkable, vibrant Town Center that includes multiple uses and activities that take advantage of the major transit amenities to be found in the plan area. This vision, together with the current and projected level of demand for different types of retail and the competitive supply of existing and planned retail in the western Inland Empire, defines what development is appropriate and feasible in North Montclair."

Specific objectives were defined in the 2006 NMDSP EIR to achieve the main intent of the NMDSP. For the Proposed Amendment, the primary objectives include the following:

- Amend the NMDSP to expand the area of the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 40 acres of land that currently comprise the Turner Specific Plan on the west side of Central Avenue at Richton Street between

Central Avenue and Monte Vista Avenue and determine appropriate land use zones, density levels and street patterns for these areas.

- Amend the NMDSP to determine appropriate land use zones, density levels and future street patterns for properties in the specific plan area that are located along the west side of Central Avenue and portions of Arrow Highway and Fremont Street. In addition to the current Neighborhood Residential (NR), Corridor Residential (CR) and Town Center (TC) land use zones and standards that are identified in the existing NMDSP, two new land uses would be introduced including a Station District land use zone, and a "transition" zone.
- Update all NMDSP maps and exhibits to reflect projects approved under the current plan, including The Paseos and Arrow Station residential developments. The updated plans would add the location of the Pacific Electric Inland Empire Trail, and conceptually plan for the anticipated arrival of the Foothill Gold Line light rail extension.
- Amend the NMDSP to account for an increase in the maximum number of dwelling units and additional commercial square footage allowable by the plan and expanded boundaries. The maximum number of dwelling units envisioned by the Proposed Amendment is 5,888 dwelling units (+ 2,688 dwelling units) and the total additional commercial square footage envisioned by the plan is 1,681,285 square feet (+ 782,285 square feet).
- Update architectural and development standards as necessary to successfully implement the NMDSP including, but not limited to, the provision of new minimum lot sizes for development in each respective land use zone, including parking, setbacks, and building heights.
- Modify the NMDSP to provide for additional transit oriented development along the new Foothill Gold Line extension alignment within the project area.
- Clarify and amend Table 5.1 Allowed Land Uses and Permit Requirements to add or delete specific land uses for each zoning district of the updated NMDSP.

Environmental Impacts of the Proposed Amendment

As discussed in detail in Chapter 3, Environmental Analysis, the Proposed Amendment would result in significant, unavoidable, adverse impacts related to air quality, cultural resources, greenhouse gas emissions, population and housing, public services, recreation, and transportation and traffic, summarized as follows:

- As described in Section 3.2, Air Quality, the Proposed Amendment would result in significant, adverse impacts related to conflicts with the applicable air quality plan; violations of air quality standards; and cumulatively considerable net increases of criteria pollutants for which the region is in non-attainment under applicable air quality standards. The Proposed Amendment was determined to conflict with the applicable air quality plan because it would increase the frequency or severity of existing air quality

violations within the region. No mitigation is feasible to reduce the adverse air quality impacts of the Proposed Amendment below a level of significance.

- As described in Section 3.4, Cultural Resources, the Proposed Amendment has the potential to result in significant impacts to historical resources under CEQA. Mitigation is provided to lower the potential for significant impacts to historical resources; however, because the mitigation measure does not guarantee the protection of historical resources in consideration of specific project activities that are currently unknown, potential impacts to historical resources are considered significant and unavoidable.
- As described in Section 3.5 Greenhouse Gas Emissions, emissions from the Proposed Amendment would result in significant and unavoidable impacts. No mitigation is feasible to reduce the adverse greenhouse gas emissions impacts of the Proposed Amendment to below a level of significance.
- As described in Section 3.8 Population and Housing, the Proposed Amendment would result in significant, adverse impacts related to inducing substantial population growth in an area. Since the Proposed Amendment would generate an additional 5,871 new residents beyond what was projected for in the 2006 NMDSP, the increase in population is considered a new significant and unavoidable impact relative to population growth allowed under the 2006 NMDSP.
- As described in Section 3.9, Public Services, and Section 3.10, Recreation, implementation of the Proposed Amendment would place additional demand upon park facilities and would not provide sufficient parkland to meet the City's standards. Impacts associated with park facilities would, therefore, be significant and unavoidable.
- As described in Section 3.11, Transportation and Traffic, the Proposed Amendment would result in significant, adverse impacts involving conflicts with measures of effectiveness for performance of the circulation system and conflicts with the applicable congestion management program. These significant, adverse impacts were triggered by the impact of the Proposed Amendment on several intersections. Mitigation measures were identified that reduce, but do not fully mitigate, the impacts to below a level of significance.

4.1.2 Alternative Considered But Rejected

One of the requirements for alternatives analysis that is set forth in the State CEQA Guidelines is identification of alternatives that were considered by the lead agency but rejected as infeasible during the scoping process. As stated in Section 15126.6(c) of the State CEQA Guidelines, the EIR should briefly explain the reasons underlying this determination. Among the factors that may be used to eliminate alternatives from detailed consideration in the EIR are:

(i) Failure to meet most of the basic project objectives,

(ii) Infeasibility, or

(iii) Inability to avoid significant environmental impacts (State CEQA Guidelines Section 15126.6(c)).

Section 15126.6(f)(1) of the State CEQA Guidelines states that "among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries,…and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent)." However, as stated in this subsection, not one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In accordance with 15126.6(c) of the State CEQA Guidelines, implementing the Proposed Amendment on an alternative site was considered but rejected from further analysis due to one or more of the above reasons. A description of this alternative and the rationale for rejection is provided below.

Alternative Site Alternative

The Alternative Site Alternative proposes that the Proposed Amendment be implemented at an alternative location within the City of Montclair; however, the Proposed Amendment is for the NMDSP, whose area is already defined. While the planning area can be expanded or reduced by an amendment to the specific plan, the planning area cannot be moved to another part of the City as the specific plan is already in place. Furthermore, proximity to transit is central to the objectives of the NMDSP; the Proposed Amendment area is the only location within the planning area to offer the level of transit service found in the planning area. Therefore, relocating the Proposed Amendment area or its components is considered infeasible, and counter to the overall objectives of the Proposed Amendment.

4.2 ALTERNATIVES CARRIED FORWARD FOR CONSIDERATION

Pursuant to Section 15126.6 of the State CEQA Guidelines, the City selected a reasonable range of alternatives to the Proposed Amendment that would feasibly attain most of the basic objectives of the Proposed Amendment but would avoid or substantially lessen one or more of the significant effects of the Proposed Amendment. Each of the selected alternatives is described below. Pursuant to Section 15126.6(d) of the CEQA Guidelines, these descriptions include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Amendment.

Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment, the discussion of alternatives is required to focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. As such, the three alternatives presented below would all avoid or substantially lessen at least one of the significant impacts of the Proposed Amendment that have been identified in Chapter 3.0 of this EIR.

4.2.1 Alternative 1 – No Project (No Build) Alternative

The No Project Alternative is included pursuant to the requirements of CEQA and the State CEQA Guidelines. Under the No Project/No Build Alternative, it is assumed that the Proposed Amendment would not be approved and future increased density would not occur in the NMDSP area. Rather, there would be no further development under the current NMDSP (beyond what is currently occurring), and the existing conditions in the planning area would remain unchanged indefinitely. Thus, the NMDSP area would remain minimally vacant with existing surface parking, residences, and low- to high-density commercial uses and transit facilities.

Retaining the NMDSP area in its existing condition would result in the elimination of short-term construction and new long-term development impacts, which would also mean no potential air quality, noise, and traffic-related impacts. If the Proposed Amendment is not approved and no further changes in land uses prescribed by the 2006 NMDSP occur, it can be assumed that existing environmental conditions would remain consistent with those identified under the Existing Conditions subsections included for each issue area in Section 3.0, Environmental Analysis, of this Supplemental EIR. No new environmental impacts, not already stated in the 2006 NMDSP EIR, would occur in the planning area or be generated under this alternative.

Ability to Meet Proposed Amendment Objectives

While this alternative means that no development would occur in the planning area, and therefore, greater environmental impacts would be avoided, this alternative would not meet any of the Proposed Amendment objectives related to the provision of appropriate land use zones, density levels and future street patterns in the overall planning area. Additionally, under this alternative, the City would not achieve the main intent of the specific plan, which is to take advantage of the major transit amenities in the planning area.

The environmental impacts of this alternative are briefly discussed below, along with a comparison of impacts with the Proposed Amendment.

Comparison of the Effects of Alternative 1 to the Proposed Amendment

Aesthetics

The NMDSP area is located in a highly developed urbanized area with no scenic vistas from public vantage points in or around the area. The area is typified by vacant land, large-scale retail and associated parking areas. A few multi-family residential developments also exist, or are being constructed, within the planning area. The existing scenic quality of the Proposed Amendment area is generally low, and the character of the area is common and indistinguishable from the surrounding urban environment. Under the No Project/No Build Alternative, the area would remain underdeveloped. No new structures or landscaping would be introduced in the planning area, beyond that which is already occurring. Also, no new sources of light and glare would be introduced. The visual characteristics of the planning area would remain similar to existing conditions under the No Project/No Build Alternative. No significant aesthetic impacts are expected under this alternative, which would be consistent with the conclusions reached for aesthetics impacts associated with the Proposed Amendment. However, due to no new future development, aesthetics impacts would still be less under the No Project/No Build Alternative as compared to the Proposed Amendment.

Air Quality

As discussed in the 2006 NMDSP, buildout in accordance with the NMDSP would result in an increase in the total amount of residential and non-residential square footage in the planning area. Vehicle trips associated with new residential and non-residential development would generate emissions. Operation of the various facilities allowed under the NMDSP may increase emissions associated with heating and cooling. Both vehicular and operational emissions may result in higher regional ozone concentrations and would exacerbate existing exceedances of state and federal ozone standards. Additional vehicle traffic in the planning area may increase the amount of re-entrained road dust, adding to existing exceedances of the state PM10 emissions standard.

With no future development within the NMDSP area under the No Project/No Build Alternative, there would be no grading and site preparation, thereby eliminating overall associated future construction emissions. Also, with no new additional development, there would also be no new vehicle emissions and stationary emissions generated from the planning area. No new or additional significant air quality impacts outside of those generated under existing conditions would be expected under the No Project/No Build Alternative; which is less than potential air quality impacts created by the Proposed Amendment.

Biological Resources

The NMDSP area is largely devoid of natural vegetation, and is dominated by pavement and existing development. The entire planning area is almost entirely covered with impervious surfaces, with the exception of four vacant dirt lots that are highly disturbed, previously graded, and support minimal amounts of low-growing vegetation. Although some sensitive species are suspected to occur in the region, the NMDSP area has limited suitable habitat area. Under the No Project/No Build Alternative, no new development would occur, and therefore, no new impacts requiring mitigation would occur; which is less than potential impacts to biological resources created by the Proposed Amendment.

Cultural Resources

Under the No Project/No Build Alternative, there would be no new ground or building disturbance activities, and therefore, no potential impacts to paleontological, archaeological, or historic resources would occur. Accordingly, no significant adverse impacts on cultural resources would occur under this alternative, and potential impacts to cultural resources would be less than that created by the Proposed Amendment.

Greenhouse Gas Emissions

Greenhouse gas emissions within the NMDSP area are generated by vehicle trips, energy, water use, and waste disposal from existing residences and commercial land uses. Under the No Project/No Build Alternative there would be no expected change in existing greenhouse gas emissions throughout the planning area. However, with no new development within the planning area, as compared to future development under buildout of the Proposed Amendment, there would be no associated grading and construction activities, which would result in no new emissions (due to no grading areas). The No Project/No Build Alternative would result in less energy demand due to the decrease in residential units and commercial land uses developed in the NMDSP area. Thus, the No Project/No Build Alternative would have less greenhouse gas emissions impacts as compared to the Proposed Amendment.

Hydrology and Water Quality

Compared to full buildout under the Proposed Amendment, under the No Project/No Build Alternative, no new development would result in no changes to existing drainage patterns and no improvements to on-site or off-site drainage. Nonetheless, according to the 2006 NMDSP EIR, no significant impacts would occur to hydrology and water quality as a result of full buildout of the existing 2006 specific plan. Similarly, while impacts to hydrology and water quality would be greater under the Proposed Amendment, no significant impacts are anticipated under full buildout of the Proposed Amendment.

Noise

The NMDSP area is located in an urbanized environment and is subject to typical urban noises, such as noise generated by traffic, stationary noise sources, and day-to-day outdoor activities. The predominant noise sources in the planning area include transportation noise and major stationary noise associated with commercial and industrial land uses. Under the No Project/No Build Alternative, existing noise levels in the planning area would continue. However, no additional construction, vehicle, and stationary noise impacts would occur in comparison to full buildout under the Proposed Amendment. Under the No Project/No Build Alternative, residents would not be exposed to significant new noise sources. Potential noise impacts under this alternative would, therefore, be less than potential noise impacts created by the Proposed Amendment.

Population and Housing

As discussed in Section 3.8, Population and Housing, the current existing residential population of downtown Montclair is estimated to be 2,023 persons, which is approximately 5 percent of the City total. Under the No Project/No Build Alternative, no additional housing units would be constructed within the planning area. With no new housing units built, the residential population of the planning area would not increase. In addition, no new commercial retail or office uses would be developed, and as such, no new employment opportunities would be generated. Thus, impacts to population, housing and employment would be less under the No Project/No Build Alternative as compared to the Proposed Amendment.

Public Services and Recreation

The No Project/No Build Alternative would result in no new residential units and/or no new commercial areas within the planning area. Thus, the demand for fire protection services, police protection services, schools, and libraries would remain similar to existing levels, and would be less than anticipated under buildout of the Proposed Amendment. However, in terms of parks, the City is currently falling short of objectives established in the City's General Plan by approximately 36 acres. Thus, similar to the Proposed Amendment, impacts associated with the provision of parks within the City would be significant and unavoidable under the No Project/No Build Alternative.

Traffic

No new trips would be added to existing traffic volumes on the surrounding or nearby roadways and freeways under the No Project/No Build Alternative. Existing traffic volumes within the planning area would remain the same as under existing conditions. According to the traffic study prepared for the Proposed Amendment, future development under the Proposed Amendment would result in a total of 75,335 daily trips, which is 52,119 daily trips more than under existing conditions. The existing uses generate approximately 23,216 daily trips. As discussed in Section

3.11 Transportation and Traffic, operations at certain area intersections are currently deficient or approaching deficiency. Accordingly, traffic impacts under the No Project/No Build Alternative are considered adverse, but still less significant than anticipated traffic impacts under the Proposed Amendment.

Utilities and Service Systems

The No Project/No Build Alternative would result in no new residential units and/or no new commercial areas within the planning area. Thus, the demand on existing utilities and service systems (water, sewer, electricity, and natural gas provision) would remain similar to existing levels, which would be less than anticipated demand under buildout of the Proposed Amendment. As such, impacts to utilities and services systems would be less under the No Project/No Build Alternative as compared to the Proposed Amendment.

Energy Consumption

The No Project/No Build Alternative would result in no new residential units and/or no new commercial areas within the planning area. Thus, the existing energy demands and consumption would remain similar to existing levels, which would be less than anticipated demand under buildout of the Proposed Amendment. As such, energy consumption would be less under the No Project/No Build Alternative as compared to the Proposed Amendment.

4.2.2 Alternative 2 – No Project/Existing Specific Plan Alternative

The No Project/Existing Specific Plan Alternative assumes that increased development under the Proposed Amendment would not occur, and that the NMDSP area would instead remain subject to the provisions contained within the 2006 NMDSP. Full buildout under the 2006 NMDSP would allow for a maximum of 3,200 dwelling units and approximately 899,000 square feet of non-residential (i.e., commercial) uses; this is compared to a maximum of 5,888 dwelling units and 1,681,285 square feet of non-residential uses under the Proposed Amendment. The additional 32 acres of land proposed to be incorporated into the NMDSP under the Proposed Amendment would retain its existing land use and zoning designations and not become a part of the NMDSP area. Overall development within the planning area would continue as per the land uses, zoning, densities and street patterns currently identified in the 2006 NMDSP.

Ability to Meet Proposed Amendment Objectives

Under the No Project/Existing Specific Plan Alternative, none of the objectives of the Proposed Amendment would be achieved. However, unlike the No Project/No Build Alternative, the objectives of the 2006 NMDSP would be achieved under the No Project/Existing Specific Plan Alternative. As previously discussed, the main vision or intent of the NMDSP is to create a

walkable, vibrant Town Center that includes multiple uses and activities that take advantage of the major transit amenities to be found in the plan area.

While the objectives of the Proposed Amendment would not be achieved under the No Project/Existing Specific Plan Alternative, the objectives of the 2006 NMDSP would still be achieved.

Comparison of the Effects of Alternative 2 to the Proposed Amendment

Aesthetics

The 2006 NMDSP concluded that buildout of the NMDSP would have no adverse impacts related to aesthetics. As discussed in the 2006 EIR, the NMDSP area is identified as blighted in the Redevelopment Plan; the existing visual character is degraded; and implementation of the NMDSP would improve the visual quality of the area. Accordingly, similar to the Proposed Amendment, there would be no aesthetics impacts associated with development under the No Project/Existing Specific Plan Alternative.

Air Quality

The proposed No Project/Existing Specific Plan Alternative would develop 3,200 dwelling units at full buildout, as compared to 5,888 dwelling units under the Proposed Amendment. Because the development area and the number of dwelling units proposed under this alternative would be less than the Proposed Amendment, short-term construction-related impacts would also be fewer, as less construction activities would occur. Compared to the Proposed Amendment, mobile vehicular emissions would be reduced under the No Project/Existing Specific Plan Alternative, commensurate with the reduced traffic generation. However, despite a reduction in traffic, it is not anticipated that this alternative would eliminate the significant long-term operational air quality impacts identified for the Proposed Amendment, since impacts were determined to substantially exceed applicable thresholds. The mitigation program identified for the Proposed Amendment to reduce potential impacts on air quality would apply to this alternative; however, similar to the Proposed Amendment, significant unavoidable air quality impacts for the construction and operational phases, as well as conflicts with the applicable air quality management plan, would still occur. Significant cumulative air quality impacts would also be expected under this alternative, similar to the Proposed Amendment. When considered along with other development in the region, development under the existing NMDSP is not consistent with projected population in the air quality management plan, and could therefore, impede attainment of standards, thereby having cumulatively significant air quality impacts.

Biological Resources

Development under the No Project/Existing Specific Plan Alternative would result in a slightly reduced development area of 174.4 acres as compared to 180.3 acres under the Proposed Amendment. There would be the same amount of residential land use acreage, an increase of 3.6 acres of non-residential (commercial) land use acreage, and a net increase of 1.8 acres of lands designated for open space, civic, and/or utility uses.

The 2006 NMDSP EIR found that there were no sensitive species in evidence on, or adjacent to, the planning area that would be impacted by future development under the 2006 NMDSP. However, as discussed in Section 3.3, Biological Resources, of this Supplemental EIR, several sensitive species have been identified as historically sighted on, or within a five-mile radius of, the Proposed Amendment area. Therefore, implementation of the Proposed Amendment and continued buildout under the existing specific plan could potentially result in impacts to sensitive plant and wildlife species. While the 2006 NMDSP EIR found no evidence of wetlands on, or adjacent to, the planning area that would be impacted by future development under the 2006 NMDSP, under the Proposed Amendment, it was determined through review of aerial photography, that the San Antonio Creek and other potentially jurisdictional features are present within the Proposed Amendment area It is assumed that each individual project would conduct the site-specific studies required to determine if wetland resources are present at the site. If federally protected wetlands are discovered in the Proposed Amendment area, implementation of the Proposed Amendment may cause significant impacts, and mitigation in the form of buffers or other measures to protect the wetlands would be required. Accordingly, impacts to biological resources under the No Project/Existing Specific Plan Alternative and the Proposed Amendment would be similar.

Cultural Resources

Development under the No Project/Existing Specific Plan Alternative would result in a slightly reduced development area of 174.4 acres as compared to 180.3 acres under the Proposed Amendment. However, similar construction activities would be required to prepare individual sites for development, and may result in impacts to undiscovered archaeological and paleontological resources during grading and excavation. The mitigation program identified for the No Project/Existing Specific Plan Alternative to reduce potential impacts to archaeological and paleontological resources would apply to the Proposed Amendment. However, with regards to potential impacts to historic resources, implementation of mitigation included in the 2006 NMDSP EIR only ensures that historic resources are appropriately recorded and evaluated, and that impacts are adequately assessed in consideration of project-specific activities. However, this mitigation measure does not guarantee protection of historic resources or that impacts will be mitigated below a level of significance. Therefore, even after implementation of the applicable

mitigation measure, project-specific impacts are considered significant and unavoidable under both the No Project/Existing Specific Plan Alternative and the Proposed Amendment.

Greenhouse Gas Emissions

Development under the No Project/Existing Specific Plan Alternative would include construction of 3,200 dwelling units and approximately 899,000 square feet of commercial uses. Construction of the reduced number of residential units as compared to the Proposed Amendment would require decreased grading and construction activities, thereby resulting in decreased emissions (due to the reduced grading area). Compared to the Proposed Amendment, the net effect of land use changes under the No Project/Existing Specific Plan Alternative, would be less demand for energy due to a fewer residential units and commercial uses being developed throughout the planning area. Greenhouse gas impacts were not discussed in the 2006 NMDSP EIR, and as such, specific design features and mitigation measures were not incorporated to reduce greenhouse gas emissions and pollutant criteria emissions. However, similar to the Proposed Amendment, full buildout under the existing 2006 NMDSP would contribute to GHG emissions. Furthermore, the GHG contribution of future projects under both the 2006 NMDSP and Proposed Amendment would be considered cumulatively considerable. Therefore, impacts would be similar under both the No Project/Existing Specific Plan Alternative and the Proposed Amendment.

Hydrology and Water Quality

Under the No Project/Existing Specific Plan Alternative, full buildout as per the 2006 NMDSP would result in a reduced number of residential dwelling units and commercial areas, in comparison to the Proposed Amendment. The slightly reduced development footprint under this alternative could result in less overall impermeable surfaces, thereby reducing the amount of stormwater runoff from the developed portions of the NMDSP area. In addition, this alternative would require grading and disturbance of a slightly reduced surface area, thereby reducing the potential for erosion and siltation to occur as a result of exposed soils during construction. Therefore, while still less than significant, the impacts of the No Project/Existing Specific Plan Alternative on hydrology and water quality would be less than the hydrology and water quality impacts of the Proposed Amendment.

Noise

Development of the No Project/Existing Specific Plan Alternative would include construction of 3,200 dwelling units and approximately 899,000 square feet of commercial uses. The density of development under this alternative would be similar to that under the Proposed Amendment; however, due to a slightly smaller overall development footprint, the potential construction noise impacts would likely be slightly less than the Proposed Amendment. Operational noise impacts from commercial uses (e.g. truck deliveries, loading dock activities, etc.) would be similar to

operational noise impacts of the Proposed Amendment. Mobile noise impacts (from traffic under the existing 2006 NMDSP) would be slightly reduced under the No Project/Existing Specific Plan Alternative, commensurate with the slight reduction in off-site traffic anticipated to occur under full buildout of the 2006 NMDSP. Overall, impacts related to noise under this alternative would be slightly less than noise impacts anticipated under the Proposed Amendment.

Population and Housing

Development under the No Project/Existing Specific Plan Alternative would generate a fewer number of residential units and a reduction in allowable non-residential development, as compared to the Proposed Amendment. The 2006 NMDSP EIR identified that the NMDSP would introduce between 8,393 and 11,369 new residents in the planning area at buildout. The Proposed Amendment would generate approximately 5,871 additional new residents beyond what was projected for the 2006 NMDSP plan. The 2006 NMDSP EIR concluded that the increase in population would have a number of direct and indirect significant impacts. However, as compared to the Proposed Amendment, population and housing impacts associated with buildout of the 2006 NMDSP under the No Project/Existing Specific Plan Alternative would be less. Therefore, overall impacts to population and housing would be less under the No Project/Existing Specific Plan Alternative as compared to the Proposed Amendment.

Public Services and Recreation

Development under the No Project/Existing Specific Plan Alternative would generate a fewer number of residential units and a reduction in allowable non-residential development, as compared to the Proposed Amendment. Therefore, the associated demand for public services (fire protection, police protection, schools, and libraries) would likely be less than that anticipated for the Proposed Amendment. However, in terms of parks, the City is currently falling short of objectives established in the City's General Plan by approximately 36 acres. As discussed in the 2006 NMDSP EIR, sufficient parkland would not be provided to serve the projected population, and furthermore, would add to the current parkland deficiency in the City. Thus, impacts associated with the provision of sufficient parks within the City would remain significant and unavoidable under both the No Project/Existing Specific Plan Alternative and the Proposed Amendment.

Traffic

Development under the No Project/Existing Specific Plan Alternative would generate a fewer number of residential units and a reduction in allowable non-residential development, as compared to the Proposed Amendment. According to the traffic study prepared for the Proposed Amendment, the Proposed Amendment would result in a total of 75,335 daily trips, which is 52,119 daily trips more than under existing conditions. The existing uses generate approximately 23,216 daily trips. The 2006 NMDSP EIR concluded that buildout of the NMDSP area would

result in significant but mitigatable impacts related to the increase in traffic on area roadways. The 2006 NMDSP EIR also concluded that LOS impacts on area intersections are significant and unavoidable. Finally, the 2006 NMDSP EIR concluded that buildout of the NMDSP would result in beneficial impacts related to providing a range of complementary land uses in close proximity to alternate modes of transportation, which in turn facilitates the use of transit versus individual motor vehicles. Because development under the No Project/Existing Specific Plan Alternative would be consistent with the existing 2006 NMDSP, traffic impacts would be consistent with the 2006 NMDSP EIR, which is less significant in comparison to the Proposed Amendment.

Utilities and Service Systems

Development under the No Project/Existing Specific Plan Alternative would generate a fewer number of residential units and a reduction in allowable non-residential development, as compared to the Proposed Amendment. Therefore, the associated demand for utilities (water, sewer, electricity, and natural gas provision services) would likely be slightly reduced in comparison to demands associated with the Proposed Amendment. Accordingly, impacts regarding utilities under the No Project/Existing Specific Plan Alternative would be slightly less than under the Proposed Amendment.

Energy Consumption

Development under the No Project/Existing Specific Plan Alternative would generate a fewer number of residential units and a reduction in allowable non-residential development, as compared to the Proposed Amendment. Therefore, the associated demand for energy would likely be slightly reduced in comparison to demands associated with the Proposed Amendment. Accordingly, impacts regarding energy consumption under the No Project/Existing Specific Plan Alternative would be slightly less than under the Proposed Amendment.

4.2.3 Alternative 3 – Reduced Density Alternative

The purpose of the Reduced Density Alternative is to reduce the potential impacts from development under the Proposed Amendment related to the number of residential units and the intensity of non-residential (i.e., commercial) uses. Under this alternative, the total number of residential dwelling units allowed under an amendment to the NMDSP would be reduced from 5,888 to 5,747, representing a net reduction of 141 units. In addition, non-residential square footage would be reduced by 696,512 square feet, from 1,681,285 square feet under the Proposed Amendment to 984,773 square feet under the Reduced Density Alternative. The NMDSP would still be amended to expand the area of the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 40 acres of land that currently comprise the Turner Specific Plan on the west side of Central Avenue at Richton Street between Central Avenue and Monte Vista

Avenue. Additionally, appropriate land use zones, density levels and street patterns would be determined for these areas.

This alternative assumes the development of 5,747 residential units in the same planning area included as part of the Proposed Amendment. Compared to the Proposed Amendment, the Reduced Density Alternative would provide for a net increase in the number of total residential units in the Neighborhood Residential zone (+8 dwelling units), Corridor Residential zone (+871 dwelling units), and Town Center zone (+4 dwelling units), and would provide for a substantial reduction in the number of residential units in the Station District zone (-1,112 dwelling units). The Station District zone provides for the highest residential density at 80 dwelling units/acre. This alternative would also result in slight changes to the locations and configurations of land uses, as well as the total acreages dedicated to each specific land use type. For instance, the total acreage designated residential land uses would increase by 3.6 acres under this alternative and the total acreage designated to non-residential uses would decrease by 14.5 acres under this alternative. In summary, the Reduced Density Alternative would provide for a net reduction in the total number of residential units with an increase in the total acreage designated for residential uses and would provide for a decrease in the total non-residential square footage and a decrease in the total acreage designated for non-residential uses.

Ability to Meet Proposed Amendment Objectives

Under the Reduced Density Alternative the following objectives of the Proposed Amendment would be achieved:

- Amend the NMDSP to expand the area of the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 40 acres of land that currently comprise the Turner Specific Plan on the west side of Central Avenue at Richton Street between Central Avenue and Monte Vista Avenue and determine appropriate land use zones, density levels and street patterns for these areas.
- Amend the NMDSP to determine appropriate land use zones, density levels and future street patterns for properties in the specific plan area that are located along the west side of Central Avenue and portions of Arrow Highway and Fremont Street. In addition to the current Neighborhood Residential (NR), Corridor Residential (CR) and Town Center (TC) land use zones and standards that are identified in the existing NMDSP, two new land uses would be introduced including a Station District land use zone, and a “transition” zone.
- Update all NMDSP maps and exhibits to reflect projects approved under the current plan, including The Paseos and Arrow Station residential developments. The updated plans

would add the location of the Pacific Electric Inland Empire Trail, and conceptually plan for the anticipated arrival of the Foothill Gold Line light rail extension.

- Update architectural and development standards as necessary to successfully implement the Specific Plan including, but not limited to, the provision of new minimum lot sizes for development in each respective land use zone, including parking, setbacks, building heights, etc.
- Clarify and amend Table 5.1 Allowed Land Uses and Permit Requirements to add or delete specific land uses for each zoning district of the updated NMDSP.
- Modify the NMDSP to provide for additional transit oriented development along the new Foothill Gold Line extension alignment within the project area.

Under the Reduced Density Alternative the following objective would *not* be achieved:

- Amend the NMDSP to account for an increase in the maximum number of dwelling units and additional commercial square footage allowable by the plan and expanded boundaries. The maximum number of dwelling units envisioned by the Proposed Amendment is 5,888 dwelling units (+ 2,688 dwelling units) and the total additional commercial square footage envisioned by the plan is 1,681,285 square feet (+ 782,285 square feet).

Comparison of the Effects of Alternative 3 to the Proposed Amendment

Aesthetics

Short-term aesthetics impacts during construction would be similar under both the Reduced Density Alternative and the Proposed Amendment, as grading of individual sites would occur under both, resulting in temporary views of on-site soils and construction equipment/debris from various surrounding public vantage viewpoints throughout the planning area. Compared to the Proposed Amendment, overall development under the Reduced Density Alternative would be less. As such, the long-term aesthetics impacts would also be less under the Reduced Density Alternative when compared to the Proposed Amendment since there would be less development/redevelopment that results in associated changes to the overall visual character/quality of the planning area. Accordingly, aesthetics impacts associated with the Reduced Density Alternative would be less in comparison to the Proposed Amendment.

Air Quality

The proposed Reduced Density Alternative would reduce the number of residential units developed and the intensity of non-residential (i.e., commercial) development as compared to the Proposed Amendment. As such, short-term construction-related impacts would also be lesser, as less construction activities would occur overall. Mobile vehicular emissions would also be less

under the Reduced Density Alternative, commensurate with reduced traffic generation as compared to the Proposed Amendment. Despite a reduction in traffic, it is not anticipated that this alternative would eliminate the significant long-term operational air quality impacts identified for the Proposed Amendment, since impacts were determined to substantially exceed applicable thresholds. The mitigation program identified for the Proposed Amendment to reduce potential impacts on air quality would apply to Reduced Density Alternative as well; however, similar to the Proposed Amendment, significant and unavoidable air quality impacts for the construction and operational phases, as well as conflicts with the applicable air quality management plan, would still occur under the Reduced Density Alternative. Cumulative air quality impacts under the Reduced Density Alternative would also be similar to the Proposed Amendment.

Biological Resources

The Reduced Density Alternative includes the same overall development footprint as the Proposed Amendment, with fewer overall units and commercial square footage; therefore, impacts to biological resources would be similar, though slightly reduced in comparison to the Proposed Amendment since less development would occur overall.

Cultural Resources

The Reduced Density Alternative would result in similar impacts on cultural resources as compared to the Proposed Amendment, particularly with regards to the discovery of unknown archaeological and paleontological resources. As with the Proposed Amendment, mitigation would be implemented to reduce potential impacts on such resources to less than significant levels within and in the vicinity of the NMDSP area. Therefore, potential impacts on unknown archaeological and paleontological resources resulting from development under the Reduced Density Alternative would be similar to development under the Proposed Amendment. With regards to potential impacts on historic resources, implementation of mitigation included in the 2006 NMDSP EIR only ensures that historic resources are appropriately recorded and evaluated, and that impacts are adequately assessed in consideration of project-specific activities. However, this mitigation measure does not guarantee protection of historic resources or that impacts will be mitigated below a level of significance. Therefore, even after implementation of the applicable mitigation measure, project-specific impacts are considered significant and unavoidable under both the Reduced Density Alternative and the Proposed Amendment.

Greenhouse Gas Emissions

The Reduced Density Alternative would reduce the overall density proposed, thereby reducing required grading and construction activities, which in turn would decrease related emissions by a similar percentage. In addition, the reduced density under this alternative would have corresponding reductions in electricity and natural gas demand, as well as indirect greenhouse

gas emission generation from such factors as solid waste generation and water pumping. The number of vehicle trips generated and related emissions would also decrease, thereby reducing mobile greenhouse gas emissions.

The Reduced Density Alternative would incorporate design features and implement reasonable and feasible mitigation measures similar to the Proposed Amendment. Nonetheless, greenhouse gas impacts would remain significant and unavoidable, as with the Proposed Amendment, considering the volume of overall emissions. Therefore, impacts with regard to climate change associated with the Reduced Density Alternative would be similar in comparison to the Proposed Amendment.

Hydrology and Water Quality

Development of the NMDSP area under the Reduced Density Alternative would result in fewer residential units and less non-residential square footage as compared to the Proposed Amendment. The reduction in developed area could reduce the amount of impermeable surfaces created, thereby reducing the amount of potential stormwater runoff from the developed portions of the planning area and allowing for greater infiltration. Similar to the Proposed Amendment, this alternative would still require grading and disturbance of individual sites, thereby resulting in the potential for erosion and siltation to occur due to exposed soils during construction. Since the amount of impervious surface areas created by the Reduced Density Alternative would be less than that created by the Proposed Amendment, impacts on hydrology and water quality would be less under the Reduced Density Alternative compared to the Proposed Amendment.

Noise

Development under the Reduced Density Alternative would include 5,747 residential units and 984,773 square feet of non-residential land uses. As such, the reduction in vehicle trips under this alternative compared to the Proposed Amendment would have a corresponding reduction in traffic noise, and would also reduce contribution toward cumulative noise impacts. Additionally, as a lesser number of dwelling units and non-residential square footage would be developed under the Reduced Density Alternative, overall impacts resulting from construction noise would also be decreased as compared to the Proposed Amendment. However, construction noise would remain the same on a day-to-day basis, as similar equipment would be used during future project construction. Overall noise impacts of the Reduced Density Alternative would be less than the Proposed Amendment.

Population and Housing

The Reduced Density Alternative would result in a lower number of residential units and less non-residential area in comparison to the Proposed Amendment. The 2006 NMDSP projected between 8,393 and 11,369 new residents to the planning area at buildout. The Proposed Amendment projects 9,677 new residents to the planning area at buildout, which represents

1,284 additional new residents beyond what was projected for on the low end in the 2006 NMDSP. Under the Reduced Density Alternative, approximately 9,169 new residents are projected to be added to the planning area at buildout, which represents 776 additional new residents beyond what was projected for on the low end in the 2006 NMDSP. Although this alternative is projected to result in 508 less new residents than the Proposed Amendment, the total number of new residents may still be greater than anticipated at the low end under the 2006 NMDSP. Accordingly, impacts on population and housing in the planning area under the Reduced Density Alternative would be similar to the Proposed Amendment.

Public Services and Recreation

Development under the Reduced Density Alternative would generate fewer residential units and residents compared to the Proposed Amendment; therefore, the associated demand for public services (fire protection, police protection, schools, and libraries) would be less in comparison to the Proposed Amendment. However, in terms of parks, the City is currently falling short of objectives established in the City's General Plan by approximately 36 acres. As discussed in the 2006 NMDSP EIR, buildout of the specific plan would not provide sufficient parkland to serve the population projected and would add to the current deficiency in the City. Thus, impacts associated with the provision of parks within the City would remain significant under this alternative. As such, impacts to public services and recreation would be similar under both the Reduced Density Alternative and the Proposed Amendment.

Traffic

Under the Reduced Density Alternative, trip generation would be slightly less as compared to the Proposed Amendment, due to a reduction in the number of residences and non-residential square footage developed. However, similar to the Proposed Amendment, mitigation measures would likely still be required to reduce potential impacts to area roadways and intersections. As with the Proposed Amendment, significant and unavoidable impacts would remain after mitigation measures are implemented. Cumulative impacts under the Reduced Density Alternative would also remain potentially significant and unavoidable, similar to the Proposed Amendment. As such, overall, the Reduced Density Alternative would result in slightly reduced traffic impacts as compared to the Proposed Amendment, although unavoidable significant impacts would remain.

Utilities and Service Systems

The Reduced Density Alternative would generate fewer residential units and residents compared to the Proposed Amendment; therefore, the associated demand for utilities (water, sewer, electricity, and natural gas provision services) would be reduced. Overall impacts to the provision of utilities and service systems would be slightly reduced under the Reduced Density Alternative as compared to the Proposed Amendment.

Energy Consumption

The Reduced Density Alternative would generate fewer residential units and residents compared to the Proposed Amendment; therefore, the associated energy demands would be reduced. Overall impacts to energy consumption would be slightly reduced under the Reduced Density Alternative as compared to the Proposed Amendment.

4.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

State CEQA Guidelines Section 15126.6(e)(2) indicates that an analysis of alternatives to a project shall identify an Environmentally Superior Alternative among the alternatives evaluated in an EIR. The State CEQA Guidelines also state that, should it be determined that the No Project Alternative is the Environmentally Superior Alternative, the EIR shall identify another Environmentally Superior Alternative among the remaining alternatives.

A comparative summary of the environmental impacts associated with each alternative as compared to the Proposed Amendment is provided in Table 4-1. As shown, the No Project/No Build Alternative would be the environmentally superior alternative as it would result in no new environmental impacts, would avoid many of the Proposed Amendment's impacts, and would eliminate the significant and unavoidable impacts identified for the Proposed Amendment related to air quality, cultural resources, greenhouse gas emissions, population and housing, public services, and transportation and traffic. Significant and unavoidable impacts to recreation would remain. However, the existing conditions in the planning area are not superior to buildout under the NMDSP or the Proposed Amendment. Retaining the planning area in its existing condition would not promote redevelopment of the planning area as planned under the NMDSP. If existing conditions remain indefinitely, none of the NMDSP's or Proposed Amendment's objectives related to utilization of the planning area would be realized and the main intent of the NMDSP, which is to take advantage of the major transit amenities to be found in the planning area, would be achieved.

Alternative 2, the No Project/Existing Specific Plan Alternative, would also eliminate the significant and unavoidable impacts identified for the Proposed Amendment related to air quality, cultural resources, greenhouse gas emissions, population and housing, public services, and transportation and traffic. However, this alternative would generally reduce (rather than avoid) the Proposed Amendment's impacts. Similar to Alternative 1, impacts to recreation would remain significant and unavoidable. Furthermore, Alternative 2 would also not achieve the Proposed Amendment objectives.

As such, the Reduced Density Alternative (Alternative 3) would be the environmentally superior alternative to the Proposed Amendment. This alternative would reduce some of the Proposed Amendment's impacts and would also meet the basic Proposed Amendment objectives, although to a lesser degree when compared with the Proposed Amendment.

Table 4-1
Comparison of Impacts

Impact Area	Proposed Amendment Impacts Prior to Mitigation	Proposed Amendment Impacts with Mitigation	Alternative 1 No Project / No Build Alternative	Alternative 2 No Project / Existing Specific Plan Alternative	Alternative 3 Reduced Density Alternative
Aesthetics	No New Impact/No Impact	No New Impact/No Impact	—	—	—
Air Quality	Potentially Significant	Significant	▼	—	—
Biological Resources	Potentially Significant	Less than Significant	▼	—	▼
Cultural Resources	Potentially Significant	Significant	▼	—	—
Greenhouse Gas Emissions	Potentially Significant	Significant	▼	—	—
Hydrology and Water Quality	No New Impact/No Impact	No New Impact/No Impact	—	—	▼
Noise	Potentially Significant	Less than Significant	▼	▼	▼
Population and Housing	Potentially Significant	Significant	▼	▼	—
Public Services	Potentially Significant	Significant	—	—	—
Recreation	Potentially Significant	Significant	—	—	—
Traffic	Potentially Significant	Significant	▼	▼	—
Utilities and Service Systems	No New Impact/No Impact	No New Impact/No Impact	▼	▼	▼
Meets Most of the Basic Project Objectives?	Yes	Yes	No	No	Yes

▲ Alternative is likely to result in greater impacts to issue when compared to Proposed Amendment.
— Alternative is likely to result in similar impacts to issue when compared to Proposed Amendment.
▼ Alternative is likely to result in reduced impacts to issue when compared to Proposed Amendment.

CHAPTER 5
OTHER CEQA REQUIREMENTS

5.1 SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

This section is prepared in accordance with Section 15126.2(b) of the State CEQA Guidelines, which requires the discussion of any significant environmental effects that cannot be avoided if a project is implemented. These include impacts that can be mitigated, but cannot be reduced to a less than significant level. An analysis of environmental impacts caused by the Proposed Amendment has been conducted and is contained in this Supplemental EIR. Twelve issue areas were analyzed in detail in Chapter 3.0. According to the environmental impact analysis presented in Chapter 3.0, the Proposed Amendment could result in new significant and unavoidable adverse impacts in the following CEQA issue areas:

- Air Quality
  - Conflict with or obstruct implementation of the applicable air quality plan.
  - Emissions during construction.
  - Cumulative impacts.
- Cultural Resources
  - Historic resources.
  - Cumulative historic resources impacts.
- Greenhouse Gas Emissions
  - Emissions during future operations.
  - Conflict with a plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.
  - Cumulative impacts.
- Population and Housing
  - Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads of other infrastructure).
  - Cumulative impacts.
- Public Services
  - Parks
  - Cumulative impacts to parks.

- Recreation
  - Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
  - Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.
  - Cumulative impacts.
- Transportation/Traffic
  - Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit during future operations.
  - Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
  - Cumulative impacts.

5.2 EFFECTS NOT FOUND TO BE SIGNIFICANT

Section 15128 of the State CEQA Guidelines requires a statement that briefly indicates the reasons that various possible significant effects of a project were determined not to be significant and were, therefore, not discussed in detail in the Supplemental EIR. As stated in the State CEQA Guidelines, such a statement may be contained in an attached copy of an Initial Study. An Initial Study was prepared for the Proposed Amendment and is includes as Appendix A. As described and substantiated in Appendix A, the following five issue areas were not found to be significant, and therefore, were not further analyzed in this Supplemental EIR: agriculture and forestry resources, geology and soils, hazards and hazardous materials, land use and planning, and mineral resources. Additionally, while the remaining twelve issue areas were analyzed in this Supplemental EIR, the following individual thresholds for each of the remaining twelve issue areas were found to result in no impact/no new impact in the Initial Study, and therefore, were not further analyzed in this EIR:

- Aesthetics
  - Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

  - Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

- Air Quality
  - Would the project create objectionable odors affecting a substantial number of people?
- Biological Resources
  - Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
  - Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
  - Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
  - Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.
- Hydrology and Water Quality
  - Would the project violate any water quality standards or waste discharge requirements?
  - Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?
  - Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?
  - Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?
  - Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
  - Would the project otherwise substantially degrade water quality?

  - Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
  - Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?
  - Inundation by seiche, tsunami, or mudflow?
- Noise
  - For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?
  - For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?
- Population and Housing
  - Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?
  - Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?
- Transportation/Traffic
  - Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
  - Result in inadequate emergency access.
  - Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
- Utilities and Service Systems
  - Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
  - Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
  - Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?
  - Comply with federal, state, and local statutes and regulations related to solid waste?

5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(c) of the State CEQA Guidelines requires that an EIR analyze the extent to which the proposed project's primary and secondary effects would impact the environment and commit nonrenewable resources to uses that future generations will not be able to reverse. Nonrenewable resources that would be used on-site during construction and operation include natural gas, other fossil fuels, water, concrete, steel, and lumber. Future projects under the Proposed Amendment would result in the commitment of such resources.

Electricity is provided to the Proposed Amendment area by Southern California Edison (SCE). SCE serves approximately 180 cities in 11 counties across Central and Southern California. SCE's electrical energy generation sources include natural gas, coal, nuclear, renewable energy (geothermal, small hydroelectric, solar, and wind), and large hydroelectric facilities. The Southern California Gas Company provides the City with natural gas service. The company's service territory encompasses approximately 20,000 square miles and more than 500 communities. Potable and recycled water service for most of the Proposed Amendment area would be served by the Monte Vista Water District (MVWD). A small northwestern portion of the Proposed Amendment area is served by the Golden State Water Company. Both entities are under the regulatory obligations to treat the water to appropriate standards set by the U.S. Environmental Protection Agency (EPA), the State Water Resources Control Board, and the California Regional Water Quality Control Board (RWQCB). The MVWD currently serves a 9.56-square mile portion of the Chino Basin and derives most of its water from the Chino Groundwater Basin (MVWD 2016).

The Chino Groundwater Basin has a total underground water storage capacity of approximately 6 million acre-feet and currently holds approximately 5 million acre-feet of groundwater. The Chino Basin Judgment, adopted by the California Superior Court in 1978 under stipulation by local groundwater producers, designated a safe yield for the basin of 140,000 acre-feet, which is the amount of groundwater that can be pumped from the basin each year without causing undesirable results. Purchasing imported water from the Metropolitan Water District of Southern California (MWD), through the Inland Empire Utilities Agency (IEUA), for basin recharge generally makes up any excess of pumping over the safe yield. However, supplemental water may be obtained from any available source, including recycled water and imported water. The Chino Basin Judgment also allows for the transfer and storage of excess rights and supplemental supplies. Currently, the District relies on approximately 75 percent of its water supply from 12 active groundwater wells and other local supplies and 25 percent from imported water. The MVWD retail area includes the City of Montclair, portions of the City of Chino, and unincorporated areas of San Bernardino County (MVWD 2016).

At this time, the City of Montclair has not adopted a Climate Action Plan or likewise similar greenhouse gas (GHG) reduction strategy that would be applicable to the Proposed Amendment. At this time, no mandatory GHG plans, policies, or regulations or finalized agency guidelines would apply to implementation of future projects under the Proposed Amendment. However, the City has established a goal to reduce its community-wide GHG emissions to a level that is 20% below its 2008 GHG emissions level by 2020 (SANBAG 2013). As described in Section 3.5 of this EIR, approximately 54% of the City's GHG emissions in 2008 were attributed to on-road transportation. Building energy accounted for approximately 32%. Off-road equipment accounted for approximately 6%, solid waste management accounted for 4%, water conveyance accounted for 3%, and wastewater treatment made up the remaining 1% of the City's GHG emissions in 2008. Additionally, the City of Montclair General Plan (City of Montclair 1999) includes various policies related to reducing GHGs (both directly and indirectly) in the Circulation Element, Housing Element, Air Quality Element, and Conservation Element.

As described above, the utilities that service the City, the City itself, and the design of future projects under the Proposed Amendment are all subject to regulations that are working to reduce the amount of nonrenewable resources that are committed to development projects. Additionally, future projects under the Proposed Amendment may incorporate voluntary sustainable design factors to go beyond the requirements. As such, the Proposed Amendment is not anticipated to consume substantial amounts of energy in a wasteful manner, and it would not result in significant impacts from consumption of utilities. Although irreversible environmental changes would result from the Proposed Amendment, such changes would not be considered significant.

5.4 GROWTH-INDUCING IMPACTS

According to Section 15126.2(d) of the State CEQA Guidelines, growth-inducing impacts of the proposed project shall be discussed in the Supplemental EIR. Growth-inducing impacts are those effects of the proposed project that might foster economic or population growth or the construction of new housing, either directly or indirectly, in the surrounding environment. According to CEQA, increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects.

Induced growth is any growth that exceeds planned growth and results from new development that would not have taken place without the implementation of the proposed project. Typically, the growth-inducing potential of a project would be considered significant if it results in growth or population concentration that exceeds those assumptions included in pertinent master plans, land use plans, or projections made by regional planning authorities. However, the creation of growth-inducing potential does not automatically lead to growth, whether it would be below or in exceedance of a projected level.

The environmental effects of induced growth are secondary or indirect impacts of the proposed project. Secondary effects of growth could result in significant, adverse environmental impacts, which could include increased demand on community or public services, increased traffic and noise, degradation of air and water quality, and conversion of agricultural land and open space to developed uses. The Population and Housing section of the EIR discusses the potential growth inducement of future projects under the Proposed Amendment. The Proposed Amendment would amend the NMDSP to allow for an increase in the number of residences by 2,688 dwelling units. Using the household occupancy rate of 3.6, as reported for Montclair in the 2010 Census, the construction of 2,688 new residential units would introduce approximately 9,677 people to the planning area.

In addition, the Proposed Amendment would amend the NMDSP to allow for an increase in the amount of non-residential space by 782,285 square feet, which would increase the number of jobs available in the NMDSP area relative to the number of jobs that are currently available in the area. The number of additional employees in the area that would result from the proposed amendment has been estimated using employment generation rates from a Southern California Association of Government (SCAG) report on employment density. Regional retail land uses in San Bernardino County are associated with an employment density of 1,009 square feet (sf) per employee (SCAG 2001). The SCAG report also finds that other retail/service land uses in San Bernardino county are associated with an employment density of 124 sf per employee, office land uses are assocated with 697 sf per employee and industrial land uses are associated with 705 sf per employee (SCAG 2001). It is estimated that the non-residential site uses planned in the Proposed Amendment area provide employment for approximately 2,101 additional individuals, based on SCAG employment generation rates.

During construction of the proposed amendment projects, temporary construction employement would be generated in the planning area. Given the relatively common nature of the construction anticipated, the demand for construction employment would likely be met within the existing and future labor market in the City and in surrounding areas, including Los Angeles County and other cities and communities within San Bernardino County. If construction workers live outside of the City, these workers would likely commute during the relatively short, and finite, construction period of projects.

Upon the proposed amendment buildout, there would be a net increase in jobs available in the planning area. It is estimated that operation of the development allowed under the proposed amendment would generate a total of 2,101 jobs. The employees for the additional jobs in the planning area would likely be hired from the existing workforce within the City and within the nearby cities and communities in San Berndino County and Los Angeles County. However, in the unlikely event that these additional workers were to relocate to the City or to nearby areas, the population may increase in the City and in the region. The average persons per household in

the City are approximately 3.6 (U.S. Census Bureau 2014a). Therefore, in the unlikely event that all employees of the Proposed Amendment currently live outside of the City and were to move into the City, the Proposed Amendment would result in a population increase of approximately 7,564 new City residents.[1]

The total potential increase in population than would be generated from the Proposed Amendment is estimated to be approximately 17,241 new City residents (9,677 generated from the new residential development and 7,564 generated from the new non-residential development). This population estimate is a conservative worst-case estimate, as it assumes that all of the new employees for the development allowed under the proposed amendment currently live outside of the City, that all of these employees would move into the City upon obtaining a job in the planning area, and that all of the new employees would bring a household consisting of two or more persons each. While this scenario would have the potential to occur, it would be very unlikely, particularly considering the urbanized and built-out nature of the region in which the City is located. However, assuming the proposed amendment build out would occur by 2040, the Proposed Amendment would exceed the population and employment growth projections for the City, as calculated by SCAG.

Due to the ability of the existing regional population to provide an ample employment pool within proximity to the project site and due to the minor increase in employment relative to total jobs available in the City, the proposed project would not generate substantial population growth. As such, the growth-inducing impacts of the project, if any, would be minor. As such, the proposed project would not result in significant adverse secondary effects related to induced growth.

5.5 REFERENCES

City of Montclair. 1999. City of Montclair General Plan.

Monte Vista Water District. 2016. *2015 Urban Water Management Plan*, Public Review Draft, May. https://www.mvwd.org/download.cfm?ID=1673. Site accessed October 26, 2016.

San Bernardino Associated Governments (SANBAG). 2013. Regional Greenhouse Gas Reduction Plan.

Southern California Association of Governments. 2001. *Employment Density Study Summary*

Report. Prepared by Natelson Company in association with Terry A. Hayes Associates. October 31, 2001. Accessed October 8, 2016. http://www.mwcog.org/uploads/committee-documents/bl5aX1pa20091008155406.pdf.

[1] 2,101 new employees under the Proposed Amendment x 3.6 persons per household =7,564 new City residents.

CHAPTER 6
LIST OF PREPARERS

The following individuals participated in the preparation of the North Montclair Downtown Specific Plan Amendment Project Environmental Impact Report and its associated technical studies.

City of Montclair

Michael Diaz, City Planner/Planning Manager
Edward C. Starr, City Manager
Marilyn Staats, Deputy City Manager
Christine S. Caldwell, Assistant Director of Housing/Planning Manager
Michael C. Hudson, Public Works Director/City Engineer
Mikey Fuentes, Senior Management Analyst

Dudek

Ruta K. Thomas, REPA, Project Manager
Candice Disney Magnus, Environmental Analyst
Andrew Greis, Graphics
Jonathan Leech, Senior Noise Specialist/Acoustician
Ian McIntire, Air Quality and Greenhouse Gas Emissions Analyst
Samantha Murray, RPA, Archaeologist/Architectural Historian
Jennifer Reed, Senior Air Quality and Greenhouse Gas Emissions Specialist
Kaitlin Roberts, Environmental Planner
Perry W. Russell, P.G., Geologist
Josh Saunders, Environmental Analyst
Anais Schenk, Transportation Planner
Michele Webb, Environmental Analyst
Devin Brookhart, Publications Specialist Lead
Daniel Kil, Production Coordinator

Stantec

Melissa Dugan, Project Manager
Sandhya Perumalla, Senior Transportation Planner

INTENTIONALLY LEFT BLANK

APPENDIX A

Initial Study-NOP, Agency Distribution List, and Initial Study-NOP Comments

City of Montclair
Public Notice of Preparation
of a
Draft Supplemental Environmental Impact Report
for the
North Montclair Downtown Specific Plan Amendment Project

Notice is hereby given that the City of Montclair (City), as Lead Agency, will be preparing a draft Supplemental Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) for the proposed North Montclair Downtown Specific Plan Amendment Project (Proposed Amendment) as described below. This Notice of Preparation (NOP) of a Supplemental EIR was publicly noticed and distributed on October 3, 2016. The notice was posted on the City of Montclair's website at the following:www.cityofmontclair.org.

This NOP and Initial Study (IS) serve two purposes: 1) to notify the public that the City will prepare a Supplemental Draft EIR to further assess potential adverse environmental impacts that may result from implementing the Proposed Amendment; and 2) to solicit information on the scope of the environmental analysis for the Proposed Amendment. The City, as the lead agency, is seeking the views of responsible and trustee agencies and interested parties on the scope and content of the descriptions of the significant environmental issues and reasonable alternatives and mitigation measures to be explored in the Supplemental Draft EIR.

Date	October 3, 2016
Project Title	North Montclair Downtown Specific Plan Amendment Project
Lead Agency	City of Montclair Community Development Department Planning Division 5111 Benito Street Montclair, CA 91763
SCH No.:	Pending
Project Applicant:	City of Montclair

Public Review Period: October 3, 2016 to November 1, 2016 5:00 PM

The City has issued this NOP and made available the IS for public review and comment pursuant to CEQA Guidelines Sections 15082(a) and 15375. The City has established a 30-day public review and scoping period from October 3, 2016 to November 1, 2016, in accordance with CEQA Guidelines Section 15082 (14 CCR 15082). During this period, the NOP and IS will be posted on the City's website at: www.cityofmontclair.org. The NOP, IS, and any supporting documents will also be available for review at the following:

- City of Montclair
  Development Services Department
  5111 Benito Street, Montclair, CA 91763
  Monday through Thursdayfrom 7:00 a.m. to 6:00 p.m. (except during office closures)

- Montclair Branch Library
  9955 Fremont Avenue
  Montclair, CA 91763
  Monday through Wednesday from 11:00 a.m. to 7:00 p.m., Thursday and Friday 10:00 a.m. to 6:00 p.m. and Saturday from 9:00 a.m. to 5:00 p.m. (except during library closures)

Public Comments: At this time, the City is soliciting comments on the NOP and IS for the Proposed Amendment, as well as comments regarding the scope and alternatives of the Supplemental EIR for the Proposed Amendment. Comments may be submitted by mail or e-mail. All scoping comments must be received in writing by November 1,2016, by 5:00 p.m. (end of the 30-day public scoping period). Please send all comments via mail to Michael Diaz, City Planner at the address indicated above or via email to mdiaz@cityofmontclair.org. All written comments should indicate a contact person for your agency or organization, if applicable, and reference the project name indicated on this NOP in the subject line. Responsible agencies are requested to indicate their statutory responsibilities in connection with this project when responding. All comments on environmental issues received during the public comment period will be considered and addressed in the Draft Supplemental EIR, which is anticipated to be available for public review in late 2016. Notice of the Supplemental EIR public review and comment period will be published at a later date.

Public Scoping Meeting: The City will hold a public scoping meeting on October 19 2016, at 6:00 p.m. at City of Montclair City Council Chambers located at 5111 Benito Street, Montclair, California, 91763. The purpose of the scoping meeting is to present information about the proposed amendment, the City's process and timelines, and to solicit input, including written comments, on the scope and content of the Draft Supplemental EIR. Interested parties, including public agencies, are encouraged to attend the meeting to learn more about the proposed project and the environmental review process, to express any concerns about the proposed amendment and to offer suggestions regarding the environmental impacts, including any mitigation measures and alternatives. The public scoping meeting information and the NOP/IS are posted at the following website: www.cityofmontclair.org.

Project Location and Setting: The Proposed Amendment area is located in the City of Montclair, within the western edge of San Bernardino County (see Figure 1, Regional Map and Figure 2, City of Montclair). The Proposed Amendment would amend the Montclair Downtown area that was defined in

the North Montclair Downtown Specific Plan(NMDSP) prepared in 2006 (see Figure 3, North Montclair Downtown Specific Plan). Montclair's Downtown is an approximately 150-acre subset of the 640-acre North Montclair area that was defined in the North Montclair Specific Plan, prepared and adopted in 1998. The NMDSP planning area corresponds generally to the area bound by Huntington Drive on the north, Monte Vista Avenue on the west, Moreno Street on the south, and Central Avenue on the east. The existing boundary extends past these general boundaries in a number of locations and retreats from these general boundaries in one location along Moreno Street where the City has adopted a Specific Plan of Development No. 81-2, as shown in Figure 3 (North Montclair Downtown Specific Plan). The Montclair Downtown area is located within 10 minutes of the Claremont Colleges and Cable Airport, and is adjacent to, but does not include Montclair Place (formerly known as Montclair Plaza).

The NMDSP area is surrounded by mostly developed properties on all sides. To the west of the NMDSP boundary, across Monte Vista Avenue and south of Arrow Highway, is a mix of residential, industrial, conservation and business park uses. To the north of the NMDSP boundary across Huntington Drive, land uses include public utility, commercial and residential properties. To the east of the NMDSP boundary, across Central Avenue, land uses include commercial and business/residential mixed-use properties. To the south of the NMDSP area boundary, across Moreno Street, land uses include commercial uses in the Montclair Place (formerly known as Montclair Plaza), a major regional mall. The property along Moreno Street where the City has adopted Specific Plan of Development No. 81-2 has been developed as a residential neighborhood.

Project Description: The key project components of the Proposed Amendment include: 1) replace the existing regulating plan in the NMDSP with a new regulating plan and zones; 2) extend the NMDSP westerly boundary to incorporate an area to the southwest at Arrow Highway and Monte Vista Avenue; 3) extend the NMDSP easterly boundary to incorporate 22 acres of land on the west side of Central Avenue at Richton Street; 4) assign land use designations on several properties located along the west side of Central Avenue; 5) introduce a two new land use overlays, the Transition Overlay and the Shopfront Overlay; 6) alter the development potential for the planning area to allow for approximately 2,688 additional residential dwelling units and approximately 782,285 additional square feet of non-residential transit-oriented development; 7) establish minimum intensity standards for the NMDSP area; 8) provide a new street alignment at Arrow Highway and Fremont Avenue; 9) reconfigure the street pattern at Moreno Street and Fremont Street; 10) update the street pattern on the northeast corner of Arrow Highway andVista Avenue; 11) update the street pattern and park at the northeast corner of Monte Vista Avenue and Moreno Street; 12) update the street pattern north of the railroad right-of-way; 13) relocate the parking structures; 14) establish minimum lot and maximum building size standards; 15) allow for tandem parking standards; 16) remove references to single-family residential uses; 17) provide new signage standards; 18) provide public realm and landscape standards; and 19) update the exhibits in the NMDSP.

The proposed project would require a General Plan Amendment to allow for the revision of the official boundary of the NMDSP site plan and other map-based exhibits reflecting the expansion area at the southwest corner of Arrow Highway and Monte Vista Avenue. This area would be re-designated in the

General Plan from Business Park to Planned Development. The proposed project would also require a zone change in the official City of Montclair Zoning Map and other exhibits to reflect the new zoning of the southwest corner of Arrow Highway and Monte Vista Avenue from MI Limited Manufacturing to Specific Plan with the land use zones of Town Center along Arrow Highway and Corridor Residential on the rest of the property. A Specific Plan Amendment to the NMDSP would also be required to incorporate all the components of the Proposed Amendment as described above.Additionally, the project proposes to rescind the Turner Montclair Specific Plan, annex the territory that was previously within the Turner Montclair Specific Plan into the North Montclair Downtown Specific Plan, and apply the new North Montclair Downtown Specific Plan land use designations and regulations to that area.This area is currently designated as the Turner Montclair Specific Plan (1990). Other regulatory agencies that may also require permits or other approvals for the Proposed Amendment include the Airport Land Use Commission for the Cable Airport and the Ontario International Airport, the Native American Heritage Commission for the Assembly Bill 52 consultation process, and the California Native American tribes for the Senate Bill 18 consultation process.

Probable Environmental Effects: Based on the preliminary scope of the proposed project and the preparation of the IS, the City has determined that the Proposed Amendment could have a potentially significant environmental effect in the following areasbeyond those disclosed and analyzed in the 2006 North Montclair Downtown Specific Plan EIR:aesthetics, air quality, biological resources, cultural resources, greenhouse gas emissions, hydrology and water quality, noise, population and housing, public services, recreation, transportation and traffic, utilities and service systems, energy conservation, cumulative impacts and growth inducing impacts. Pursuant to CEQA Guidelines Section 15162 and 15063, the City has determined that preparation of aSupplemental EIR will be required, which will focus on the significant effects of the project. The Proposed Amendment's potentially significant environmental effects will be addressed in the forthcoming Draft Supplemental EIR.Notice of the Supplemental EIR public review and comment period will be published at a later date.

If you have any questions, please contact Michael Diaz at (909) 625-9432 or mdiaz@cityofmontclair.org.

Si desea información en Español acerca de esta propuesta, por favor comuníquese con Silvia Gutierrez en la ciudad de Montclair, al teléfono (909) 625-9435.

Signature: Michael Diaz

Name/Title: Michael Diaz, City Planner

9-30-16

Date

Attachments: Figure 1, Regional Map
Figure 2, City of Montclair
Figure 3, North Montclair Downtown Specific Plan

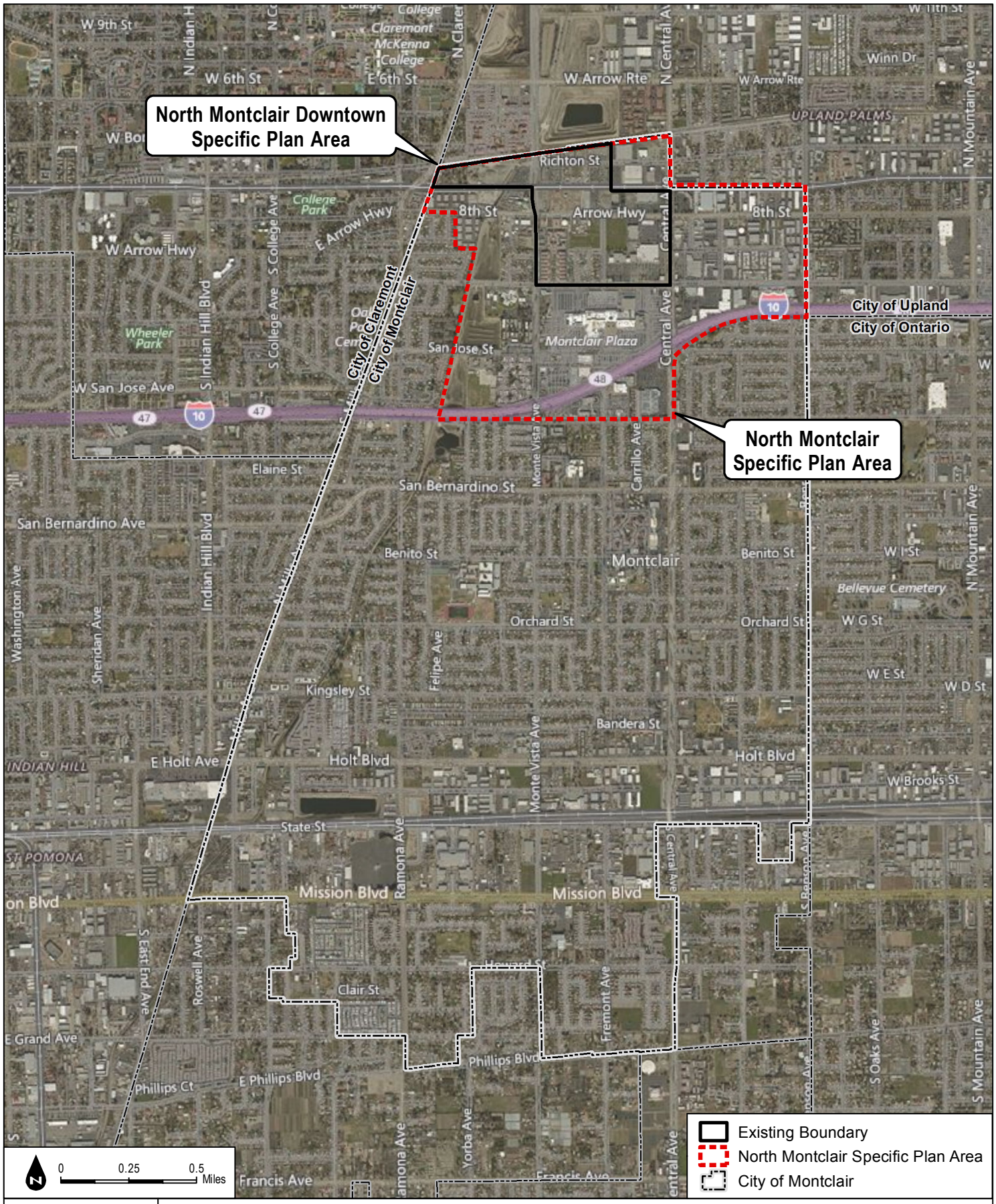
SOURCE: ESRI 2016

FIGURE 1

Regional Map

DUDEK

North Montclair Downtown Specific Plan Amendment Project



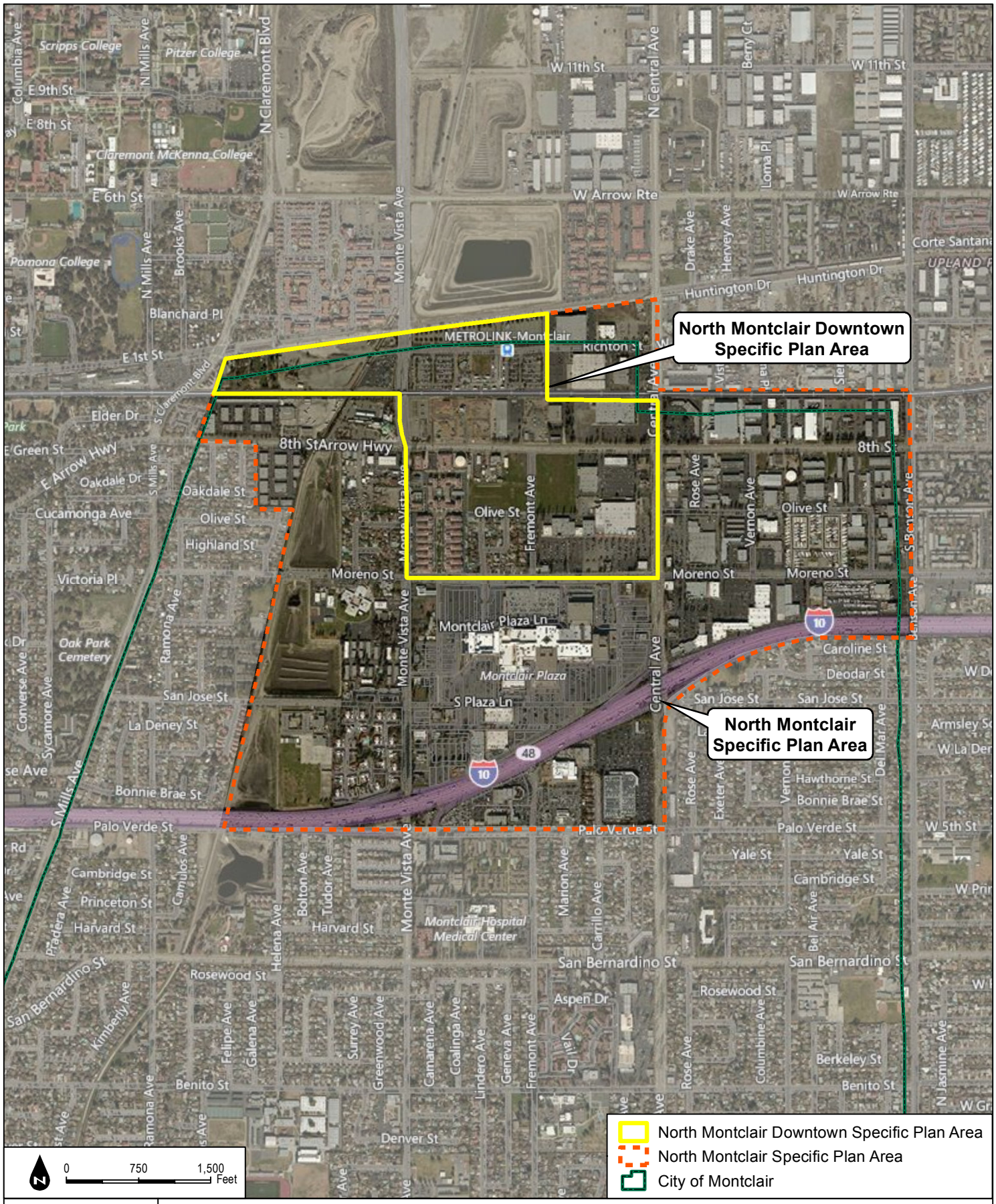
SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan.

FIGURE 2

City of Montclair

DUDEK

North Montclair Downtown Specific Plan Amendment Project



DUDEK

SOURCE: Bing Imagery, 2016

FIGURE 3

North Montclair Downtown Specific Plan

North Montclair Downtown Specific Plan Amendment Project

INITIAL STUDY
for the
North Montclair Downtown Specific Plan Amendment Project

Prepared for:

City of Montclair
Contact: Michael Diaz, City Planner

Prepared by:

DUDEK
38 North Marengo Avenue
Pasadena, California 91101
Contact: Ruta K. Thomas, REPA

OCTOBER 2016

Printed on 30% post-consumer recycled material.

TABLE OF CONTENTS

Section **Page No.**

ACRONYMS AND ABBREVIATIONS III

1 INTRODUCTION 1
1.1 California Environmental Quality Act Compliance 1
1.2 Overview of the Proposed Amendment 3

2 PROJECT DESCRIPTION 5
2.1 Project Location 5
2.2 Surrounding Land Uses 5
2.3 Existing Setting 6
2.4 Need for the Project 7
2.5 Objectives 8
2.6 Project Components 9
2.6.1 California Environmental Quality Act Baseline 9
2.6.2 Proposed Amendment 15
2.6.3 Required Permits and Approvals 25

3 INITIAL STUDY CHECKLIST 53
3.1 Aesthetics 60
3.2 Agriculture and Forestry Resources 68
3.3 Air Quality 71
3.4 Biological Resources 83
3.5 Cultural Resources 91
3.6 Geology and Soils 97
3.7 Greenhouse Gas Emissions 109
3.8 Hazards and Hazardous Materials 119
3.9 Hydrology and Water Quality 133
3.10 Land Use and Planning 143
3.11 Mineral Resources 151
3.12 Noise 154
3.13 Population and Housing 163
3.14 Public Services 167
3.15 Recreation 173
3.16 Transportation and Traffic 175
3.17 Utilities and Service Systems 183
3.18 Mandatory Findings of Significance 190

4 REPORT PREPARERS 195

TABLE OF CONTENTS (CONTINUED)

Page No.

APPENDICES

A CNDDB Biological Resources Occurrence Report
B Cultural Resources Records Checks

FIGURES

1 Regional Map 27
2 City of Montclair 29
3 North Montclair Downtown Specific Plan 31
4a North Montclair Downtown Specific Plan Existing Regulating Plan 33
4b North Montclair Downtown Specific Plan Proposed Regulating Plan 35
5 Existing Property Lines, Buildings and Features 37
6 Existing vs. Proposed North Montclair Downtown Specific Plan Westerly Boundary 39
7 Existing vs. Proposed North Montclair Downtown Specific Plan Easterly Boundary 41
8 Existing vs. Proposed Street Alignment at Arrow Highway and Fremont Avenue 43
9 Existing vs. Proposed Street Alignment at Fremont Avenue and Moreno Street 45
10 Existing vs. Proposed Street Alignment at Northeast Corner of Arrow Highway and Monte Vista Avenue 47
11 Existing vs. Proposed Street Alignment on the Northeast Corner of Monte Vista Avenue and Moreno Street 49
12 Existing vs. Proposed Parking Areas 51
13 Cable Airport – Airport Influence Area 129
14 Ontario Airport – Airport Influence Area 131

TABLES

1 North Montclair Downtown Specific Plan Information 6
2 2016 Downtown Plan Residential Buildout[1] 19
3 2016 Downtown Plan Non-Residential Buildout[1] 19
4 Minimum Intensity Per Land Use Zone 20
5 Minimum Lot Size and Maximum Building Size Allowed Per Land Use Zone 22

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
ADA	Americans with Disabilities Act
ADT	average daily traffic
AIA	Airport Influence Area
ALUCP	Airport Land Use Compatibility Plan
AQMP	Air Quality Management Plan
BMP	Best Management Practices
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CH_4	methane
CHRIS	California Historical Resources Information System
City	City of Montclair
CIWMB	California Integrated Waste Management Board
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2E	carbon dioxide equivalent
CR	Corridor Residential
CRHR	California Register of Historical Resources
CTP	Comprehensive Transportation Plan
dB	Decibel
dBA	A-weighted decibel
DOC	Department of Conservation
EDU	equivalent dwelling unit
EIR	Environmental Impact Report
EMS	Emergency Medical Services
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
GIS	geographic information system
GPA	General Plan Amendment
GWP	global warming potential

Acronym/Abbreviation	Definition
HVAC	heating, ventilation, and air conditioning
I-	Interstate
IEUA	Inland Empire Utilities Agency
IS	Initial Study
JPA	Joint Powers Authority
LCFS	Low Carbon Fuel Standard
LED	light-emitting diode
L_{eq}	equivalent sound level over a given time period
LID	Low Impact Development
LOS	Level of Service
LST	localized significance threshold
mgd	million gallons per day
MMT	million metric tons
MND	Mitigated Negative Declaration
MRF	Material Recovery Facilities
MT	metric tons
MVWD	Monte Vista Water District
NAAQS	National Ambient Air Quality Standards
NAHC	California Native American Heritage Commission
NMDSP	North Montclair Downtown Specific Plan
NMSP	North Montclair Specific Plan
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NR	Neighborhood Residential
O_3	Ozone
ONT ALUCP	Ontario International Airport Land Use Compatibility Plan
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
PRC	California Public Resources Code
RTA	Riverside Transit Agency
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SANBAG	San Bernardino Associated Governments
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SD	Station District

Acronym/Abbreviation	Definition
sf	square foot; square feet
SIRCULS Network	San Bernardino, Inyo, Riverside Counties United Library Service Network
SO_2	sulfur dioxide
SO_x	oxides of sulfur
SPA	Specific Plan Amendment
Specific Plan	North Montclair Specific Plan
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
TC	Town Center
TIA	traffic impact analysis
TOD	transit oriented development
USGS	United States Geological Survey
VOC	volatile organic compound
WDR	Waste Discharge Requirement
WQMP	Water Quality Management Plan
Zoning Code	Montclair Zoning and Development Code
°F	degrees Fahrenheit

INTENTIONALLY LEFT BLANK

1 INTRODUCTION

1.1 California Environmental Quality Act Compliance

This document serves as the Initial Study (IS) for the proposed North Montclair Downtown Specific Plan (NMDSP) Amendment Project (Proposed Amendment) in the City of Montclair (City), California. The City, as the lead agency for the Proposed Amendment, is responsible for preparing environmental documentation in accordance with the California Environmental Quality Act (Pub. Res. Code § 21000 et seq.: "CEQA") to determine if approval of the discretionary actions requested and subsequent development in the NMDSP area could have a significant impact on the environment.

Planning Background

1998 North Montclair Specific Plan

In 1998, the City of Montclair adopted the North Montclair Specific Plan in order to provide more detailed planning for the part of the City north of the Interstate 10 (I-10) freeway. The North Montclair Specific Plan addressed issues associated with economic vitality, design, redevelopment, compatibility, transportation, and pedestrian access in approximately 640 acres south of the northern city limit. Although the North Montclair Specific Plan provided new design concepts for the area, including pedestrian-oriented design, the City had mixed success implementing the Plan.

2006 North Montclair Downtown Specific Plan

In 2003, changes in the regional commercial market, continued underutilization of land in the North Montclair area, and the selection of the City as the eastern terminus of the Foothill Gold Line Extension light rail line, led the City to embark on a new planning effort for the North Montclair Downtown area. The Downtown area was an approximately 150-acre subset of the 640-acre North Montclair area. The City hoped to revitalize the area consistent with the goals and objectives of the General Plan. This planning effort eventually became the NMDSP.

The NMDSP was designed to function like a land use ordinance for the area by providing land use regulations, development standards and design guidelines for new development. The NMDSP introduced mixed-use as a land use and development concept and provided a more cohesive plan and vision for the downtown area, with an aim for more unified linkages in terms of both circulation and design. The NMDSP contained estimates of future population, housing, and employment that has served as the basis for infrastructure and service planning.

In May 2006, the City of Montclair City Council certified the NMDSP Final EIR (City of Montclair 2006) and adopted the NMDSP. The 2006 EIR evaluated the potential impacts that may result from the adoption and implementation of the proposed NMDSP. The EIR was prepared as a Program EIR, which, according to Section 15168 of the State CEQA Guidelines, is appropriate when a project consists of:

> …a series of actions that can be characterized as one large project and are related in one or more of the following ways:
>
> 1. Geographically,
> 2. As logical parts in the chain of contemplated actions,
> 3. In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
> 4. As individual activities carried out under the same authorizing, statutory, or regulatory authority and having generally similar ways.

Program EIRs are intended to provide analysis that is more general and anticipates future project refinement and review. The 2006 EIR allows for specific projects within the NMDSP area to "tier" future environmental assessment off the NMDSP EIR.

The City has now decided to amend the NMDSP. This IS Checklist/Environmental Evaluation has been prepared on behalf of the City to identify any potentially significant impacts associated with the Proposed Amendment and to document the forthcoming intended analysis in a Supplemental EIR to the 2006 NMDSP EIR. This IS is in conformance with Sections 15063 and 15064 of the CEQA Guidelines (14 CCR 15000 et seq.). In addition, pursuant to State CEQA Guidelines Section 15168, the City will use this IS to determine whether the Proposed Amendment would have new effects that were not examined in the 2006 NMDSP EIR or would cause more severe environmental impacts that would require new or additional mitigation.

In accordance with California PRC Section 21002.1, and based upon the information contained in this IS, the City will prepare a Supplemental EIR for the following purposes:

- To inform the general public, the local community, responsible and interested public agencies, the decision making bodies, and other organizations, entities, and interested persons of the scope of the Proposed Amendment, its potential environmental effects, possible measures to reduce potentially significant environmental impacts, and alternatives that could reduce or avoid the significant effects of the Proposed Amendment

- To enable the City to consider environmental consequences when deciding whether to approve the Proposed Amendment
- To satisfy the substantive and procedural requirements of CEQA

An EIR will be prepared as a Supplement to the 2006 NMDSP EIR pursuant to Section 15163 of the CEQA Guidelines. As stated in the CEQA Guidelines, a Supplement to an EIR is appropriate for a project when:

> "Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation."

The EIR will be intended to serve as an informational document for the public and City decision-makers. The City Council will consider whether to certify the EIR and whether to approve the Proposed Amendment.

1.2 Overview of the Proposed Amendment

The Proposed Amendment would involve amending the 2006 NMDSP to allow for the future development of projects that are tied to the Montclair Transcenter, and the anticipated extension of the Foothill Gold Line that will extend light rail line to the City. The Proposed Amendment would shift or reallocate a portion of the density planned in the northern area of the NMDSP to allow for additional mixed-use transit oriented development (TOD) projects along the new Foothill Gold Line Extension. The Proposed Amendment would also expand the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 22 acres of land on the west side of Central Avenue at Richton Street. In both of these areas, appropriate land use zones, density levels, and street patterns would be determined and incorporated into the NMDSP. The Proposed Amendment would amend the NMDSP to allow for a maximum number of 5,888 dwelling units, which is 2,688 more dwelling units than allowed under the current NMDSP. The Proposed Amendment would also amend the NMDSP to allow for a total of 1,681,285 square feet of non-residential uses, which is 782,285 square feet more than what is allowed in the current NMDSP. The Proposed Amendment would also assign land use designations to properties within the NMDSP where there currently are none or where a new land use mix is more appropriate.

The required discretionary approvals that are being sought by the City of Montclair (City) include the following:

1. A General Plan Amendment (GPA) to allow for the revision of the official NMDSP site plan and other map-based exhibits to include the expansion area at the southwest corner

of Arrow Highway and Monte Vista Avenue. This area would be re-designated in the General Plan from Business Park to Planned Development.

2. A zone change in the official City of Montclair Zoning Map and other exhibits to reflect the new zoning for the southwest corner of Arrow Highway and Monte Vista Avenue from M1 Limited Manufacturing to Specific Plan and the corresponding land use designations of Town Center (along Arrow Highway) and Corridor Residential (on the remainder of the property) pursuant to the updated North Montclair Downtown Specific Plan.
3. A Specific Plan Amendment (SPA) to the North Montclair Downtown Specific Plan to incorporate all of the components of the Proposed Amendment as described below.
4. Replace and incorporate the Turner Montclair Specific Plan into the expanded boundaries of the NMDSP. The current boundaries of the area within the Turner Montclair Specific Plan are Monte Vista Avenue on the west, the boundary line between the cities of Montclair and Upland on the north, Central Avenue on the east, and the Metrolink rail line on the south.

2 PROJECT DESCRIPTION

This project description describes the objectives of the Proposed Amendment and provides a description of the project components of the Proposed Amendment. This project description also discusses the location; setting; a brief history of the NMDSP; characteristics of the Proposed Amendment; and approvals required to implement the Proposed Amendment.

2.1 Project Location

The Proposed Amendment area is located in the City of Montclair, within the western end of San Bernardino County (Figure 1, Regional Map), and approximately 36 miles east of downtown Los Angeles. The topographical area encompassing Montclair is known as the Chino Basin. The City lies in the northwest corner of the Basin. Montclair is bordered by the cities of Pomona and Claremont to the west (in Los Angeles County), Upland to the north, Upland and Ontario to the east, and Chino to the south. The San Gabriel Mountains are located to the north, the Jurupa Mountains are located to the southeast, the Chino Hills and Santa Ana Mountains are located to the southwest, and the San Jose Hills are located to the west. Direct regional access to Montclair is provided by the Interstate 10 (I-10) freeway. The City extends both north and south of the I-10 freeway. The City limits are shown in Figure 2, City of Montclair.

The Proposed Amendment would amend the Montclair Downtown area that was defined in the NMDSP prepared in 2006 (see Figure 3, North Montclair Downtown Specific Plan). Montclair's Downtown is an approximately 150-acre subset of the 640-acre North Montclair area that was defined by the North Montclair Specific Plan, prepared and adopted in 1998. The NMDSP planning area corresponds generally to the area bound by Huntington Drive on the north, Monte Vista Avenue on the west, Moreno Street on the south, and Central Avenue on the east. The existing boundary extends past these general boundaries in a number of locations and retreats from these general boundaries in one location along Moreno Street where the City has adopted a Specific Plan of Development No. 81-2, as shown in Figure 3 (North Montclair Downtown Specific Plan). The Montclair Downtown area is located within 10 minutes of the Claremont Colleges and Cable Airport, and is adjacent to, but does not include Montclair Place (formerly known as Montclair Plaza) (see Figure 2, City of Montclair).

2.2 Surrounding Land Uses

The NMDSP area is surrounded by both developed properties, and number of underutilized or vacant sites on all sides. To the west of the NMDSP boundary, across Monte Vista Avenue and south of Arrow Highway, is a mix of residential, industrial, conservation and business park uses. To the north of the NMDSP boundary across Huntington Drive, land uses include public utility,

commercial and residential properties located in the City of Upland. To the east of the NMDSP boundary, across Central Avenue, land uses include commercial and business/residential mixed-use properties. To the south of the NMDSP area boundary, across Moreno Street, land uses include commercial uses in the Montclair Place (formerly known as Montclair Plaza), a major regional mall. The City has adopted a Specific Plan of Development No. 81-2 for the northwest corner of Moreno Street and Fremont Avenue. This area is developed as a single-family residential neighborhood.

2.3 Existing Setting

The characteristics of the NMDSP area, its surroundings, and its existing conditions are summarized in Table 1, North Montclair Downtown Specific Plan Information.

Table 1
North Montclair Downtown Specific Plan Information

General Plan Designation	Planned Development
Zoning	Specific Plan – North Montclair Downtown Specific Plan - Commercial and Residential Uses • Corridor Residential - North Montclair Downtown Specific Plan • Neighborhood Residential – North Montclair Downtown Specific Plan • Town Center – North Montclair Downtown Specific Plan
Site Size	150 acres
Assessor's Parcel Number(s)	Numerous
Present Use	Mix of residential, commercial, and industrial uses
Surrounding Land Uses Zoning	North: Public Utility, Commercial and Residential Uses • PU Public Utilities – Water Storage Basin – City of Upland General Plan Land Use Map • MFR-L Multifamily Residential Low – Upland General Plan Land Use Map • C/R-MU Commercial/Residential Mixed-Use – Upland General Plan Land Use Map South: Commercial Uses • C-3 General Commercial- North Montclair Specific Plan (NMSP) – Regional Mall with mix of retail and, restaurant uses West: Industrial Uses and Residential Uses • MIP Industrial Park Manufacturing – North Montclair Specific Plan (NMSP) • R-1 Single Family Residential East: Commercial, Office Professional Uses • C-3 General Commercial – North Montclair Specific Plan (NMSP) • RC Regional Commercial – Upland General Plan Land Use Map • B/R-MU – Business/Residential Mixed-Use Upland General Plan Land Use Map • Institutional
Access	Major streets with in the Downtown include Central Avenue, Arrow Highway, Moreno Street, Fremont Avenue, Richton Street, and Monte Vista Avenue. Interstate-10 and Metrolink's San Bernardino commuter rail line provide direct regional access to the NMDSP planning area.

Table 1
North Montclair Downtown Specific Plan Information

Public Services	Water Supply: Monte Vista Water District Sewer Service: City of Montclair Solid Waste: Burrtec Waste Industries Fire Protection: Montclair Fire Department Police Protection: Montclair Police Department School District: Ontario-Montclair School District (K-8) and Chaffey Joint Union High School District (9-12)
Utilities	Gas Supply: The Gas Company Electric Supply: Southern California Edison Telephone: Frontier Communications Cable TV: Time Warner

2.4 Need for the Project

The NMDSP, adopted in 2006, mitigates the City's sprawl by establishing a framework and development strategy for a pedestrian-oriented retail and residential District surrounding the Montclair Transcenter. Prior to adoption of the NMDSP, the City was dominated by tract houses and apartments from the 1950s to the 1970s, with a commercial district of auto-oriented retail businesses clustered around a regional shopping mall.

The 2006 NMDSP planning effort focused on the 150 acres of vacant lots, strip malls and other marginal land uses that were located between Montclair Place and the Montclair Transcenter, which is currently served by local buses, and the regional Metrolink rail and the anticipated extension of the Foothill Gold Line light rail. The planning process explored the viability of housing at various densities, supporting commercial office and retail uses, structured parking, and creation of a strong visual and pedestrian connection with the north side of the existing mall.

The Proposed Amendment would amend the 2006 NMDSP to allow for the future development of projects tied to the Montclair Transcenter and the anticipated extension of the Foothill Gold Line that would extend light rail line service to the City. The Proposed Amendment would assign and create appropriate Specific Plan land use designations and densities for the proposed expansion areas and the previously undesignated properties along the west side of Central Avenue within the current specific plan boundaries. The Proposed Amendment would also amend other portions of NMDSP to clarify, refine, or modify certain development standards and architectural guidelines that will guide development in the NMDSP area through 2035.

2.5 Objectives

The primary objectives of the Proposed Specific Plan Amendment include the following:

- Amend the NMDSP to expand the area of the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 22 acres of land on the west side of Central Avenue at Richton Street and determine appropriate land use zones, density levels and street patterns for these areas.
- Amend the NMDSP to determine appropriate land use zones, density levels and future street patterns for properties in the specific plan area that are located along the west side of Central Avenue and portions of Arrow Highway and Fremont Street. In addition to the current Neighborhood Residential (NR), Corridor Residential (CR) and Town Center (TC) land use zones and standards that are identified in the existing NMDSP, two new land uses would be introduced including a Station District land use zone, and a "transition" zone.
- Update all NMDSP maps and exhibits to reflect projects approved under the current plan, including The Paseos and Arrow Station residential developments. The updated plans would add the location of the Pacific Electric Inland Empire Trail, and conceptually plan for the anticipated arrival of the Foothill Gold Line light rail extension.
- Amend the NMDSP to account for an increase in the maximum number of dwelling units and additional commercial square footage allowable by the plan and expanded boundaries. The maximum number of dwelling units envisioned by the Proposed Amendment is 5,888 dwelling units (+ 2,688 dwelling units) and the total additional commercial square footage envisioned by the plan is 1,681,285 square feet (+ 782,285 square feet).
- Update architectural and development standards as necessary to successfully implement the Specific Plan including, but not limited to, the provision of new minimum lot sizes for development in each respective land use zone, including parking, setbacks, building heights, etc.
- Modify the NMDSP to provide for additional transit oriented development along the new Foothill Gold Line extension alignment within the project area.
- Clarify and amend Table 5.1 Allowed Land Uses and Permit Requirements to add or delete specific land uses for each zoning district of the updated NMDSP.

2.6 Project Components

2.6.1 California Environmental Quality Act Baseline

The baseline for a project is normally the physical condition that exists when the Notice of Preparation (NOP) is published. The following discussion details the conditions existing in and around the NMDSP area at the time the NOP is published. The NOP for the Proposed Amendment was published on October 3, 2016. The intent of this section is to establish the baseline conditions against which the various impacts of the Proposed Amendment will be assessed. The project as reviewed in the prior 2006 EIR, as well as the project's identified impacts, are considered a part of the baseline for this subsequent environmental review of the Proposed Amendment. The analysis of the Proposed Amendment's impacts is limited to new impacts not previously evaluated in the 2006 EIR. As such, the environmental review of the Proposed Amendment will examine the difference between the impacts of the project as described in the 2006 EIR and the impacts of the Proposed Amendment (revised project) that is the focus of this IS and forthcoming Supplemental EIR.

General Description

The NMDSP area is currently characterized as a mix of industrial, commercial, residential and vacant land uses. All properties have undergone disturbance previously resulting from development of the existing commercial and residential uses that make up the project area. Based on estimates from aerial photographs approximately 10 percent of the planning area is vacant, 30 percent is developed as surface parking and 20 percent is developed with residences, with the remainder (approximately 40 percent) in low- to high-density commercial uses and transit facilities.

Vegetation in the NMDSP area is limited to ornamental landscaping associated with existing development and several ornamental trees that line the streets. Planters with ornamental trees, shrubs, and grasses are scattered sparsely throughout the numerous surface parking lots. Vacant lots are highly disturbed, graded to varying degrees, and support only minimal amounts of low-growing vegetation (mostly annual weeds).

The planning area is served by all basic infrastructures. There are no natural riparian or other surface water features in or proximate to the planning area. The concrete lined San Antonio Flood Control Channel runs through a portion of the planning area. Two water storage basins associated with the San Antonio Wash are located west and north of the NMDSP area. One water storage basin is located approximately 100 feet north of the northern edge of the NMDSP area and is separated from the area by Huntington Drive, which accommodates the Pacific Electric Inland Empire Trail. The other water storage basin is located immediately adjacent to the western edge of the area at the

southwest corner of Arrow Highway and Monte Vista Avenue that is proposed to be incorporated into new NMDSP boundary area. These basins are mapped as freshwater ponds by the U.S. Fish and Wildlife Service National Wetland Inventory. They are also mapped as being diked/impounded or excavated, indicating that the ponds are substantially modified and/or created by artificial means (USFWS 2014). These basins are surrounded by urban development, and the Proposed Amendment site is separated from the northern basin Huntington Drive easement, which accommodates the Pacific Electric Inland Empire Trail. The western basin is located immediately adjacent to the western edge of the planning area.

Typical residential development in the planning area ranges from one to three stories in height. Most of the surrounding commercial structures are one story in height. Most existing buildings or structures in the NMDSP area range in height between approximately 30 and 75 feet. Because of the relatively low height of most development within the Proposed Amendment area, long-range viewsheds are relatively unobstructed; however, the proximity of the surrounding development generally obstructs long-range views.

Population and Housing Trends

The estimated population for the City as of January 1, 2013, according to the Department of Finance, was 37,311 residents (City of Montclair Planning, 2016). According to the U.S. Census, the City experienced a 10.9 percent population increase between 2000 and 2010; and a 1.8 percent increase between 2010 and 2013. Forecasts show a gradual population growth rate over the next 20 years with an estimated population of 43,900 in 2035 (City of Montclair Planning, 2016).

The population in the NMDSP area is a relatively small percentage of the City's population. There are approximately 48 existing single-family residences within the NMDSP area, located along Huntington Drive, east of Claremont Boulevard. An additional 40 single-family residences are located at northwest corner of Fremont Avenue and Moreno Street, which are in close proximity to, but not within, the NMDSP project area.

Multi-family residential in the NMDSP area includes a 385-unit residential complex, known as The Paseos at Montclair North, completed in 2015 at the northeast corner of Monte Vista Avenue and Moreno Street. An additional 129-unit residential development known as Arrow Station is under construction on the north side of Arrow Highway approximately 200 feet east of Monte Vista Avenue. A third 23-unit project known as Vista Court was recently approved at 8949 Monte Vista Avenue. Using the household occupancy rate of 3.6, as reported by the City in the updated housing element, the existing resident population of the NMDSP area is estimated to be 2,023 persons, which is approximately 5 percent of the City total (City of Montclair Housing Element 2010).

The implementation of the two multi-family attached residential projects, and approval of a third multi-family project marks an uptick in population growth in the NMDSP area and is in line with the residential zoning and development envisioned for the NMDSP area. These residential projects are located in the immediate vicinity of the Proposed Amendment but have independent utility because they have already been constructed, are currently being constructed, or have been approved for construction. These projects have previously undergone environmental review by the City of Montclair, and were found to be consistent with the environmental impacts analyzed in the EIR prepared for the NMDSP that was approved on May 15, 2006. For this reason, these projects are not be analyzed in this IS and will not be analyzed in the forthcoming EIR, but will be considered in the proposed project's cumulative impact analysis, if appropriate.

Commercial Development

Although residential uses are on the rise in the NMDSP area, commercial land uses continue to dominate. The existing commercial mix in the planning area ranges from a Target store and Best Buy on the east/southeast, vacant parcels towards the center of the planning area, and limited smaller-scale commercial buildings toward the eastern boundaries, including restaurants such as John's Incredible Pizza. Montclair Place (formerly known as Montclair Plaza), a major regional mall, is located south of the planning area boundary. Based on reviews of aerial photographs, the current pattern of commercial development in the NMDSP area consists predominately of standalone large structures surrounded wholly or in part by paved surface parking.

Transportation and Transit

Major streets within the planning area include Central Avenue (west side), Arrow Highway, Moreno Street, Fremont Avenue, Richton Street, and Monte Vista Avenue. The NMDSP area is within ten miles of various regional destinations and transportation links, such as Ontario Airport, Cable Airport and the Interstate 15 (I-15) and Interstate 210 (I-210) freeways. The I-10 freeway and Metrolink's San Bernardino commuter rail line provide direct regional access to the City. The I-10 freeway is an eight-lane grade-separated facility that is the most significant regional transportation facility serving the City.

The City is planned as the eastern terminus of the Foothill Gold Line Extension (although there has been some discussion of extending further east to Ontario International Airport), which will link Montclair with the foothill communities of the San Gabriel Valley and the City of Los Angeles. The construction of the Foothill Gold Line Extension is subject to the jurisdiction of the Metro Gold Line Foothill Extension Construction Authority. Upon completion, the lines will be operated by, and will be under the jurisdiction of, the Los Angeles Metropolitan Transportation Authority.

Pending funding for the Azusa to Montclair phase, the Foothill Gold Line Extension could begin construction as early as 2017 (Metro Gold Line Foothill Extension 2016).

The Montclair Transcenter is an intermodal transit center located between Central and Monte Vista Avenues on Richton Street. The majority of the land composing the Montclair Transcenter is owned by the State of California. The San Bernardino Associated Governments and the City share ownership of approximately one acre of land in the interior of the Transcenter. Omnitrans, Foothill Transit and the Riverside Transit Agency (RTA) all provide bus service from the Transcenter, with Foothill Transit and RTA providing express service and Foothill Transit and Omnitrans providing local service. Commuters also use the Montclair Transcenter as a park and ride facility.

The Montclair Transcenter is also a station on the Metrolink San Bernardino Line. The station serves as the dividing line between Foothill Transit's service area and Omnitrans' service area. Omnitrans buses run to the east, while Foothill Transit buses run to the west. The Montclair Transcenter is the largest such facility between Union Station in the City of Los Angeles and San Bernardino Station in the City of San Bernardino. The Montclair Transcenter currently has 1,600 surface parking spaces.

Parking

As mentioned earlier, approximately 30 percent of the planning area in NMDSP is currently devoted to surface parking.

Utilities

The NMDSP area is currently served with all necessary utilities. Utilities may not be extended to each parcel, but utilities are available in developed road right-of-ways. The following provides specific information about each type of utility:

- **Stormwater Conveyance and Detention**. Stormwater in the NMDSP area is conveyed through city-owned infrastructure to the Chino Basin Water Conservation District and San Bernardino County Flood Control District storm drains. Stormwater in the planning area is conveyed to the San Antonio Channel through a network of drains and pipes in north-south streets, which connect to larger east-west laterals. The infrastructure maintains a very good level of water-carrying capacity.
- **Electrical Power**. Power is provided by Southern California Edison.

- **Water Supply.** Two water purveyors currently serve the NMDSP area. The majority of properties are served by Monte Vista Water District, while some properties are served by Golden State Water Company.
- **Sanitary Sewer Service.** The City's domestic wastewater is conveyed via City-owned and maintained infrastructure to treatment facilities owned and maintained by the Inland Empire Utilities Agency (IEUA). The wastewater is disposed of at one of two locations. Most of the sewage flows to the Carbon Canyon Wastewater Reclamation Facility in Chino, while a small amount flows to the Regional Plant No. 1 in south Ontario.

Government Services

The NMDSP area is currently served with all the standard government services such as fire, police, school, and the public library operated by the San Bernardino County Library System at 9955 Fremont Avenue.

- **Fire Services.** Fire Station No. 1 is currently situated within the NMDSP area at the southeast corner of Monte Vista Avenue and Arrow Highway. A second fire station (Fire Station No. 2) is located in the southern portion of the City near the intersection of Monte Vista Avenue and Mission Boulevard. Fire Station No. 1 is currently outfitted with a three-person engine and a two-person paramedic squad, has one triple combination pumper, and one quint (engine) with a 55-foot ladder. On a 24-hour basis, the NMDSP area is served by 16 firefighters, one chief officer, and one fire investigator.
- **Police Services.** Police protection services in the City are provided by the Montclair Police Department, located at 4870 Arrow Highway, on the northwest corner of Arrow Highway and Monte Vista Avenue. The Montclair Police Department employs approximately 53 sworn officers. Typically, the station is staffed with at least four patrol officers per shift.
- **Schools.** Currently no schools are located in the NMDSP area. However, the NMDSP area is served by Moreno Elementary School and Serrano Middle School. Moreno Elementary School is located on Moreno Street, and Serrano Middle School is located on San Jose Street, both of which are to the southwest of the Downtown area. Montclair High School serves the entire City and is located on Benito Street, approximately 1.1 miles south of the NMDSP area.
- **Library.** The Montclair Branch of the San Bernardino County Library system is located at 9955 Fremont Avenue in the Montclair Civic Center, approximately 1.5 miles south of the NMDSP area. The Montclair Library is one of the largest facilities in the regional library system, encompassing 20,200 square feet and 59,100 volumes. The library serves approximately 14,000 patrons per month.

Airports

The City is located within the Airport Influence Area (AIA) of the Ontario International Airport Land Use Compatibility Plan (ONT ALUCP). The ONT ALUCP establishes a set of procedural and compatibility policies that set limits on future land uses and development within the Ontario International Airport AIA in order to address noise, safety, airspace protection, and overflight impacts of current and future airport activity within the AIA (City of Ontario 2011).

The City is also located within the AIA of the Cable ALUCP. The Cable ALUCP establishes a set of procedural and compatibility policies that set limits on future land uses and development within the Cable Airport AIA in order to address noise, safety, airspace protection, and overflight impacts of current and future airport activity within the AIA (City of Upland 2015).

General Plan and Zoning

The City's General Plan (General Plan) is a formal expression of community goals and desires and fulfills California Government Code §65302, which requires the preparation and adoption of a General Plan.

The General Plan was adopted in 1999, though the General Plan Housing Element has been subsequently updated (2014). The General Plan sets forth the land use designations, policies, programs, standards, and goals for development, or buildout, of the City of Montclair and its sphere of influence through the year 2020.

The Proposed Amendment is located in Sub-area 1 of the General Plan (shown as Figure II-1, City of Montclair) This area is designated as Planned Development and zoned as Specific Plan in the City's Zoning Map.

The City of Montclair adopted the North Montclair Specific Plan in 1998 in order to provide more detailed planning for 640-acre portion of the City along both sides of the I-10 freeway and Central Avenue. The NMSP addressed issues associated with economic vitality, design, redevelopment, compatibility, transportation, and pedestrian access. The relationship of the NMSP boundary to that of the Downtown Plan is depicted in Figure 3, City of Montclair.

In 2004, changes in the regional commercial market, and continued underutilization of land in the North Montclair area, led the City to embark on a new planning effort for a 150-acre subset of the overall 640-acre North Montclair Specific Plan (NMSP) area between the Montclair Place and the Montclair Transcenter. In 2006, the City adopted the NMDSP, which establishes land use designations, regulations, development standards and design guidelines for new development within the NMDSP area. The NMDSP also sets forth the foundation for a formed based code and development of transit-oriented district in proximity to the Montclair Transcenter. All

entitlements within the Downtown planning area must be consistent with the NMDSP as the development standards specified in the plan supersede the language set forth in the NMSP and the existing Zoning Code.

2.6.2 Proposed Amendment

The key project components of the Proposed Amendment include the following:

New Regulating Plan

Figure 4a (North Montclair Downtown Specific Plan Existing Regulating Plan) shows the existing NMDSP's Regulating Plan and Zones (page 5:4 of the NMDSP). Figure 4b (North Montclair Downtown Specific Plan Proposed Regulating Plan) shows the proposed changes to the existing NMDSP's Regulating Plan and Zones, which defines the zones within the NMDSP area that differentiate standards for building placement, design, and use, and also identifies parcels included within each zone.

The proposed new Regulating Plan continues to divide the specific plan area into separate zones that are based on density and types of development appropriate for a TOD plan. The Proposed Amendment would continue to utilize the Neighborhood Residential (NR), Corridor Residential (CR) and Town Center (TC) land use zones and standards that are identified in the existing NMDSP. With the Proposed Amendment, a new SD land use zone would be introduced (See Figure 4b, North Montclair Downtown Specific Plan Proposed Regulating Plan).

In addition, the zoning per the 2006 Adopted Plan would be adjusted as follows:

a. The zoning of the parcels located between Huntington Drive and the railroad right-of-way just east of Claremont Boulevard would be changed from Corridor Residential (CR) to Neighborhood Residential (NR).

b. In response to the Paseos project, which was built since the 2006 adoption of the NMDSP, the zoning of the interior parcels would be changed from Neighborhood Residential (NR) to Corridor Residential (CR).

c. New Specific Plan zoning – Town Center (TC) and Corridor Residential (CR) zoning would be applied to the large parcels located along the west side of Central Avenue (the John's Incredible Pizza, Best Buy, and Target parcels). In addition to the commercial zoning that is currently permitted, the new zones would permit residential and office uses to be introduced, provided:

    - A walkable, interconnected street network conforming to the requirements of NMDSP §5.4.030 (Subdivision Standards) is introduced.

- New buildings are located according to the NMDSP Building Placement standards (5.2.030.B and 5.2.040.B), face the street with allowed frontage types, and are consistent with the rest of the standards of the NMDSP.
- Displaced parking is provided in shared parking lots or garages per NMDSP parking standards.

The above requirements would not preclude infilling the existing parking lots with mixed-use buildings, accommodating the displaced parking in shared parking lots or structures, and retaining the existing buildings or portions of these existing buildings. The goal would be to redevelop these parcels over time – and when market conditions are favorable – according to the urban, mixed-use, walkable vision of the NMDSP. In addition, the new Regulating Plan requires that a portion of this area be devoted to open space. It also requires that open space be provided north of the Transcenter bus bays and just west of Central Avenue.

The Proposed Amendment would also amend Table 5-1 of the NMDSP, which identifies the land use types allowed within the zone to include the new Station District land use zone, and would include Figure 5 (Existing Property Lines, Buildings and Features) which shows all existing property lines, buildings, and features and how they correspond to the proposed land use zones specified in the new Regulating Plan.

The Proposed Amendment increases the density allowed in the NMDSP area north of the Metrolink Transit Station by introducing a new Station District zone on the parcels currently occupied by the Transcenter surface parking lots. This zone places the most dense, attached residential uses ((up to 80 du/acre, 2.84 FAR) in the immediate proximity of the transit station. The location of this zone would allow more residents to conveniently walk to the transit station to commute by rail or bus. Increased walkability would decrease the population's dependency on the automobile, which lends itself to significant savings in daily trips and required parking spaces.

Extend the NMDSP Westerly Boundary at Arrow Highway and Monte Vista Avenue

The southwest corner of Arrow Highway and Monte Vista Avenue currently lies outside the NMDSP planning boundary and has a General Plan land use designation of Business Park. This parcel is also zoned M1 Limited Manufacturing on the City's zoning map. The proposed amendment would revise the official NMDSP site plan and other map-based exhibits to reflect the expansion of the NMDSP west planning boundary line to incorporate this parcel as shown in Figure 6 (Existing vs. Proposed North Montclair Downtown Specific Plan Westerly Boundary).

A General Plan Amendment (GPA) would be required to allow this area to be incorporated into the NMDSP planning area and be re-designated in the General Plan as Planned Development. The

proposed change would also require a zone change to reflect the new zoning of the area as part of the NMDSP. The area would be rezoned with the land use zone of Town Center (TC) along Arrow Highway frontage and Corridor Residential (CR) for the remainder of the site. This change would include the revision of the site plan and the other map-based exhibits to reflect this expansion.

Extend the NMDSP Easterly Boundary

The project also proposes to expand the existing easterly area boundary line to incorporate approximately 22 acres of land on the west side of Central Avenue at Richton Street, as shown in Figure 7 (Existing vs. Proposed North Montclair Downtown Specific Plan Easterly Boundary). This area is currently designated as the Turner Montclair Specific Plan (1990) which would be replaced and incorporated into the NMDSP. This 22-acre area is bounded on the north by the existing Pacific Electric Inland Empire Trail, a multi-purpose (walking and bicycle) trail that runs between the city of Claremont on the west and the City of Rialto to the east. The portion of the Pacific Electric Inland Empire Trail running through the City of Montclair is approximately one mile in length. The trail is operational, owned by SANBAG, and maintained by the City of Montclair. The proposed expansion area would be designated as a mix of Corridor Residential and Town Center, with the Town Center designation being placed along Central Avenue as reflected in the revised Regulating Plan prepared for the Specific Plan update. In addition, as shown on the Regulating Plan, a portion of this area must be devoted to Open Space.

Central Avenue Land Use Designations

In the existing NMDSP, there are several properties along the west side of Central Avenue, between the Metrolink right-of-way and Moreno Street (e.g., John's Incredible Pizza, Best Buy and Target properties) that were not assigned a specific land use designation. The proposed specific plan update would assign a land use designation for these properties to Town Center (TC) and Corridor Residential (CR) as ultimate land use designations.

Land Use Overlays

The project proposes to introduce a new land use overlay, the Transition Overlay, over existing parcels that contain existing buildings with non-residential uses that are inconsistent with the NMDSP vision. In addition, the Transition Overlay specifies how the following development types relate to the NMDSP Development Code:

1. New use within or renovation of an existing building;
2. Additions to existing buildings within the Transition Overlay that are less than 20% of total existing gross floor area;

3. Additions to existing buildings within the Transition Overlay that are more than 20% of total existing gross floor area;
4. New buildings on sites less than two acres; and
5. Development on parcels two acres or larger.

The Proposed Amendment also amends the name, requirements, and locations of the Current NMDSP's "Town Center: Required Retail Frontage" overlay. In the current NMDSP, this overlay requires buildings along the north side of Moreno Street (just east of Fremont Street) and buildings facing the open space located at the northwest corner of Arrow Highway and Fremont Avenue to provide ground floor retail uses accommodated in ground floor shopfronts. The Proposed Amendment changes the name of this overlay to the "Shopfront Overlay," adjusts the locations to where it applies, and continues to require shopfront frontage types at the proposed locations, but allows non-retail uses as interim uses if market conditions are not amenable to supporting retail at these locations. The Shopfront Overlay continues to apply to the frontages surrounding the open space located north of Arrow Highway and Fremont Avenue, but the requirement along the north side of Moreno Street just west of Fremont Avenue is removed. Instead, shopfront frontages are required along new buildings that are introduced along the west side of Central Avenue between Moreno Street and Arrow Highway and along the ground floor of the parking garages facing the Transit Square and Transcenter bus bays located north of the existing Metrolink platforms and future Foothill Gold Line Extension platforms.

Development Potential

Implementation of the Proposed Amendment would alter the development potential for the planning area when compared to the 2006 NMDSP. The development potential refers to the ultimate development scenario, including dwelling units and commercial space, proposed at the culmination of the NMDSP Amendment timeframe. This scenario is expressed in the text, conceptual diagrams, and phasing tables of the NMDSP Amendment. The Proposed Amendment could replace some of the approximately 650,000 square feet of retail and industrial uses along the west side of Central Avenue to allow for more mixed-use and residential areas east of Fremont Avenue.

Table 2 (2016 Downtown Plan Residential Buildout) and Table 3 (2016 Downtown Non-Residential Buildout) compares the development potential of the Proposed Amendment with the 2006 Specific Plan.

Table 2
2016 Downtown Plan Residential Buildout[1]

Land Use	Zone				Total Residential Buildout		Change Since 2006
	Neighborhood Residential 30 du/acre[2]	*Corridor Residential 50 du/acre[2]*	*Town Center 60 du/acre[2]*	*Station District (80 du/acre[2]*	*2016 Total[3]*	*2006 Total[4]*	*Change Since 2006*
Single-Family (du)	-8	-30	0	0	-38	0	**0**
Multi-Family (du)	125	2,169	1,700	1,931	5,926	3,200	**2,726**
Total Residential (du)	117	2,139	1,700	1,931	5,888	3,200	**2,688**

1 Residential buildout derived by multiplying the total area within each zone as shown in Figure 1 by the expected maximum density (du/acre) for each zone. Residential buildout calculations do not include as developable area the areas designated "Preferred New Streets" and "Potential New Streets" nor do they include the area designated to accommodate parking structures.

2 Expected maximum density (du/acre) for the NR, CR, and SD zones as described in the 2006 Adopted NMDSP, Subsections 5.2.030.A, 5.2.040.A, and 5.2.050.C (Intent) for each respective zone. The expected maximum density for the SD zone (as well as the NR, CR, and TC zones) is consistent with best practices for transit oriented developments such as Montclair Station (see TOD 202: *Station Area Planning* by Reconnecting America, 2008).

3 2016 total residential buildout includes deduction of eight existing single-family houses in the NR zone and 385 multi-family units in the Paseos project and 30 single-family units and 99 multi-family units in the Arrow Station project. The CR zone unit deductions account for the net difference between a) the residential units introduced in projects built since adoption of the NMDSP in 2006 (Paseos and Arrow Station) and b) the maximum development potential as calculated by this residential buildout analysis, i.e., the Paseos and Arrow Station projects were not built out to the expected maximum density of 50 du/acre.

4 2006 total residential buildout per Table 3.0-5 (Existing Conditions vs. Downtown Plan Buildout) of the 2006 *North Montclair Downtown Specific Plan Final EIR*.

As shown in Table 2, the development potential allowed under the Proposed Amendment would provide for an additional 2,688 +/- dwelling units.

Table 3
2016 Downtown Plan Non-Residential Buildout[1]

Land Use	Zone				Total Non-Residential Buildout
	Neighborhood Residential 0.0 FAR	*Corridor Residential 0.6 FAR[2]*	*Town Center 1.0 FAR[2]*	*Station District 1.0 FAR[2]*	*2016 Total[3]*
Office	0	0	487,645	835,050	1,322,695
Retail	0	-182,274	442,633	46,322	306,682
Services	0	-8,433	159,376	108,321	259,264
Industrial	0	0	0	-207,356	-207,356
Non-Residential (sf)	**0**	**-190,707**	**1,089,655**	**782,337**	**1,681,285**

1 Non-residential Buildout derived by multiplying the total area within the applicable zones as shown in **Figure 1** by the estimated maximum Floor Area Ratio (FAR) for each zone.

[2] FAR consistent with best practices for transit oriented developments such as Montclair Station (see *TOD 202: Station Area Planning*, by Reconnecting America, 2008).
[3] Includes deduction of approximately 650,000 sf of non-residential uses along the west side of Central Avenue and on parcels southwest of Monte.
[4] 2006 Buildout per Table 3.0-5 (Existing Conditions vs. Downtown Plan Buildout) of the 2006 *North Montclair Downtown Specific Plan Final EIR*.

As shown in Table 3, the development potential allowed under the Proposed Amendment would provide for an additional 782,285 square feet of non-residential space.

Establish Minimum Intensity Standards

As shown in Table 4 (Minimum Intensity Per Land Use Zone), the project proposes to establish minimum floor area ratio (FAR) standards in order to meet the overall NMDSP goal to generate a compact, pedestrian-friendly, transit-oriented, mixed-use setting.

Table 4
Minimum Intensity Per Land Use Zone

Land Use	Minimum Floor Area Ratio (FAR)
Neighborhood Residential	0.5
Corridor Residential	0.8
Town Center	1.5
Station District	2.0

New Street Alignment at Arrow Highway and Fremont Avenue

The project proposes a modification of the street alignment/pattern previously established in the NMDSP at the southeast corner of the Arrow Highway and Fremont Avenue intersection. Figure 8 (Existing vs. Proposed Street Alignment at Arrow Highway and Fremont Avenue) shows the proposed new street pattern and the re-designation of land use zones to fit the new alignment.

Reconfiguration of the Street Pattern at Moreno Street and Fremont Avenue

The 2006 NMDSP includes a street pattern along the northeast corner of Moreno Street and Fremont Avenue that includes the construction of a second north-south street east of Fremont Avenue that would be designated “New Fremont Avenue.” This street was envisioned to serve as a new link between the Montclair Transcenter and Montclair Plaza (now Montclair Place) and as the principal location of new long-term mixed-use development.

The project proposes to delete “New Fremont Avenue” from the plan and focus on the existing Fremont Avenue as the primary connection between the Montclair Transcenter and Montclair

Place. The concept of creating a New Fremont Avenue as discussed above proved to be impractical and would result in a future parcel pattern that was not conducive to new development. Moreover, the existing Fremont Avenue alignment is better suited to visually and physically connect the Montclair Transcenter and Montclair Place regional mall as always envisioned by the NMDSP.

Figure 9 (Existing vs. Proposed Street Alignment at Moreno Street and Fremont Avenue) shows the proposed new street pattern and the re-designation of land use zones to fit the new pattern.

Updated Street Pattern on the Northeast Corner of Arrow Highway and Monte Vista Avenue

The NMDSP shows a new street pattern on the northeast corner of Arrow Highway and Monte Vista Avenue where the new 129-unit residential complex, called Arrow Station, is currently being constructed. The project proposes to update the street pattern in the NMDSP area to reflect the existing street pattern for this area. The existing street pattern compared to the pattern shown in the existing current NMDSP is shown in Figure 10 (Existing vs. Proposed Street Alignment on the Northeast Corner of Arrow Highway and Monte Vista Avenue). The street pattern east of the Arrow Station project is also updated in order to align with the Arrow Station street pattern and in relation to the removal of New Fremont Avenue.

Updated Street Pattern and Park at the Northeast Corner of Monte Vista Avenue and Moreno Street

The NMDSP update shows a new existing street pattern at the northeast corner of Monte Vista Avenue and Moreno Street where a new 385-unit residential complex built since the adoption of the existing current NMDSP, called The Paseos, is located. The project proposes to update the street pattern in the NMDSP area to reflect the existing street pattern and park for this area. The existing street pattern/park area compared to the pattern shown in the current NMDSP is shown in Figure 11 (Existing vs. Proposed Street Alignment on the Northeast Corner of Monte Vista Avenue and Moreno Street).

Updated Street Pattern North of Railroad Right-of-Way

The NMDSP updates the street, block, and open space pattern east of Monte Vista Avenue and north of the Metrolink Station to accommodate the most current Montclair Transcenter bus bay design. In addition, the street, block, and open space pattern conforms to the existing single-family parcels located along the south side of Huntington Drive.

Relocation of Parking Structures

The NMDSP provides parking for transit commuters in up to three structures oriented parallel and adjacent to the railroad tracks. The new parking structures, located along both the north and south sides of the tracks, collectively accommodate the same number of parking spaces currently provided in the existing Metrolink parking lots. The parking structures may also provide limited parking for nearby retail uses.

In addition, the parcels located north of the Metrolink station are subject to a new Station District zone, which accommodates the most dense, attached residential uses within the Specific Plan area (up to 80 du/acre, 2.84 Floor to Area Ratio (FAR)) within immediate proximity of the transit station, promoting walkability and less dependency on the automobile. This compact area would lend itself to significant savings in required parking spaces.

If the large parcels along the west side of Central Avenue are developed with higher-density, mixed-use development, retail parking would be located in shared parking lots or structures. Convenience parking could also be provided with on-street parallel or angled parking spaces.

Figure 12 (Existing vs. Proposed Parking Areas) shows the relocated parking areas in the Proposed Amendment area.

Establish Minimum Lot and Maximum Building Size Standards

In order to encourage new buildings to contribute to the NMDSP's goal of generating a compact, pedestrian-friendly, transit-oriented, mixed-use environment that is of an appropriate scale for the City, standards for minimum lot width, maximum building width, and minimum spacing between buildings are introduced. Table 5 (Minimum Lot Size and Maximum Building Size Allowed Per Land Use Zone) shows the minimum lot widths in relation to Front Street that would be allowed in the Proposed Amendment area for development in each respective land use zone. It also shows maximum building widths along Front Street and minimum spacing between these buildings.

Table 5
Minimum Lot Size and Maximum Building Size Allowed Per Land Use Zone

Land Use	Minimum Lot Width Allowed	Maximum Building Width along Front Street	Minimum Spacing between Buildings along Front Street
Neighborhood Residential	100 feet	100 feet	15 feet
Corridor Residential	125 feet	150 feet	15 feet
Town Center	150 feet	150 feet	15 feet
Station District	175 feet	175 feet	15 feet

In addition, building articulation and massing standards are introduced in order to guide the design of new buildings that add interest to the building and create variations in height and form.

Allow for Tandem Parking Standards

The project proposes to place new text in Section 5.4.010.D (Parking Design and Development Standards) of the Code as new Subsection 3. The text in Subsection 3 would read as follows:

3. Tandem Parking
    a. Tandem parking is allowed within multi-family projects and the residential component of mixed-use projects subject to the following standards:
        1. No more than two (2) cars may park in each tandem space.
        2. Both tandem spaces shall be assigned to the same dwelling unit.
        3. Each residential unit shall be provided with a minimum of one (1) parking space. Second, tandem spaces shall be in addition to the single required parking space.
        4. Up to 20 percent of the total required off-street parking spaces may be provided in a tandem configuration. The maximum number of spaces permitted in a tandem configuration refers to the total individual spaces, not the total number of tandem spaces. For example, if ten (10) total residential spaces are required, one (1) tandem spaces with two (2) cars in the tandem space for a total of two individual spaces may be provided.
        5. Vehicle movements necessary to move cars parked in a tandem configuration shall not take place on any public street.
        6. Guest parking spaces shall not be provided in a tandem configuration.

The project also proposes that the table in Subsection 4 (Parking Space and Lot Dimensions) be modified as follows:

Angle of Parking	Length of Parking Stall	Width of Parking Stall	Aisle Width
60° or less (one way) 90° (one way)	18 feet	8.5 feet	18 feet
90° (two-way)	18 feet	8.5 feet	24 feet
90° (tandem)	34 feet	9 feet	24 feet

Finally, regarding guest parking, the project proposes to add the following requirements to Section C.3 (Parking) of the NMDSP for development standards for each zone as follows:

- SD (provided in a new Section 5.2.030.D.3): Guest: 1 space for every 4 units
- TC (renumbered as Section 5.2.040.D.3): Guest: 1 space for every 4 units
- CR (renumbered as Section 5.2.050.D.3) Guest: 1 space for every 4 units
- NR (renumbered as Section 5.2.060.D.3) Guest: 1 space for every 4 units

Remove References to Single-Family Residential Uses

The current NMDSP defines a single-family dwelling unit as a detached building designed as a residence for one household. The project proposes to amend Table 5-1, Allowable Land Uses and Permit Requirements, and all other references within the current NMDSP to show that single-family detached dwelling units are only permitted on existing, undivided lots within the Neighborhood Residential land use zone, or as part of a development within the Corridor Residential and Neighborhood Residential land use zones that incorporate the Bungalow Court Architectural Type. This proposal is consistent with the overall goal of the NMDSP to capture a larger share of the demand for attached housing and to provide higher density attached housing within a mixed-use setting.

New Signage Standards

The current NMDSP does not provide any guidance for signage in a pedestrian-oriented, mixed-use environment. The Proposed Amendment introduces signage standards to contribute to the creation of a rich urban environment that demonstrates variety, quality and design integrity.

New Public Realm and Landscape Standards

The current NMDSP provided insufficient standards for street and block design and did not provide direction for the design of sidewalks, streetlights, street furnishings, crosswalks, and open spaces. It also did not indicate where intersection bulb-outs should be located or include landscape design considerations. The Proposed Amendment introduces new standards and guidelines for these insufficient and/or missing elements.

Update of Exhibits

The following exhibits within the NMDSP would be updated to reflect the Proposed Amendment:

a. Existing Conditions diagrams (pages 2:1 – 2:4)
b. Illustrative Plan (pages 3:1 – 3:2)

c. Public Realm Plan (Pages 4:1 – 4:2)

d. Proposed Street and Park Plan (pages 4:6 – 4:7)

e. Fremont Avenue Street Section (page 4:9)

f. Regulating Plan (pages 5:3 – 5:4)

2.6.3 Required Permits and Approvals

The City of Montclair is expected to use the EIR in its decision-making relative to the Proposed Amendment. The required discretionary approvals being sought with this project include the following:

1. A GPA is required to allow for the revision of the official boundary of the NMDSP site plan and other map-based exhibits reflecting the expansion area at the southwest corner of Arrow Highway and Monte Vista Avenue, This area would be re-designated in the General Plan from Business Park to Planned Development.
2. A zone change in the official City of Montclair Zoning Map and other exhibits to reflect the new zoning of the southwest corner of Arrow Highway and Monte Vista Avenue from M1 Limited Manufacturing to Specific Plan and the corresponding land use designations of Town Center (along Arrow Highway) and Corridor Residential (on the remainder of the property) pursuant to the updated North Montclair Downtown Specific Plan.
3. A SPA to the NMDSP to incorporate all of the components of the Proposed Amendment as described in Section 2.5 above.
4. Replace and incorporate the Turner Montclair Specific Plan into the expanded boundaries of the NMDSP. The current boundaries of the area within the Turner Montclair Specific Plan are Monte Vista Avenue on the west, the boundary line between the cities of Montclair and Upland on the north, Central Avenue on the east, and the Metrolink rail line on the south.

Other regulatory agencies that may also require permits or other approvals for the Proposed Amendment include:

- Airport Land Use Commission review for the Cable Airport and the Ontario International Airport;
- Native American Heritage Commission and affiliated Tribes for the Assembly Bill 52 consultation process; and
- California Native American tribes for the Senate Bill 18 consultation process.

INTENTIONALLY LEFT BLANK

SOURCE: ESRI 2016

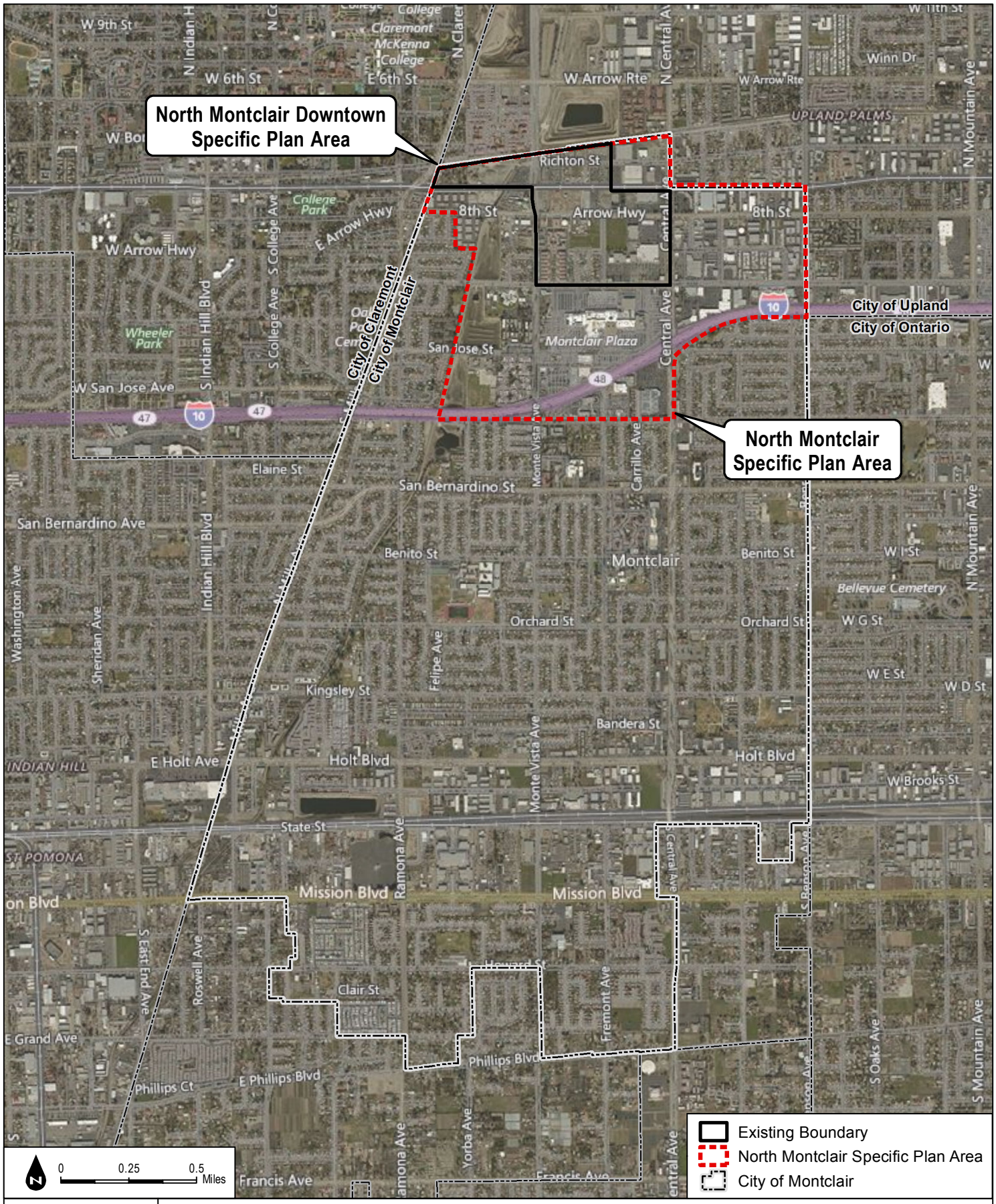
FIGURE 1

Regional Map

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan.

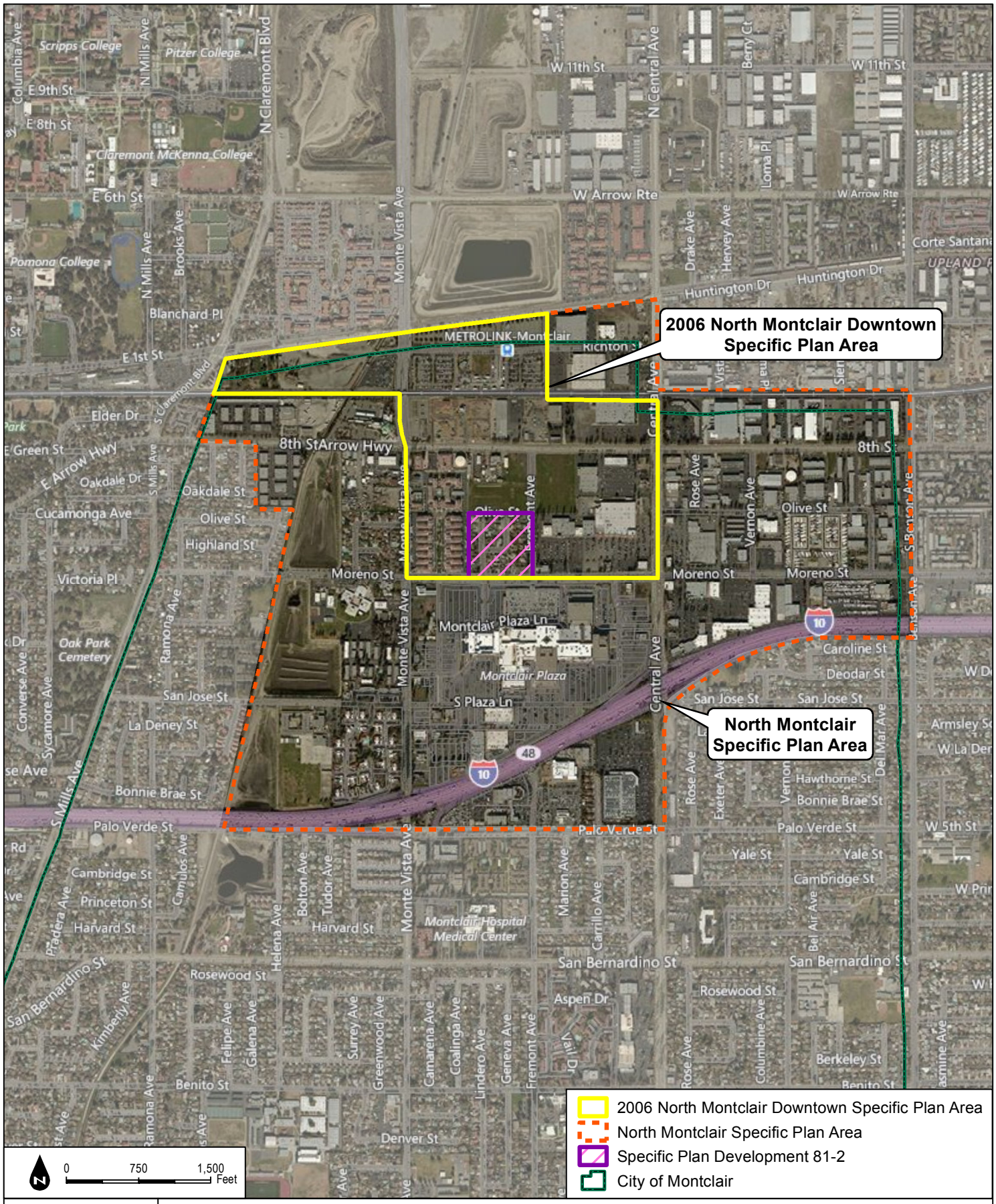
FIGURE 2

City of Montclair

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016

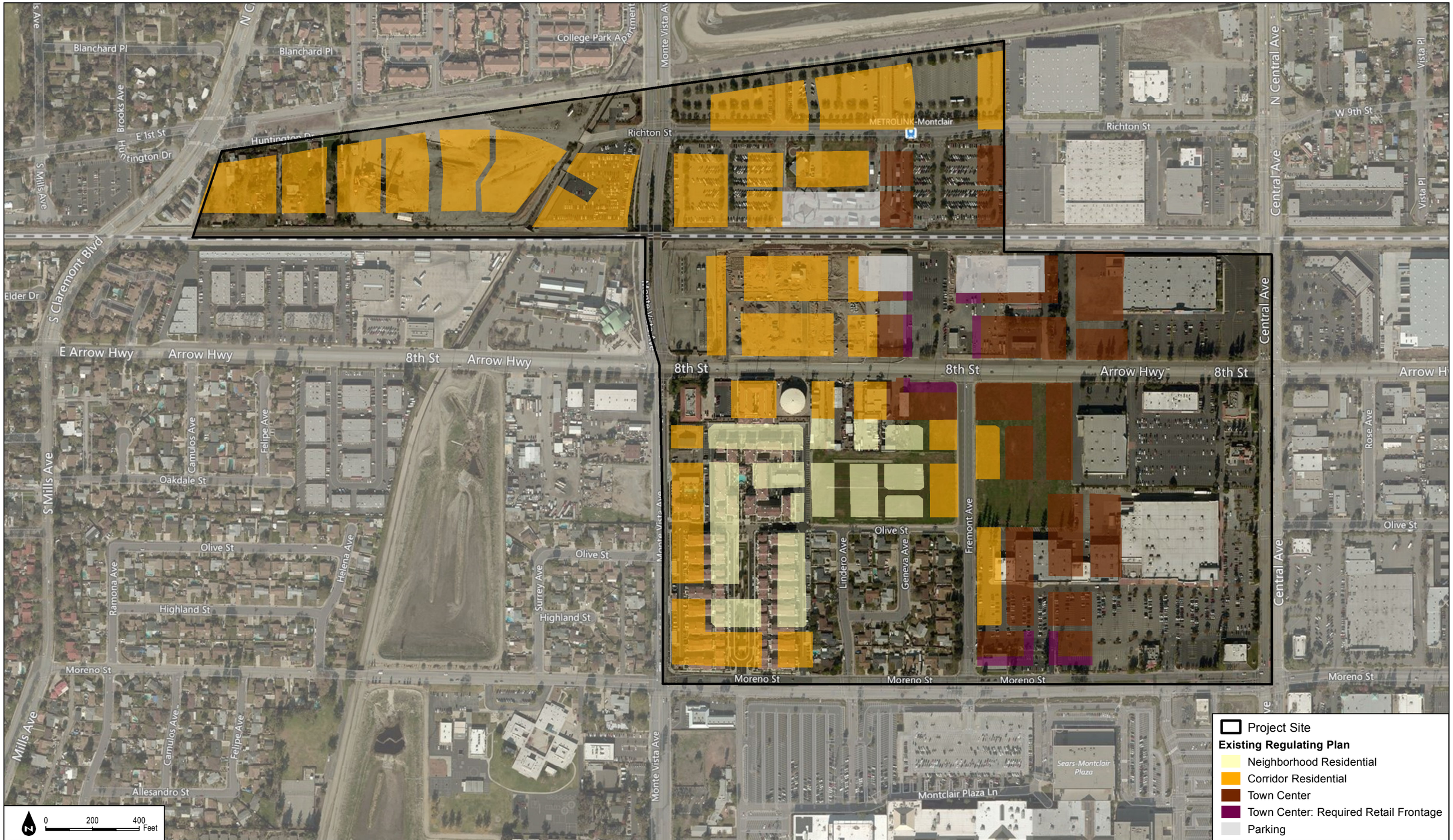
FIGURE 3

North Montclair Downtown Specific Plan

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan 05/28/2016.

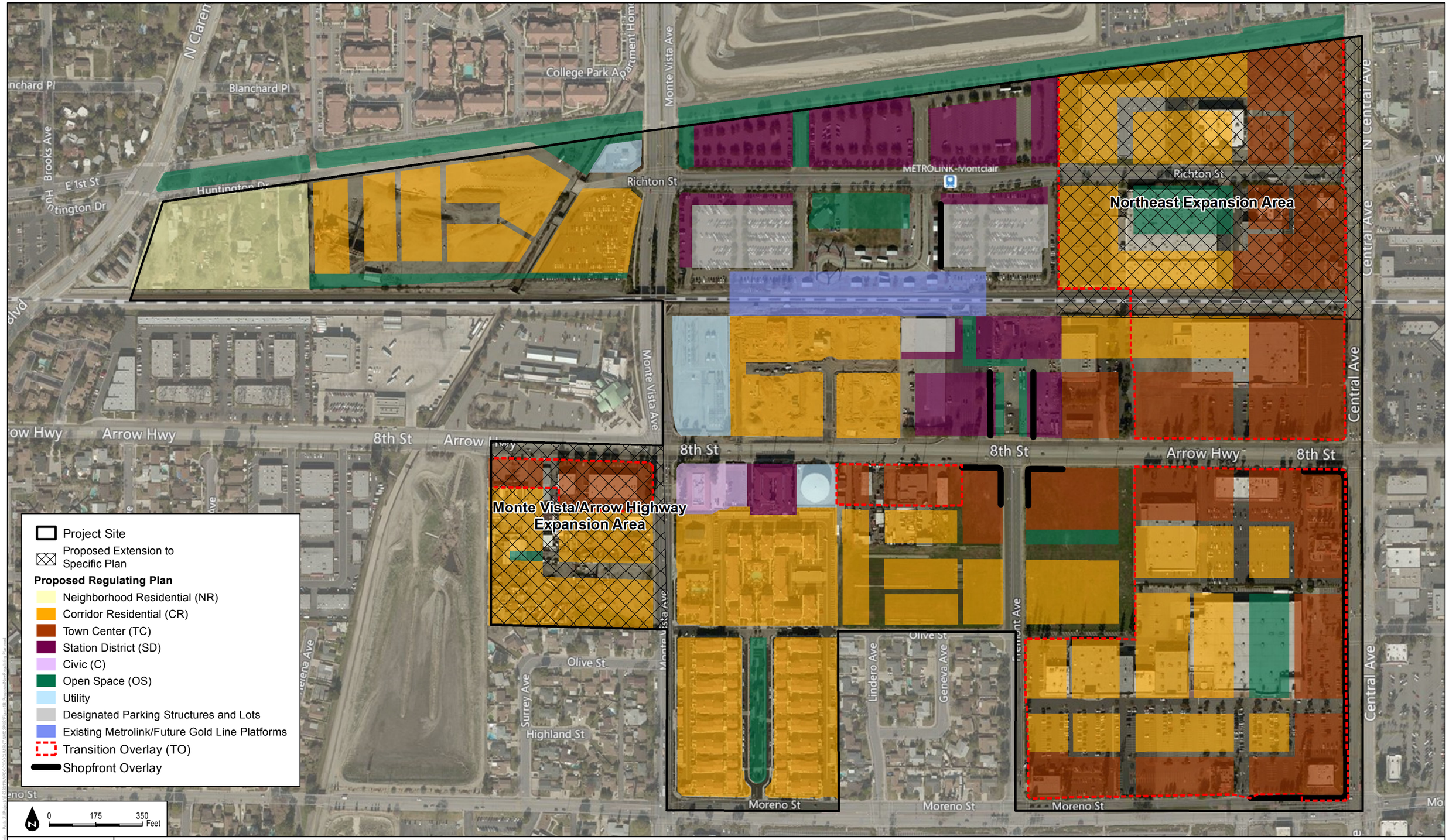
FIGURE 4A

North Montclair Downtown Specific Plan Existing Regulating Plan

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan 07/13/2016.

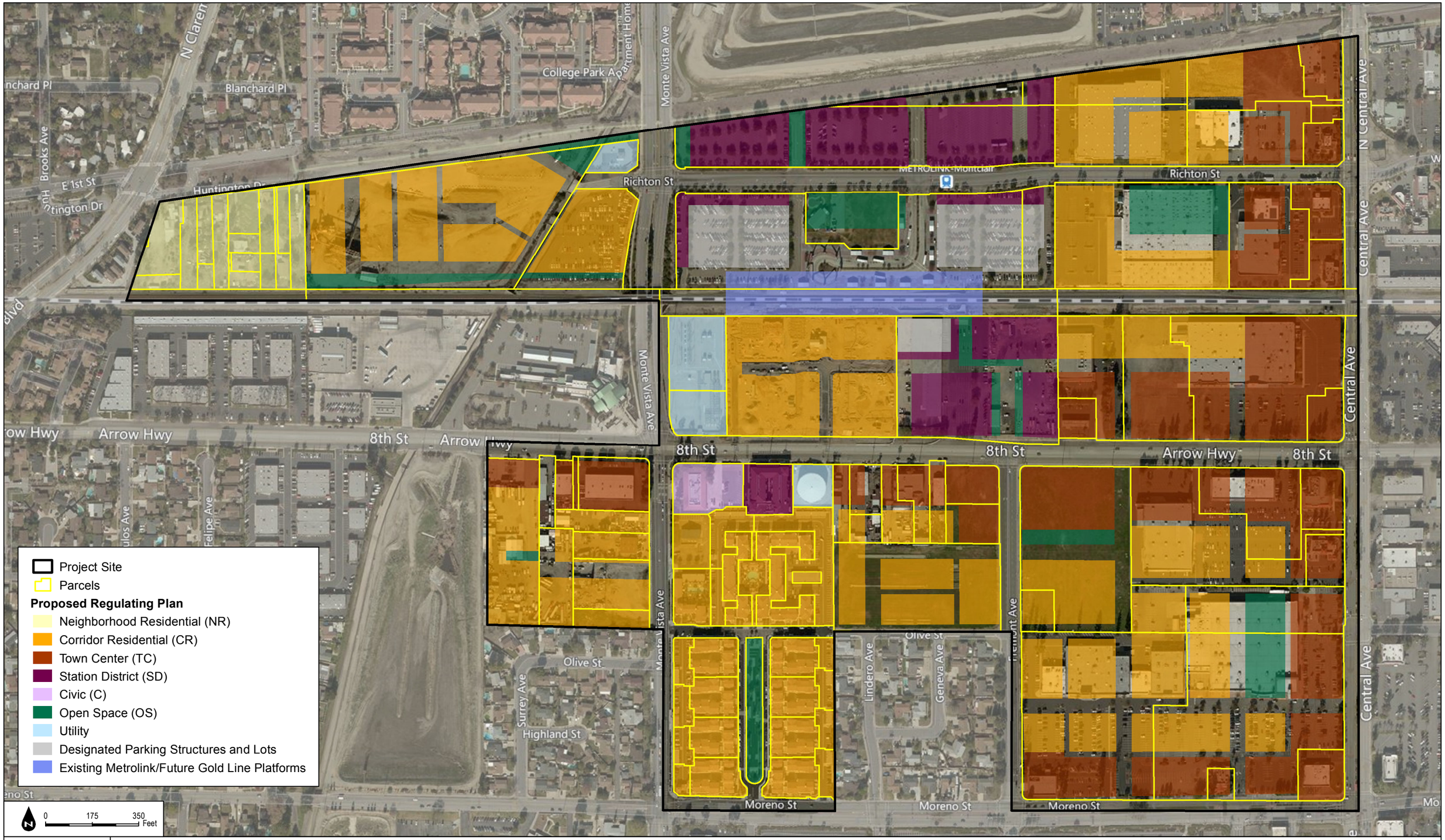
DUDEK

North Montclair Downtown Specific Plan Amendment Project

FIGURE 4B

Proposed North Montclair Downtown Speficic Plan Regulating Plan

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Residential Plan

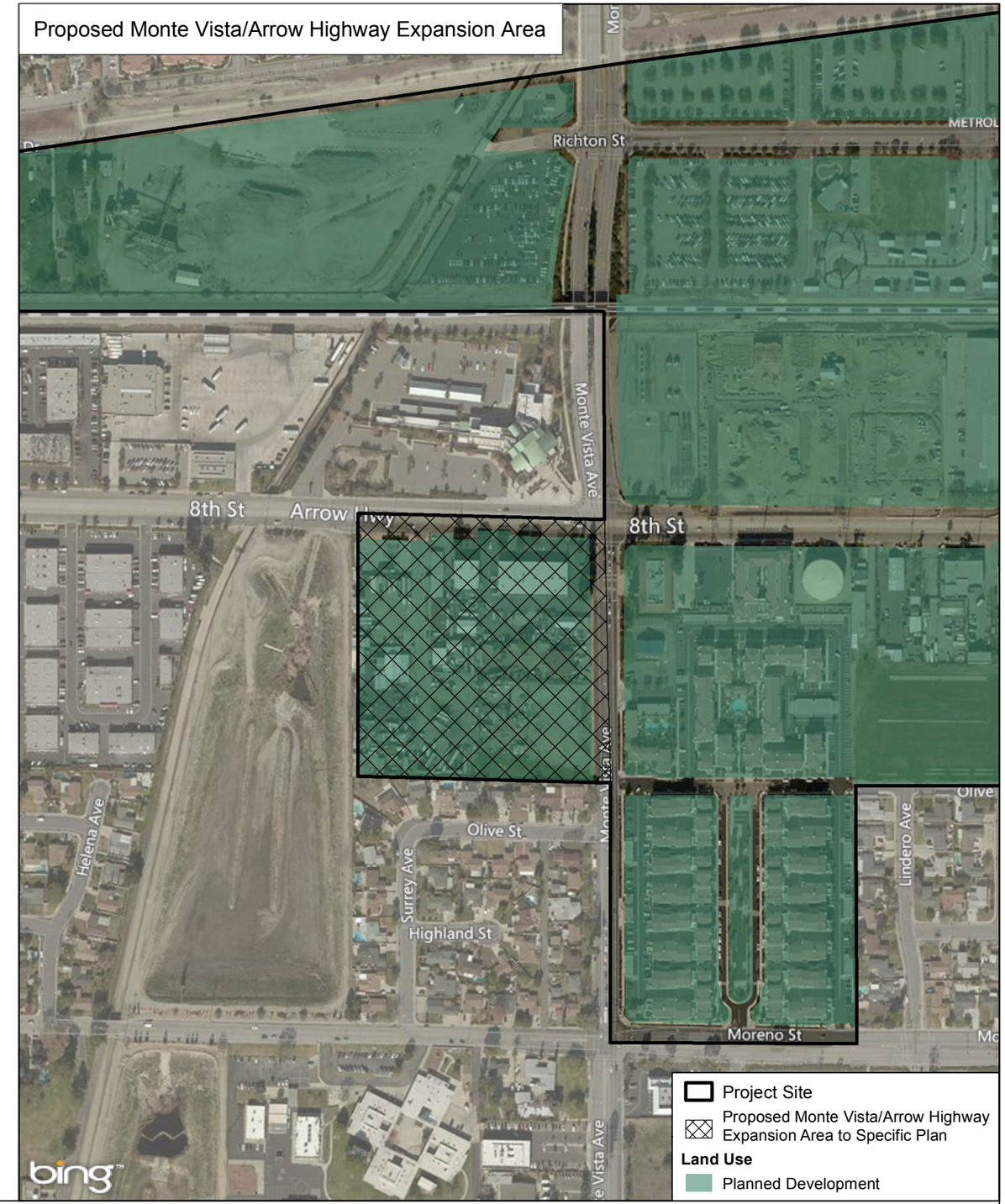
DUDEK

FIGURE 5

Existing Property Lines, Buildings and Features

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



DUDEK

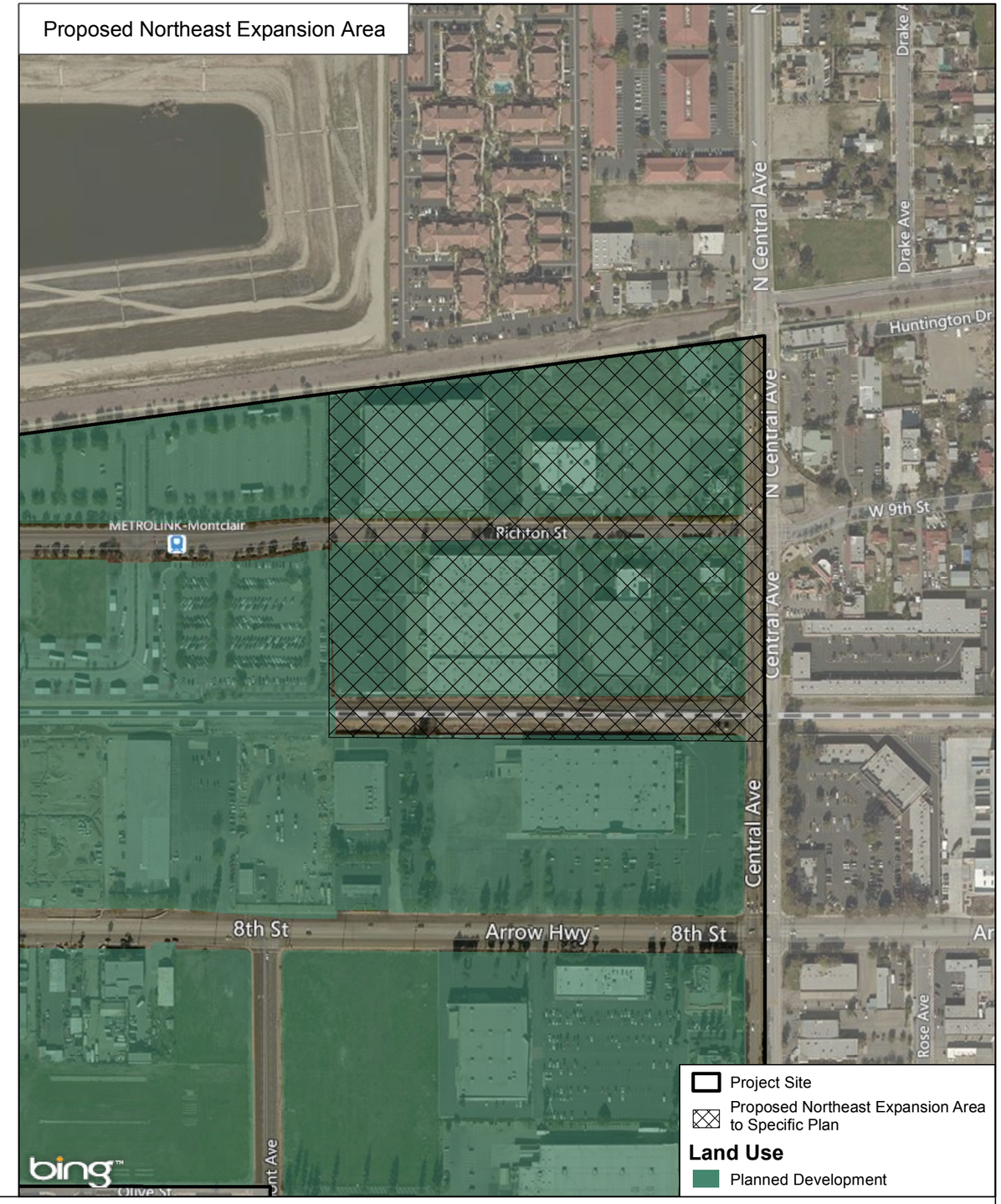
SOURCE: Bing Imagery, 2016; Northern Montclair Residential Plan.

FIGURE 6

Existing vs. Proposed North Montclair Downtown Specific Plan Westerly Boundary

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



DUDEK

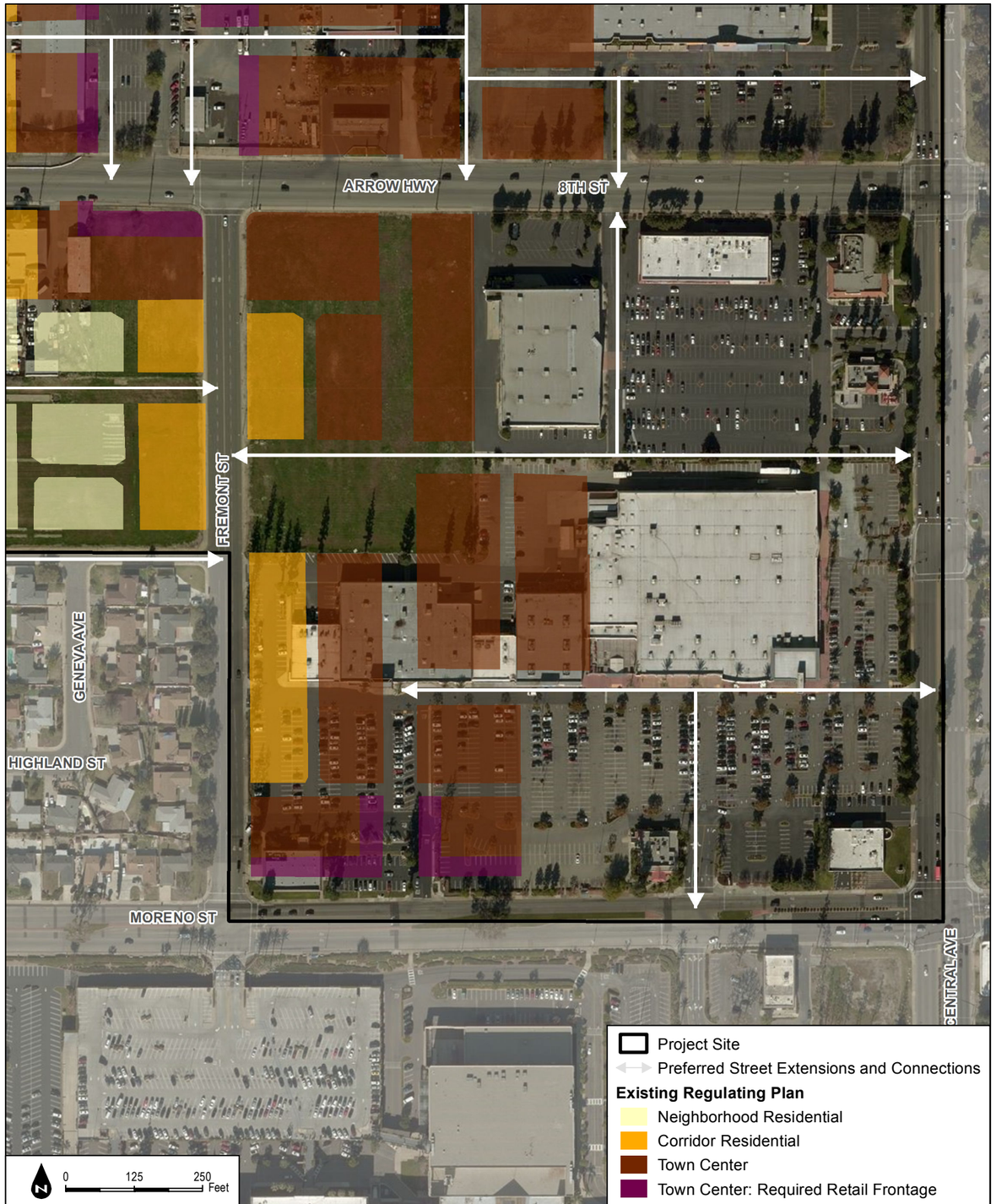
SOURCE: Bing Imagery, 2016; Northern Montclair Residential Plan.

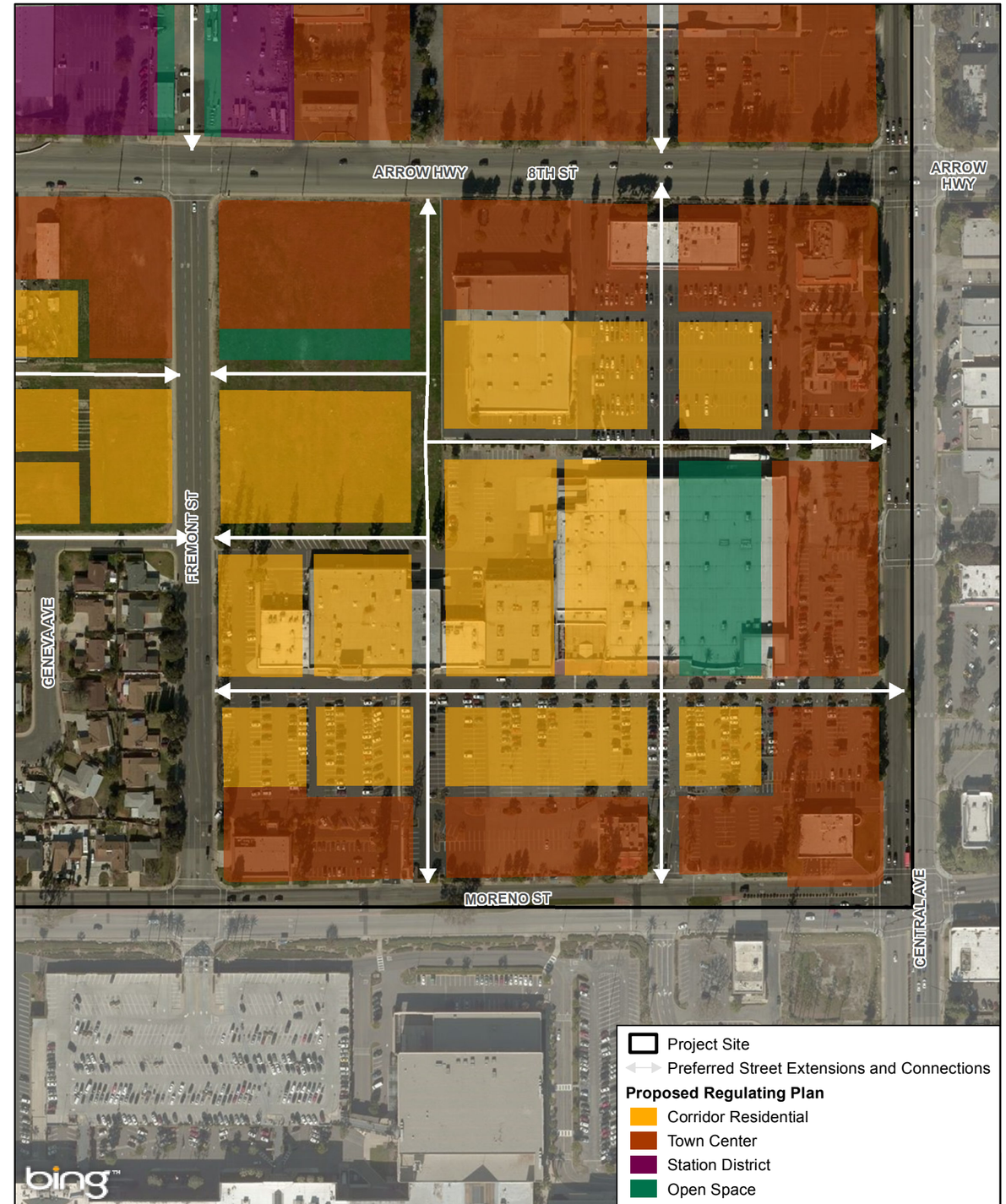
FIGURE 7

Existing vs. Proposed North Montclair Downtown Specific Plan Easterly Boundary

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK





SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan; County of San Bernardino, 2016.

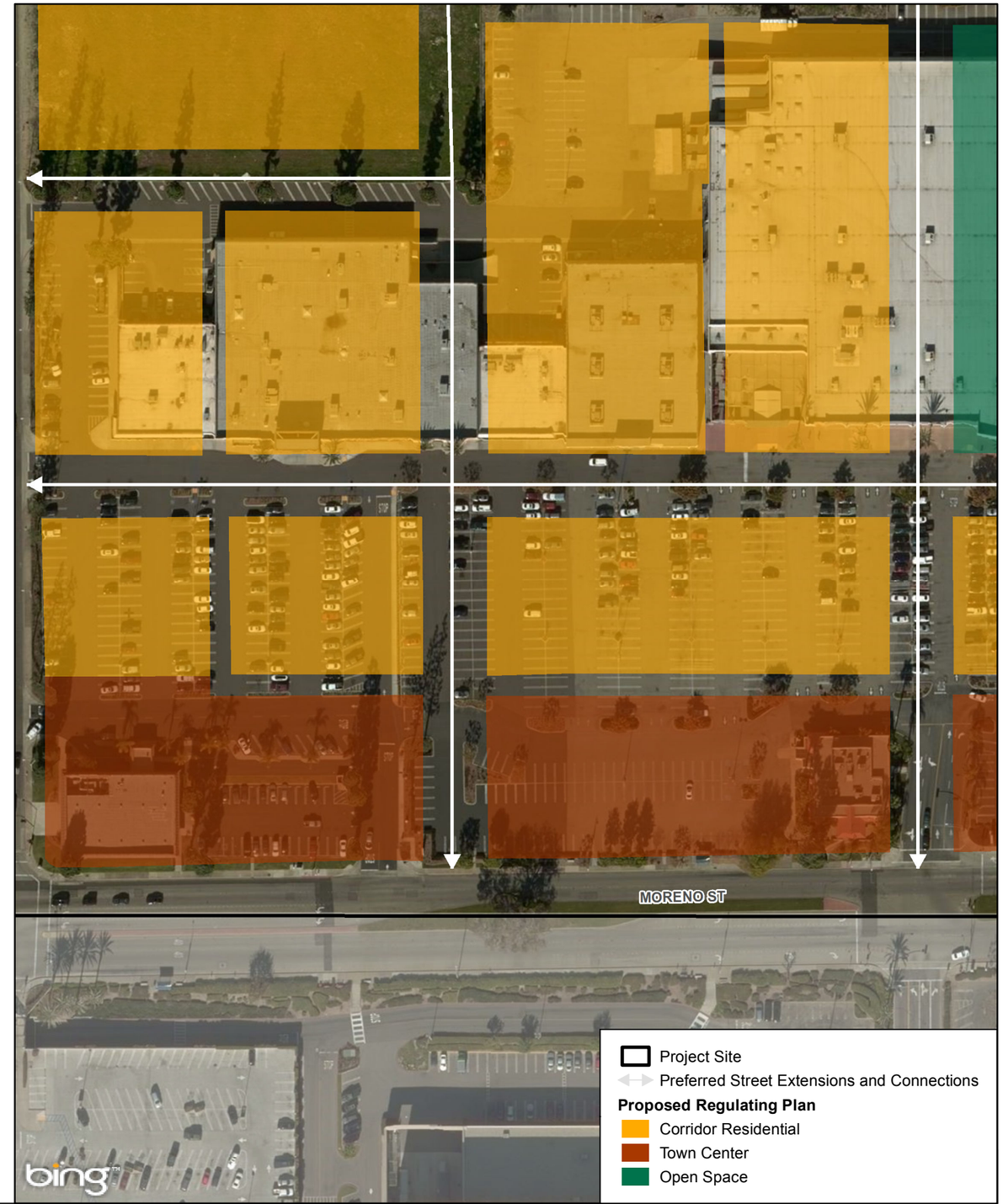
FIGURE 8

Existing vs. Proposed Street Alignment at Arrow Highway and Fremont Avenue

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



DUDEK

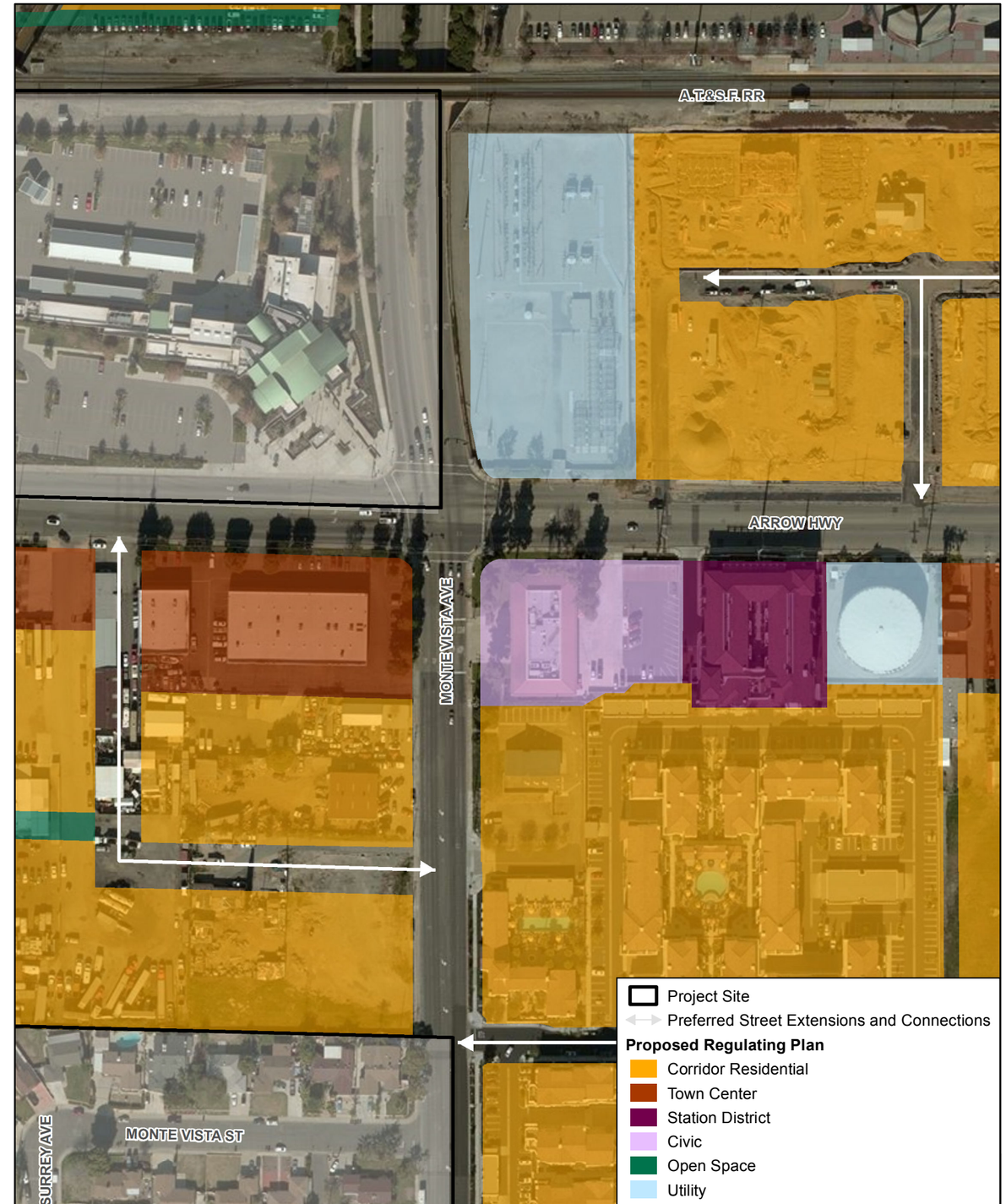
SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan.

FIGURE 9

Existing vs. Proposed Street Alignment at Fremont Avenue and Moreno Street

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan.

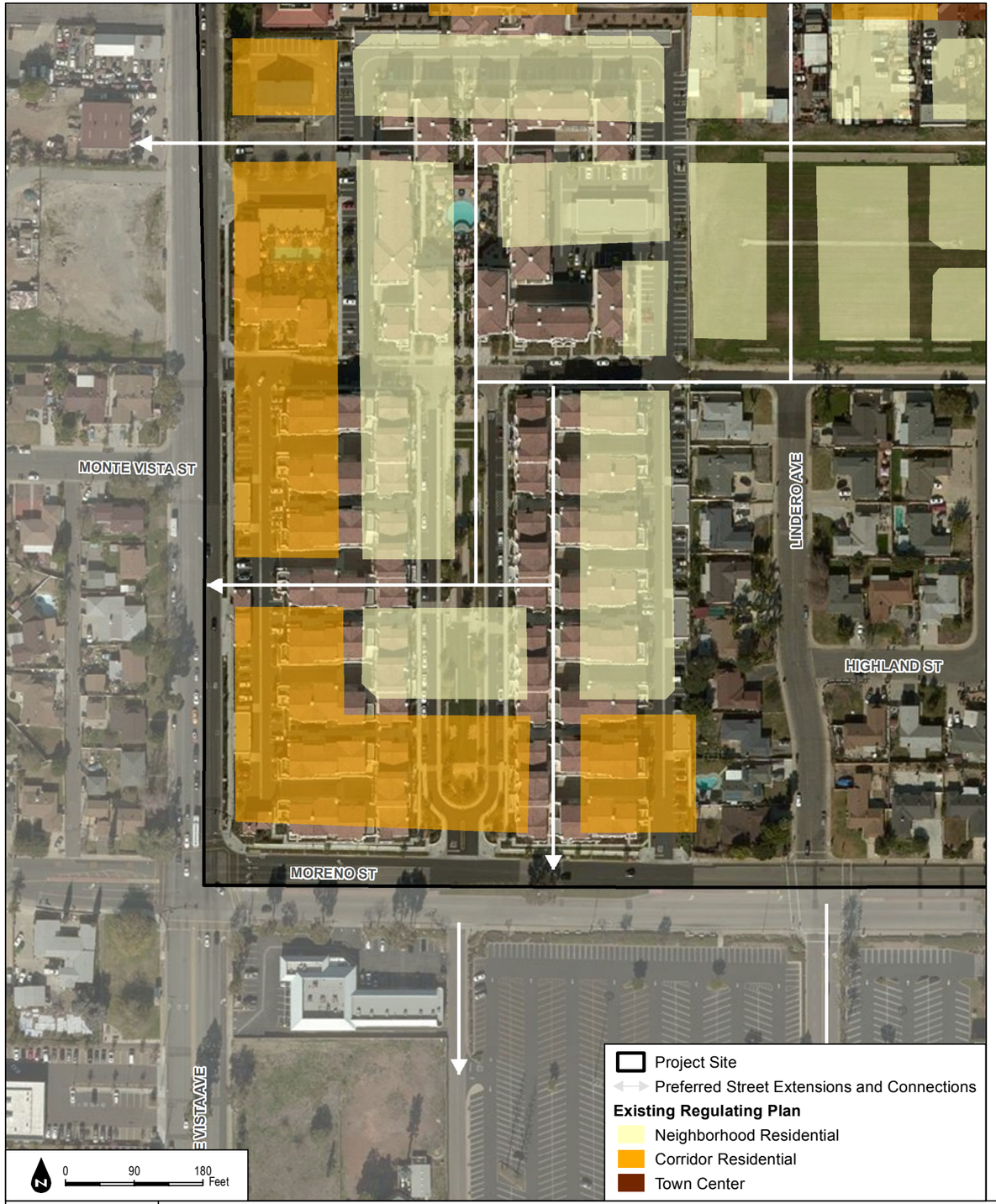
FIGURE 10

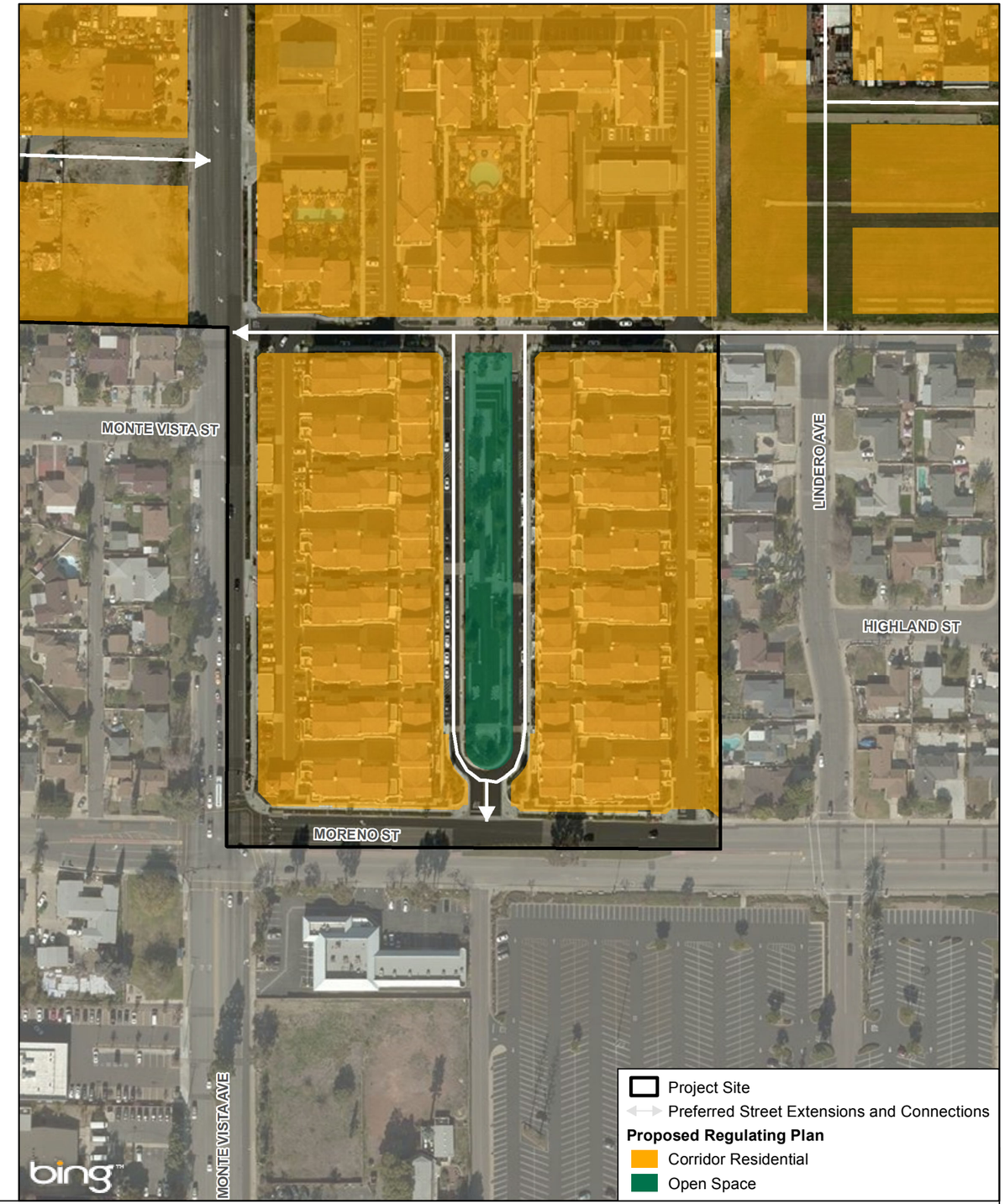
Existing vs. Proposed Street Alignment on the Northeast Corner of Arrow Highway and Monte Vista Avenue

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK





SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan.

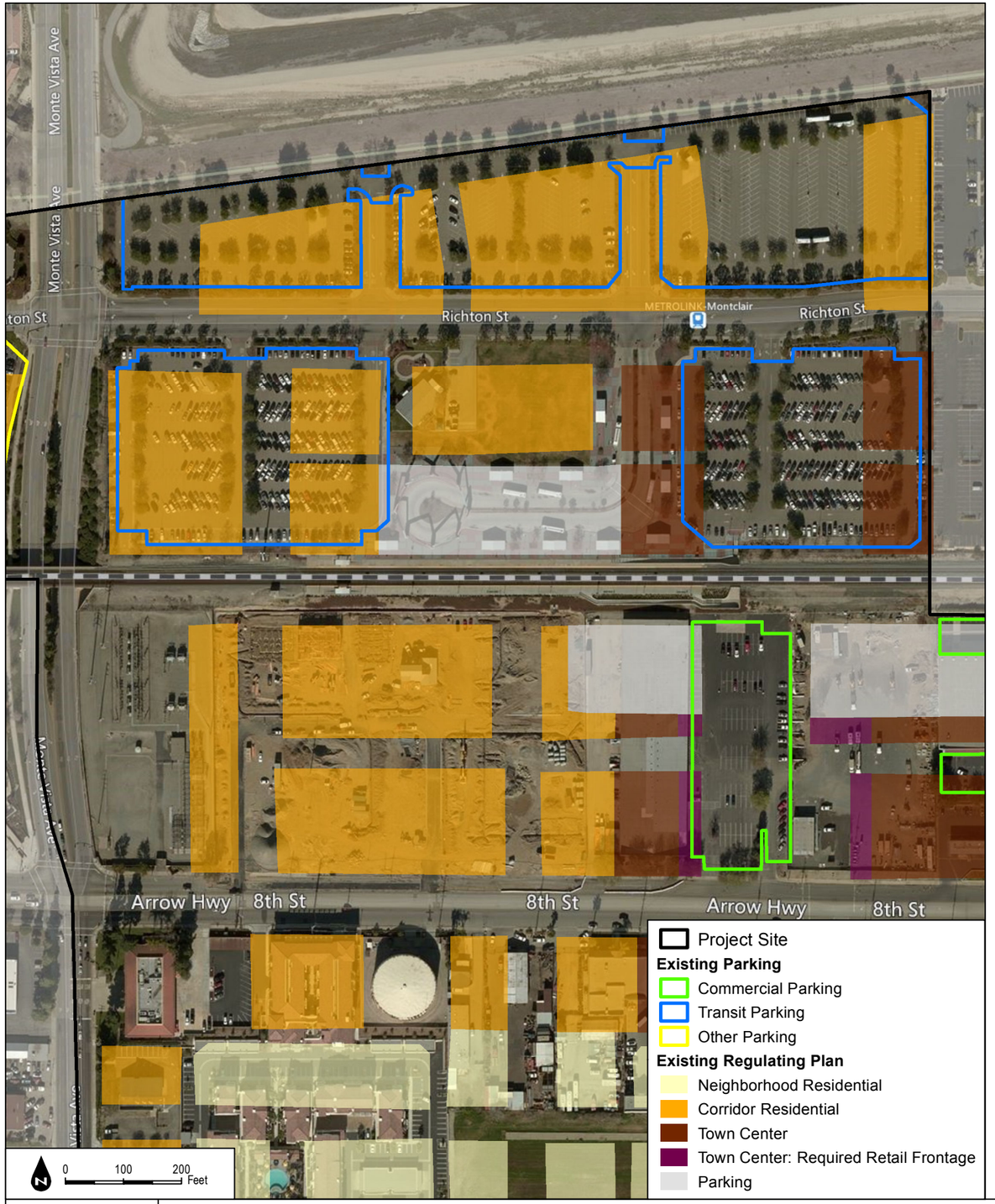
FIGURE 11

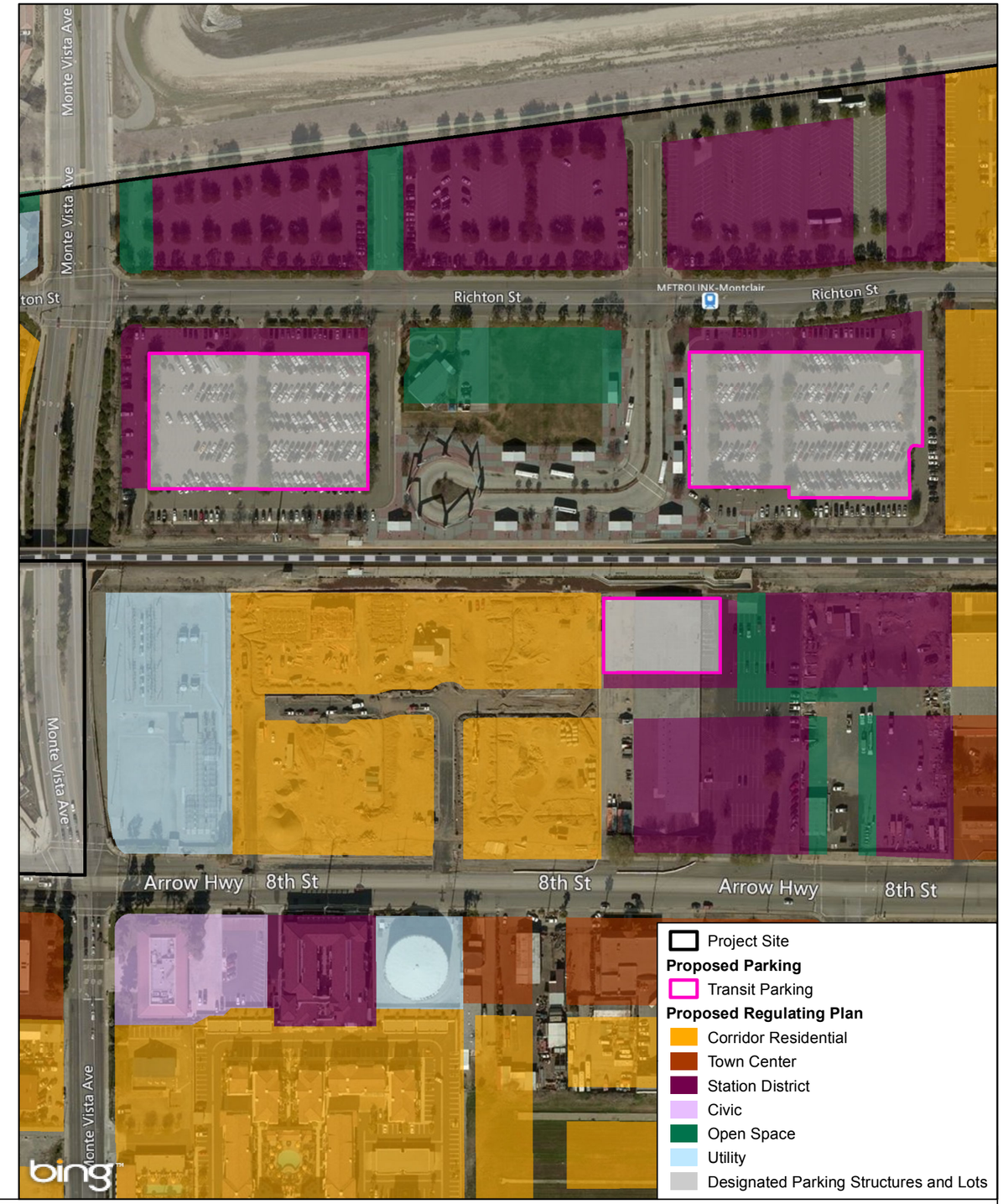
Existing vs. Proposed Street Alignment on the Northeast Corner of Monte Vista Avenue and Moreno Street

DUDEK

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK





SOURCE: Bing Imagery, 2016; North Montclair Downtown Specific Plan, 06/14/2016.

DUDEK

FIGURE 12

Existing vs. Proposed Parking Areas

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK

3 INITIAL STUDY CHECKLIST

As discussed in Section 1 above, the City of Montclair City Council certified the NMDSP Final EIR (City of Montclair 2006) and adopted the NMDSP in May 2006. The 2006 EIR evaluated the potential impacts that may result from the adoption and implementation of the proposed NMDSP. Pursuant to State CEQA Guidelines Section 15168, the 2006 EIR was prepared as a Program EIR, which is intended to provide analysis that is more general and anticipates future project refinement and review. The 2006 EIR allows for specific projects within the NMDSP area to "tier" future environmental assessment off the NMDSP EIR.

This document serves as the Initial Study (IS) - and provides environmental analysis - for the Proposed Amendment to the NMDSP. The City, as the lead agency for the Proposed Amendment, is responsible for preparing environmental documentation in accordance with the California Environmental Quality Act (Pub. Res. Code § 21000 et seq.: "CEQA") to determine if approval of the discretionary actions requested and subsequent development in the NMDSP area could have a significant impact on the environment.

This IS has been prepared on behalf of the City and is in conformance with Sections 15162, 15063 and 15064 of the CEQA Guidelines (14 CCR 15000 et seq.). The purpose of the IS Checklist/Environmental Evaluation is to identify any potentially significant impacts associated with the Proposed Amendment and to document the forthcoming intended analysis in a Supplemental EIR. In addition, pursuant to State CEQA Guidelines section 15168, the City has prepared this IS to determine whether the Proposed Amendment would have new effects that were not examined in the NMDSP EIR or more severe environmental impacts that require new or additional mitigation.

The following discussion of potential environmental effects was completed in accordance with Section 15063(d)(3) of the CEQA Guidelines to determine if the Proposed Amendment may have a significant effect on the environment.

1. Project title:

North Montclair Downtown Specific Plan Amendment Project

2. Lead agency name and address:

City of Montclair

3. Contact person and phone number:

Michael Diaz, City Planner; 909.625.9432

4. Project location:

The Proposed Amendment would amend the Montclair Downtown area that was defined in the 2006 NMDSP (see Figure 3, North Montclair Downtown Specific Plan). Montclair's Downtown is an approximately 150-acre subset of the 640-acre area that was defined in the North Montclair Specific Plan, adopted in 1998. The NMDSP planning area corresponds generally to the area bound by Huntington Drive on the north, Monte Vista Avenue on the west, Moreno Street on the south, and Central Avenue on the east. The existing boundary extends past these general boundaries in a number of locations and retreats from these general boundaries in one location along Moreno Street where the City has adopted a Specific Plan of Development No. 81-2, as shown in Figure 3, North Montclair Downtown Specific Plan. The Montclair Downtown area is located within 10 minutes of the Claremont Colleges and Cable Airport, and is adjacent to, but does not include Montclair Place (formerly known as Montclair Plaza) (see Figure 2, City of Montclair).

5. Project sponsor's name and address:

City of Montclair
Community Development Department
5111 Benito Street
Montclair, California 91763

6. General plan designation:

Planned Development

7. Zoning:

Specific Plan - North Montclair Downtown Specific Plan

8. Description of project:

See Section 2.0 above.

9. Surrounding land uses and setting:

See Section 2.0 above.

10. Other public agencies whose approval is required:

- Airport Land Use Commission review for the Cable Airport and the Ontario International Airport

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "New Potentially Significant Impact," as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology and Soils
☒ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials	☒ Hydrology and Water Quality
☐ Land Use and Planning	☐ Mineral Resources	☒ Noise
☒ Population and Housing	☒ Public Services	☒ Recreation
☒ Transportation and Traffic	☒ Utilities and Service Systems	☒ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ No substantial changes are proposed in the project and there are no substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous approved ND or MND or certified EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Also, there is no "new information of substantial importance" as that term is used in CEQA Guidelines Section 15162(a)(3). Therefore, the previously adopted ND or MND or previously certified EIR is adequately discusses the potential impacts of the project without modification.

☐ No substantial changes are proposed in the project and there are no substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous approved ND or MND or certified EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Also, there is no "new information of substantial importance" as that term is used in CEQA Guidelines Section 15162(a)(3). Therefore, the previously adopted ND, MND or previously certified EIR adequately discusses the potential impacts of the project; however, minor changes require the preparation of an ADDENDUM.

☐ Substantial changes are proposed in the project or there are substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous ND, MND or EIR due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. Or, there is "new information of substantial importance," as that term is used in CEQA Guidelines Section 15162(a)(3). However all new potentially significant environmental effects or substantial increases in the severity of previously identified significant effects are clearly reduced to below a level of significance through the incorporation of mitigation measures agreed to by the project applicant. Therefore, a SUBSEQUENT MND is required.

☒ Substantial changes are proposed in the project or there are substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous environmental document due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. Or, there is "new information of substantial importance," as that term is used in CEQA Guidelines Section 15162(a)(3). However, only minor changes or additions or changes would be necessary to make the previous EIR adequate for the project in the changed situation. Therefore, a SUPPLEMENTAL EIR is required.

☐ Substantial changes are proposed in the project or there are substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous environmental document due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. Or, there is "new information of substantial importance," as that term is used in CEQA Guidelines Section 15162(a)(3). Therefore, a SUBSEQUENT EIR is required.

Signature

9-30-16

Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1. A finding of "No New Impact/No Impact" means that the potential impact was fully analyzed and/or mitigated in the prior CEQA document and no new or different impacts will result from the proposed activity. A brief explanation is required for all answers except "No New Impact/No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No New Impact/No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No New Impact/No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. A finding of "New Mitigation is Required" means that the project have a new potentially significant impact on the environment or a substantially more severe impact than analyzed in the previously approved or certified CEQA document and that new mitigation is required to address the impact.
3. A finding of "New Potentially Significant Impact" means that the project may have a new potentially significant impact on the environment or a substantially more severe impact than analyzed in the previously approved or certified CEQA document that cannot be mitigated to below a level of significance or be avoided.
4. A finding of "Reduced Impact" means that a previously infeasible mitigation measure is now available, or a previously infeasible alternative is now available that will reduce a significant impact identified in the previously prepared environmental document.
5. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
6. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a. Earlier Analyses Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis. Describe the mitigation measures

which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the proposed action.

c. Infeasible Mitigation Measures. Since the previous EIR was certified or previous ND or MND was adopted, discuss any mitigation measures or alternatives previously found not to be feasible that would in fact be feasible or that are considerably different from those previously analyzed and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternatives.

d. Changes in Circumstances. Since the previous EIR was certified or previous ND or MND was adopted, discuss any changes in the project, changes in circumstances under which the project is undertaken and/or "new information of substantial importance" that cause a change in conclusion regarding one or more effects discussed in the original document.

7. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

8. Supporting Information Sources. A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

9. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

10. The explanation of each issue should identify:

    a. the significance criteria or threshold, if any, used to evaluate each question;

    b. differences between the proposed activity and the previously approved project described in the approved ND or MND or certified EIR; and

    c. the previously approved mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 Aesthetics

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐
b) Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Setting

Scenic Vistas

Scenic vistas are publicly accessible viewpoints that provide views of areas that exemplify a community's environment (i.e., scenic resources). The Proposed Amendment area is located in a highly developed urbanized area with no scenic vistas from public vantage points in or around the area. The San Gabriel Mountains, which are identified as scenic resources, are approximately four miles north of Richton Street and are not proximate to the Proposed Amendment area.

Scenic Quality and Character

The analysis of visual impacts is not an exact science. There have been few comprehensive programs designed to incorporate visualization tools into modeling systems, or evaluate the usefulness and applicability of such systems. Quantitative analysis is, therefore, difficult at best. As a result, visual quality is often rated on a relative qualitative scale, which places high value on expansive, prominent features, variation in topography and items of visual interest such as rock outcroppings or peaks.

The Proposed Amendment area is typified by vacant land, large-scale retail and associated parking areas. A few multi-family residential developments also exist, or are being constructed, within the planning area. The existing scenic quality of the Proposed Amendment area is generally low, and character of the area is common and indistinguishable from the surrounding urban environment.

a) Would the project have a substantial adverse effect on a scenic vista?

New Potentially Significant Impact. The 2006 NMDSP Final EIR found there are no scenic views from area roadways or other vantage points within, or adjacent to, the project area and that implementation of the Specific Plan would have no impact on such resources. In order to assess if there are new impacts to scenic vistas, the Proposed Amendment area has been assessed from four new viewpoints.

Scenic vistas are publicly accessible viewpoints that provide views of areas from the project site and onto the project site that exemplify a community's environment (i.e., scenic resources) There are no scenic vistas from public vantage points in the planning area. There are no scenic views from area roadways or other vantage points within the planning area onto the site. The viewshed experience from public areas in the vicinity of the planning area is dominated by views of commercial and residential development. The development allowed under the Proposed Amendment would result in similar (if not improved) visual character of the area. However, the views of the San Gabriel Mountains to the north could be partially blocked by the implementation of future projects under the Proposed Amendment. The potential change in distant views of the surrounding areas as experienced from each of the identified viewpoints is described below.

View No. 1 (Looking Northwest from Moreno Street and Central Avenue)

Predominant views of commercial uses, surface parking lots, ornamental landscaping and utility poles can be experienced by motorists and pedestrians traveling along Moreno Street and Central Avenue. No scenic vistas are visible from this viewpoint either onto the Proposed Amendment site or looking off the Proposed Amendment site. The visual character of the Proposed Amendment area would include mixed-use Town Center buildings fronting Central Avenue and Moreno Street. These buildings would include improved architecture and a maximum height similar to that of existing structures. Since scenic vistas would not be obstructed from this viewpoint, as none are visible, **no new impact/no impact** would occur from this viewpoint under the Proposed Amendment.

View No. 2 (Looking West from Central Avenue)

Predominant views of the existing commercial buildings and surface parking, with ornamental landscaping and utility poles, can be experienced by motorists and pedestrians traveling along Central Avenue. No scenic vistas are visible from this viewpoint either onto or off of the Proposed Amendment site. Views of future development under the Proposed Amendment could partially replace views of areas of

the existing retail and restaurant buildings. The visual character of the Proposed Amendment area would include mixed-use Town Center buildings fronting Central Avenue. These buildings would include improved architecture and a maximum height similar to that of existing structures. Since scenic vistas would not be obstructed from this viewpoint, as none are visible, **no new impact/no impact** would occur from this viewpoint under the Proposed Amendment.

View No.3 (Looking north from Richton Street)

Predominant views of the existing surface parking lots and industrial buildings with ornamental landscaping on the Proposed Amendment site can be experienced by motorists and pedestrians traveling along Richton Street and will be preserved. The San Gabriel Mountains are approximately four miles north of Richton Street and are not proximate to the Proposed Amendment area. Only partial views of the mountains can be seen in the distant background, as the views are compromised by existing development and landscaping in the area. While looking from the Proposed Amendment site, views of future development in the Proposed Amendment area would replace partial views of the mountains. The mountains act as a visual background that is relatively small in scale. Views north to the San Gabriel Mountains would be preserved with a park that connects the train station and bus platforms with the linear park along the Huntington Drive right-of-way at the Montclair-Upland border. Partial views of the San Gabriel Mountains may not remain with build-out of the Proposed Amendment. Additionally, motorists along Richton Street may no longer be able to have views of the mountains. Therefore, a **new potentially significant impact** could occur from this viewpoint under the Proposed Amendment. As such, potential impacts from this viewpoint will be studied further in the EIR.

View No. 4 (Looking east and west along Arrow Highway)

Predominant views of the existing commercial uses with ornamental landscaping and utility poles on the Proposed Amendment site can be experienced by motorists and pedestrians traveling along Arrow Highway and would be preserved. Future views of residential and commercial uses along this street would replace current views of surface parking areas and commercial uses in this area of the Proposed Amendment area. The visual character of future development under the Proposed Amendment would be similar to that of existing conditions and views of the structures would be screened by the ornamental landscaping along Arrow Highway. Since scenic vistas would not be obstructed from this viewpoint, and therefore, there would be **no new impact/no impact** from this viewpoint under the Proposed Amendment**.**

b) Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No New Impact/No Impact. The 2006 NMDSP EIR found there are no identified scenic resources or scenic state highways in the Specific Plan area; therefore, implementation of the Specific Plan would have no impact on such resources.

There are still no officially designated state scenic highways, as identified by the California Scenic Highway Program (Caltrans 2011), in the Proposed Amendment area. Additionally, the City continues to contain no scenic highway corridors (City of Montclair 1999). Therefore, the Proposed Amendment would not damage scenic resources within a state scenic highway. The Proposed Amendment area is already fully developed with existing mostly commercial uses, as well as associated parking lots. Thus, there are no rock outcroppings or other scenic resources on the project site.

Although the Proposed Amendment could remove some of the existing trees from the Proposed Amendment area, the trees are ornamental in nature and would be replaced as part of the landscaping improvements proposed by future projects under the Proposed Amendment. Accordingly, **no new impact/no impact** would occur under the Proposed Amendment.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

No New Impact/No Impact. The 2006 NMDSP EIR found that the existing quality of the project site was low, based on consideration of current development, the aesthetic quality of existing development, and the lack of natural futures. At the time, the existing character of the project site was common in Montclair and also in neighboring cities, and therefore, implementation of the NMDSP was to introduce higher quality, more cohesive development that would improve the quality and character of the overall Specific Plan area.

The Proposed Amendment area is characterized as an urban, developed commercial and residential area. The Proposed Amendment area is currently developed with residential and commercial uses including retailers, specialty shops, services, restaurants, cafes, industrial facilities, as well as associated surface parking areas. The planning area continues to be typified by vacant industrial land, large-scale retail, and associated parking areas. Some single-family and multi-family residential development also exists within the planning area. Typical residential development in the area ranges from one to three stories in height while surrounding commercial uses are typically one story in height. Existing buildings and structures in the planning area range in height from 30 feet to 75 feet.

The Proposed Amendment area is surrounded by developed properties on all sides. To the west of the NMDSP boundary, across Monte Vista Avenue and south of Arrow Highway, is a mix of residential, industrial, conservation and business park uses. To the north of the NMDSP boundary across Huntington Drive, land uses include public utility, commercial and residential properties. To the east of the NMDSP boundary, across Central Avenue, land uses include primary commercial service businesses with some residential uses. To the south of the NMDSP area boundary, across Moreno Street, land uses include commercial uses in Montclair Place (formerly known as Montclair Plaza), a major regional mall. The City has adopted a Specific Plan of Development No. 81-2 for the northwest corner of Moreno Street and Fremont Avenue. This area is currently developed as a single-family residential neighborhood. The Specific Plan of Development No. 81-2 predates the adoption of the North Montclair Specific Plan (adopted in 1998) and was incorporated therein as an area that could be changed into commercial development. However, the Specific Plan of Development No. 81-2 requires 85 percent of the lots to be assembled and reverted to acreage that could be developed as a single project proposal.

The existing scenic quality of the planning area is generally low, and the character of the planning area is common and indistinguishable from the surrounding urban environment. The existing quality of the planning area is low, based on a consideration of current development, the aesthetic quality of existing development, and the lack of natural features. The existing character of the planning area is common in Montclair and neighboring cities. Implementation of the Proposed Amendment would introduce higher quality, more cohesive development in the area, designed to be more appealing to residents and visitors alike and would follow the design guidelines of the NMDSP. The implementation of the Proposed Amendment would, therefore, improve the quality and character of the overall planning area.

Construction

The proposed construction activities required for future development in the Proposed Amendment area would introduce the use of machinery such as dump trucks, excavators, concrete trucks, scissor lifts, and other equipment required for demolition and construction activities. The presence of construction equipment, as well as the construction activities associated with the development allowed under the Proposed Amendment (such as grading), would temporarily alter the visual character of portions of the Proposed Amendment area, as demolition/construction activities would be visible from surrounding areas. However, since construction activities would be temporary, no

substantial long-term degradation of views would occur due to project construction. Thus, there would be **no new impact/no impact** under the Proposed Amendment.

Operation

Operation of future development under the Proposed Amendment would include a net increase of 782,285 sf of commercial space and 782,2852,688 new dwelling units. Existing surface parking would be replaced by these uses. The architectural character of future development under the Proposed Amendment would be consistent with existing uses. The proposed commercial and residential buildings would be of similar height range as the existing buildings. The land uses proposed for the area would enhance existing uses and not degrade the visual character of the area. While some landscaping would be removed, new landscaping would be added consistent with the requirements and guidelines set forth in the City's Tree Policy, the NMDSP, and Section 11.28.100 of the Municipal Code (refer to Section 3.4, Biological Resources for a discussion of these requirements). The final plans for future development projects under the Proposed Amendment would be required to undergo City review to ensure that the final height, siting, and design of the structures and landscaping comply with the City's Zoning Code and the NMDSP's development standards, and also remain compatible with the surrounding area. Therefore, implementation of the Proposed Amendment would not substantially degrade the existing visual character or quality of the planning area or its surroundings. Thus, there would be **no new impact/no impact** for the Proposed Amendment.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

New Mitigation is Required. The 2006 NMDSP EIR found that exterior lighting on existing buildings within the planning area already met street lighting standards and that implementation of the NMDSP in accordance with existing City lighting standards would ensure that added light and glare does not spill over onto adjacent properties. Impacts were found to be less than significant.

Currently there are numerous sources of nighttime lighting in the Proposed Amendment area and in the surrounding areas: from the existing Montclair Place regional mall, the Montclair East Shopping Center south and southeast of the NMDSP area; from retail, single-family and multi-family residential properties within the planning area; from residential properties and retail uses west of the NMDSP area; and from commercial and residential uses north of the planning area. The planning area is already illuminated by street standards and nighttime exterior lighting on existing buildings.

Future construction under the Proposed Amendment could introduce new light and glare during short-term construction activities. However, the construction of specific development under the Proposed Amendment would likely occur eight hours a day, five days a week, in compliance with the City's Noise Ordinance, and any lighting from construction activities would cease upon construction completion.

While future development under the Proposed Amendment would increase lighting in the planning area compared to current conditions, with the implementation of mitigation measure **MM-AES-1**, future project applicants would be required to prepare a project lighting and signage plan to ensure that all lights, including temporary lighting used during construction activities, are located, directed, and shielded in a manner that complies with City Codes, does not create a substantial new source of light onto adjacent properties, and would not adversely affect daytime or nighttime views in the area. Lighting and signage plans would be subject to review and approval by City staff prior to implementation.

Permanent operational lighting provided in the Proposed Amendment area would be required to comply with lighting standards established in the City's Municipal Code, as well as lighting levels established for safety purposes in the City's Building Security Requirements, which were developed pursuant to Section 10.16.030, Building Security Rules and Regulations, in the City's Municipal Code. The Building Security Requirements state that all exterior doors of commercial structures must be equipped with a lighting device providing a minimum maintained one-foot candle of light at ground level during hours of darkness. All parking lots for use by the general public that provide more than 10 spaces must have a minimum maintained one-foot candle of light on the parking surface from dusk until the termination of business on every operating day. At all other hours of darkness, a minimum maintained 0.25-foot candle of light must be provided at the ground level. The Building Security Requirements also state that exterior lighting must not shine away from the subject property (City of Montclair 2015). Section 11.66.030, Parking Improvements, in the Municipal Code requires light to be directed onto the parking area and away from adjacent properties. Where light spillage on adjacent properties is a concern, future projects under the Proposed Amendment would be required to include light controlling devices, such as light guards. The light-controlling devices would reduce glare on adjacent sensitive receptors.

All proposed windows would be made of non-reflective material and would not add a new source of substantial glare. Given these factors, the contribution of light and glare from future projects allowed under the Proposed Amendment would be less than significant with **new mitigation required**.

MM-AES-1 Prior to building permits being issued, project applicants shall prepare lighting and signage plans for specific future development allowed under the Proposed Amendment. All lighting and signage plans shall depict the proposed locations and heights of light poles and signs and must be approved by the City of Montclair. Concurrent with the building permit submittal, project applicants shall incorporate lighting design specifications to meet the City's minimum safety and security standards, as outlined in the City's Building Security Requirements. The following measures shall be included in all lighting plans:

- Luminaires shall be designed with cutoff-type fixtures or features that cast low-angle illumination to minimize incidental spillover of light onto adjacent properties. Fixtures that shine light upward or horizontally shall not spill any light onto adjacent properties.
- Luminaires shall provide accurate color rendering and natural light qualities. Low-pressure sodium and high-pressure sodium fixtures that are not color-corrected shall not be used, except as part of an approved sign or landscape plan.
- Luminaire mountings shall be downcast and pole heights minimized to reduce the potential for back scatter into the nighttime sky and incidental spillover light onto adjacent properties. The height of light poles shall be reviewed and approved by the City to ensure consistency with the City's Municipal Code requirements. Luminaire mountings shall be treated with non-glare finishes.

References

California Department of Transportation (Caltrans). 2011. Caltrans Officially Designated Scenic Highways. Accessed October 7, 2014: http://www.dot.ca.gov/hq/LandArch/scenic_highways/langeles.htm.

City of Montclair. 2015. *Building Security Requirements*. Accessed February 12, 2015. http://www.cityofmontclair.org/civica/filebank/blobdload.asp?BlobID=2638.

3.2 Agriculture and Forestry Resources

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☒	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Setting

The Proposed Amendment area is designated as "Urban and Built-Up Land" by the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program. The Proposed Amendment area is not designated for agricultural land use. The DOC's Williamson Act map does not show the Proposed Amendment site as being under a Williamson Act contract. In addition, no forest land, timberland, or Timberland Production areas (as defined in California Public Resources Code Sections 12220 (g), 4526, or 51104 (g)) are located within, or adjacent to, the planning area.

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No New Impact/No Impact. The 2006 NMDSP EIR found that the NMDSP would have no impact on agricultural resources or farmland because the NMDSP area was already developed at the time and did not support agriculture or farming.

The Proposed Amendment would allow for the construction of residential and commercial buildings within a slightly expanded project area. The planning area is designated as "Urban and Built-Up Land" by the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (DOC 2011). The DOC (2011) defines "Urban and Built-Up Land" as occupied structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. Since the planning area is already developed and is not located on any Farmland designations, no conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use would occur with implementation of future projects under the Proposed Amendment. As such, **no new impact/no impact** would result under the Proposed Amendment.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No New Impact/No impact. The 2006 NMDSP EIR found that the NMDSP would have no impact on agricultural resources or farmland because the NMDSP area was already developed at the time and did not support agriculture or farming.

The planning area is zoned Specific Plan in the City's Zoning Maps because it is situated in the NMDSP area and has a mix of Neighborhood Residential, Corridor Residential and Town Center land uses (City of Montclair 2011). The area included in the proposed expansion of the westerly boundary of the NMDSP area (at the corner of Arrow Highway and Monte Vista Drive) is zoned M1 Limited Manufacturing. The area included in the proposed expansion of the easterly boundary of the NMDSP area (to incorporate approximately 22 acres of land on the west side of Central Avenue at Richton Street) is already zoned Specific Plan in accordance with the NMDSP. According to the DOC's Williamson Act Map, there are no Williamson Act contracts in the planning area (DOC 2013). Since the Proposed Amendment area is not designated for agricultural land use and is not under a Williamson Act contract, **no new impact/no impact** to an agricultural use or Williamson Act contract would occur with the implementation of future projects under the Proposed Amendment.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No New Impact/No Impact. The 2006 NMDSP EIR did not analyze this threshold.

The NMDSP planning area is zoned Specific Plan in the City's Zoning Maps. Within the NMDSP area, the Proposed Amendment area has a mix of Neighborhood Residential, Corridor Residential and Town Center land uses (City of Montclair 2011). The planning area is not zoned for agricultural uses. The area included in the proposed expansion of the westerly boundary of the NMDSP area (at the corner of Arrow Highway and Monte Vista Drive) is zoned M1 Limited Manufacturing. The area included in the proposed expansion of the easterly boundary of the NMDSP area is already zoned Specific Plan. No forest land, timberland, or Timberland Production areas (as defined in California Public Resources Code Sections 12220 (g), 4526, or 51104 (g)) are located within, or adjacent to, the planning area. Therefore, the Proposed Amendment would not conflict with existing zoning for forest land, timberland, or Timberland Production areas, or result in the loss or conversion of forest lands to non-forest uses, as none exist. Therefore, **no new impact/no impact** to forest land or timberland would occur as a result of implementing future projects under the Proposed Amendment.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No New Impact/No Impact. The 2006 NMDSP EIR did not analyze this threshold.

See response to item 3.2(c) above. The Proposed Amendment would amend the development potential within existing commercial, residential and light manufacturing sites. Therefore, no loss or conversion of forest land would result from implementation of future projects under the Proposed Amendment. As such **no new impact/no impact** would occur under the Proposed Amendment.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No New Impact/No Impact. The 2006 NMDSP EIR found that the NMDSP would have no impact on agricultural resources or farmland because the NMDSP area was already developed at the time and did not support agriculture or farming.

See responses 3.2(a), 3.2(c), and 3.2(d) above. The implementation of future projects under the Proposed Amendment would amend the NMDSP to allow for the reallocation of density within the NMDSP and the expansion of the planning area boundary in two areas. The planning area is designated as "Urban and Built-Up Land" by the DOC Farmland Mapping and Monitoring Program (DOC 2011). No forest land areas, as

defined in PRC 12220(g), are located within, or adjacent to, the Proposed Amendment area. Therefore, changes to the existing environment that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use would not occur. As such, **no new impact/no impact** would occur under the Proposed Amendment.

References

DOC (California Department of Conservation). 2011. *San Bernardino County Important Farmland 2010*. December2011. Accessed October 7, 2014. ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2010/sbd10_so.pdf.

DOC. 2013. San Bernardino County Williamson Act FY 2012/2013. Accessed October 8, 2014. ftp://ftp.consrv.ca.gov/pub/dlrp/wa/sanbernardino_so_12_13_WA.pdf.

City of Montclair. 2011. Zoning Map. Accessed October 8, 2014. http://www.cityofmontclair.org/civica/filebank/blobdload.asp?BlobID=6574.

3.3 Air Quality

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Setting

Climate and Topography

The project site is located within the Southern California Air Basin (SCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. Air quality in the project area is affected not only by various emissions sources (e.g., mobile, industry), but also by atmospheric conditions, such as wind speed, wind direction, temperature, and rainfall. The SCAB's combination of topography, low mean mixing height, abundant sunshine, and emissions from one of the largest urban areas in the United States has historically resulted in some of the worst air pollution in the nation.

Although the SCAB has a semiarid climate, air near the surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited capacity to disperse air contaminants horizontally. The dominant daily wind pattern is an onshore daytime breeze of 8–12 miles per hour (mph) and an offshore nighttime breeze of 3–5 mph. The typical wind flow pattern fluctuates only with occasional winter storms or strong northeasterly Santa Ana winds from the mountains and deserts northeast of the SCAB. Summer wind flow patterns represent worst-case conditions because this is the period of higher temperatures and more sunlight, which results in more O_3 formation.

The City of Montclair's climate is characterized by relatively low rainfall, with warm summers and mild winters. Average temperatures range from a high of 91 degrees Fahrenheit (°F) in August to a low of 38°F in January. Annual precipitation averages about 0.3 to 3.6 inches, falling mostly from September through May (WRCC 2016).

During spring and early summer, pollution produced during any one day is typically blown out of the SCAB through mountain passes or lifted by warm, vertical currents adjacent to mountain slopes. The vertical dispersion of air pollutants in the SCAB is limited by temperature inversions in the atmosphere close to the Earth's surface. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino counties. In the winter, the greatest pollution problems are CO, $PM_{2.5}$, PM_{10}, and NO_2 because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog.

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The closest off-site sensitive receptor locations residential land uses to the north and south, immediately adjacent to the project site boundary.

Pollutants and Effects

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

New Potentially Significant Impact. The 2006 NMDSP EIR identified that the project site was located within the South Coast Air Basin (SCAB), and was subject to the requirements of the SCAQMD, the Southern California Association of Governments (SCAG), the U.S. Environmental Protection Agency (EPA), and the California Air Resources Board (CARB). The applicable air quality plan at the time the 2006 EIR was prepared was SCAQMD's 2003 Air Quality Management Plan. The EIR found that, while the NMDSP was consistent with, and helped implement, a number of the strategies expressed in the Air Quality Management Plan, the project would induce population and housing growth in the City of Montclair and the population accommodated by the Specific Plan exceeded projections used by SCAG and the SCAQMD in the Plan. The NMDSP was, therefore, considered inconsistent with the AQMP population projections and impacts were found to be significant and unavoidable.

The Proposed Amendment area continues to be located within the South Coast Air Basin (SCAB), which includes all of Orange County and the non-desert portions of Los

Angeles, Riverside, and San Bernardino counties, and is within the jurisdictional boundaries of the South Coast Air Quality Management District (SCAQMD).

In December 2012, the SCAQMD adopted a 2012 Final Air Quality Management Plan (AQMP) (SCAQMD 2013a), which is designed to meet applicable federal and state requirements for ozone (O_3) and particulate matter with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$). The 2012 AQMP was approved by the California Air Resources Board (CARB) on January 25, 2013, and is being reviewed by the United States Environmental Protection Agency (EPA). Emissions that would result from population growth and housing under the Proposed Amendment may be subject to SCAQMD rules and regulations.

The Final 2013 AQMP (February 2014) demonstrates attainment of the federal 24-hour $PM_{2.5}$ standard by 2015 in the SCAB through adoption of all feasible measures and accommodates planned growth in the SCAB. Ambient air quality data for the year 2015 has not yet been released by the California Air Resources Board (CARB). Based on general plans for cities and counties in the SCAB, including the City of Montclair, demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry), developed by the Southern California Association of Governments for their 2012 Regional Transportation Plan, were used in the 2013 AQMP. The 2013 AQMP reduction and control measures, which are designed to mitigate criteria pollutant air emissions, are based on existing and projected land use and development. Projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP.

The City of Montclair General Plan land use designations for the Proposed Amendment area are outlined in the NMDSP, which is the guiding zoning document for the Proposed Amendment area. The Proposed Amendment would amend the land use designation and zoning within planning area and proposes to extend the westerly boundary of the NMDSP area to include an additional area that is currently zoned M1 (Limited Manufacturing). The new area would be re-designated to allow for residential uses. Therefore, the Proposed Amendment would change the existing land uses and would induce population and housing growth in the City of Montclair beyond that which was assumed in the City's General Plan that was used to form the AQMP. It should be noted, however, that the population and housing growth that would be generated by the Proposed Amendments would be in the form of transit-oriented and mixed-use development, which is intended, in part, to reduce reliance on vehicles. Consistency with the AQMP is determined, in part, by comparing the population growth rates and

population numbers of the Proposed Amendment with the AQMP. The Proposed Amendment could conflict with, or propose to change, existing land uses or applicable policies as designated in the City of Montclair General Plan, and could also conflict with the applicable AQMP. As such, impacts are considered **new and potentially significant** and this issue will be studied further in the EIR.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

New and Potentially Significant Impact. The applicable air quality plan at the time the 2006 NMDSP EIR was prepared was SCAQMD's 2003 Air Quality Management Plan. The EIR found that, while the NMDSP was consistent with, and helped implement, a number of the strategies expressed in the Air Quality Management Plan, the project would induce population and housing growth in the City of Montclair and the population accommodated by the Specific Plan exceeded projections used by SCAG and the SCAQMD in the Plan. The NMDSP was, therefore, considered inconsistent with the AQMP population projections and impacts were found to be significant and unavoidable.

Implementation of the Proposed Amendment would contribute to air quality impacts in the SCAB. Potential for violations of air quality standards can be broken down into two phases: construction (short-term) and operation (long-term).**Construction**

The 2006 NMDSP EIR found that buildout of the various land uses proposed by the NMDSP would result in temporary emissions increases due to construction, and therefore, impacts were considered significant and unavoidable.

Construction impacts generally stem from grading, excavation, and use of heavy equipment on-site. Given the large area encompassed by the NMDSP, and the number of additional new dwelling units (4,368) and commercial space (782,285 sf) allowed under the Proposed Plan Amendment, impacts from construction emissions are considered new and potentially significant**.**

Mitigation measure AQ-2 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for impacts caused by the Proposed Amendment. It is expected that implementation of mitigation measure **MM-AQ-1**, identified below, would help reduce temporary emissions increases related to construction of future projects under the Proposed Amendment. However, even with the implementation of mitigation measure **MM-AQ-1**, impacts during construction of future development under the Proposed Amendment could remain **new and potentially significant**. This issue will be studied further in the EIR.

MM-AQ-1 **Construction.** At the time of project application, the City shall review the project proposal either individually, or in combination with other projects, permitted, planned or under construction in the planning area and determine whether project area activity meets thresholds as assigned by SCAQMD.

- Multi-Family Residential = 1,410,000 square feet gross floor area
- Commercial = between 559,000 square feet gross floor area and 975,000 square feet gross floor area depending on tenant
- Demolition = 23,214,111 cubic feet of building
- Grading = 177.0 acres

If any of the levels are met or exceeded by the project proposal, the City may require mitigation as part of approving the project. The City, in consultation with SCAQMD where necessary, shall evaluate, prior to building permit issuance, the applicability of the following measures and/or other SCAQMD-approved measures, to each particular project, based on site- and project-specific information. Measures shall be applied as needed to reduce construction-related pollutants to less than significant levels or to the extent feasible. Construction mitigation shall be appended to the project approval, and may include, but is not limited to the following:

- Maintain equipment and vehicle engines in good condition and in proper tune as per manufacturers' specifications and per SCAQMD rules, to minimize exhaust emissions.
- Suspend use of all construction equipment operations during second stage smog alerts. Contact the SCAQMD daily for daily forecasts.
- Use electricity from power poles rather than temporary diesel- or gasoline-powered generators.
- Use methanol- or natural gas-powered mobile equipment and pile drivers instead of diesel, if readily available at competitive prices.
- Use propane- or butane-powered on-site mobile equipment instead of gasoline, if readily available at competitive prices.
- Store all volatile liquids, including fuels or solvents, in closed containers.
- No open burning of debris, lumber or other scrap shall be permitted.

The City shall evaluate, prior to final construction approval, a project's risk of releasing significant quantities of diesel particulate emissions, using applicable SCAQMD Guidelines. Projects which may exceed acceptable thresholds (generally an increase in risk of 10/million or more), shall be required to install one or more pieces of filtering equipment (diesel particulate filter or diesel oxidation catalyst) and/or use emulsified fuels on their highest emitting piece or pieces of equipment on-site. The project proponent shall consult with the City and/or SCAQMD and comply with the recommendations made by both entities. If there is a conflict between what the City recommends and what SCAQMD recommends, the SCAQMD's recommendation shall be complied with.

Dust Control

- All areas with vehicle traffic shall be watered periodically; at a minimum, this requires twice daily applications (once in late morning and once at end of workday).
- Streets adjacent to the project site shall be swept as needed to remove silt that may have accumulated from construction activities in order to prevent excessive amounts of dust.
- Exposed areas, new driveways and sidewalks shall be seeded, treated with soil binders, or paved as soon as possible.
- Stockpiles of soil, sand and other loose materials shall be covered.
- Trucks hauling soil, debris, sand or other loose materials shall be covered.
- Project area streets shall be swept at least once daily.
- A dust control monitor shall be appointed to oversee and implement all dust control measures.
- The Contractor shall maintain continuous control of dust resulting from construction operations.
- When wind conditions create considerable dust, such that a nuisance would generate complaints, the Contractor shall either suspend grading operations and/or water the exposed areas.
- During construction, the amount of disturbed area shall be minimized.

- On-site vehicle speeds shall be reduced to 15 miles per hour or less.
- The City reserves the right to require additional measures depending on the nature and location of the particular project proposal.

Operation

The 2006 NMDSP EIR found that buildout of the various land uses proposed by the NMDSP would increase emissions from motor vehicles and other area sources, and therefore, impacts were considered significant and unavoidable. In terms of traffic generated at buildout of the NMDSP (including other growth in the region as forecast by SANBAG), the EIR found that traffic would increase carbon monoxide levels at intersections, but potentially significant impacts would be mitigable.

Build-out of the planning area pursuant to the Proposed Amendment may result in increased vehicle traffic and related emissions. Since the build-out of various land uses under the Proposed Amendment could increase emissions from motor vehicles and the traffic generated could increase carbon monoxide levels at intersections, it would be expected that the Proposed Amendment could have the same potentially significant operational air emission impacts.

Mitigation measure AQ-4 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for potential impacts caused by the Proposed Amendment. It is expected that the implementation of mitigation measure **MM-AQ-2**, at a minimum, would reduce those impacts to less than significant levels.

MM-AQ-2 **Carbon Monoxide (CO) Hotspot Analyses**. If a project-level TIA shows project-induced intersection deficiencies at level of service D, or shows the project will contribute to delays at intersections already operating at level of service D, the project proponent shall be required to prepare a screening level CO hotspot analysis. If CO hotspots are identified, projects shall be required to contribute their fair share of improvements to improve intersection level of service such that the potential for hotspots is eliminated.

However, even with the implementation of the **MM-AQ-1** and **MM-AQ-2**, there may be air quality impacts that are potentially significant. Thus, impacts during operation under the Proposed Amendment are considered to be a **new potentially significant impact** and will, therefore, be studied further in the EIR.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

New Potentially Significant Impact. The 2006 NMDSP EIR found that development pursuant to the NMDSP would contribute to existing exceedances of air quality standards. The major source of future air pollution was identified as motor vehicles. Increased population and development would increase vehicle emissions over current conditions. When considered along with other development in the region, development under the proposed NMDSP was not found to be consistent with projected population in the AQMP, and may therefore, impede attainment of standards, thereby having significant and unavoidable cumulative air quality impacts.

In considering cumulative impacts from the Proposed Amendment, the assessment must specifically evaluate a future project's contribution to the cumulative increase in pollutants for which the SCAB is designated as being in nonattainment for the National Ambient Air Quality Standards (NAAQS) or the California Ambient Air Quality Standards (CAAQS). A future project would be considered to have a significant cumulative impact if the project's contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact). If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution to nonattainment status in the SCAB. If a project does not exceed thresholds and is determined to have less than significant project-specific impacts, it may still contribute to a significant cumulative impact on air quality. In this case, the basis for analyzing the project's cumulative considerable contribution is the project's potential to exceed SCAQMD thresholds and its consistency with the most recent AQMP.

The SCAB is a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. The nonattainment status in the SCAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (e.g., VOC and NO_x for O_3,) potentially contribute to poor air quality.

Development pursuant to the Proposed Amendment would generate emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ associated with construction and increased vehicle traffic to and from the planning area, as well as energy use during operation. The Proposed Amendment may exceed SCAQMD significance thresholds when combined with other

existing and future emission sources in the area, and as discussed in Section 3.3(a), it may conflict with the SCAQMD 2015 AQMP, which addresses the cumulative emissions in the SCAB. Accordingly, future development under the Proposed Amendment may result in a cumulatively considerable increase in emissions of nonattainment pollutants or their precursors (e.g., VOC and NO_x for O_3,). As such, impacts are considered to be a **new potentially significant impact** and this issue will be studied further in the EIR.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

New Potentially Significant Impact. The 2006 NMDSP EIR found that increased vehicle and truck traffic generated at buildout of the planning area would increase the levels of toxic air contaminants (TACs), particularly diesel particulate emissions, in the planning area. Development in the area would also increase the number of sensitive receptors exposed to emissions from trains idling at the station. The 2006 NMDSP EIR found that this impact would be mitigated by existing regulations.

The SCAQMD recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ construction-related impacts to sensitive receptors in the immediate vicinity of a project site. Such an evaluation is referred to as a localized significance threshold (LST) analysis. Sensitive receptors include, but are not limited to, residential land uses, schools, open space/parks, recreational facilities, hospitals, resident care facilities, daycare facilities, or other facilities that may house individuals with health conditions that would be affected by poor air quality. The Proposed Amendment area includes sensitive receptors like open space/parks and residential land uses that would be impacted by future development under the Proposed Amendment. There are also off-site sensitive receptors like multi-family and single-family residences, the Unitarian Universalist Congregation and International Montessori School (located approximately 460 feet south of the planning area), and a dialysis center (located approximately 500 feet south of the planning area at 9142 Monte Vista Avenue).

The development of projects under the Proposed Amendment would generate emissions and dust levels that may exceed acceptable thresholds established in the SCAQMD *Final Localized Significance Threshold Methodology* (LST Methodology; SCAQMD 2009). In the EIR, emission concentrations from non-stationary sources will be quantified and compared to appropriate SCAQMD thresholds. The analysis may include a carbon monoxide (CO) “hot spot” analysis at potentially impacted intersections and may also require a Health Risk Assessment. Thus, since future development under the Proposed Amendment might result in the exposure of sensitive receptors in the vicinity of the

planning area to emissions, impacts are considered to be a **new potentially significant impact** and this issue will be studied further in the EIR.

e) Would the project create objectionable odors affecting a substantial number of people?

No New Impact/No Impact. The 2006 NMDSP EIR found that where residential development occurs above commercial establishments in the downtown area, odors from certain commercial uses may pose a nuisance. Impacts were considered significant, but mitigable.

Odors are a form of air pollution that is most obvious to the general public and can present problems for both the source and surrounding community. Although offensive odors seldom cause physical harm, they can be annoying and cause concern. Construction and operation of future development under the Proposed Amendment would not create objectionable odors affecting a substantial number of people.

Construction Odor Impacts. Potential sources that may emit odors during construction activities of future development under the Proposed Amendment include diesel equipment and gasoline fumes. Odors from these sources would be localized and generally confined to the specific project site. Furthermore, potential project-generated construction odors would be temporary. Residences located within the NMDSP are not anticipated to be affected by construction odors from future development under the Proposed Amendment. Additionally, the release of potential odor-causing compounds would tend to be during the workday, when many residents are not home. Furthermore, future projects under the Proposed Amendment would utilize typical construction techniques in compliance with SCAQMD rules. As such, the Proposed Amendment's construction activities would not cause an odor nuisance, and **no new impact/no impact** with regards to odor would occur.

Operational Odor Impacts. Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 2011). Future development under the overall Proposed Amendment entails residential and commercial uses and would not result in the creation of land uses that are commonly associated with odors. Where residential development occurs above commercial establishments in the downtown area, odors from certain commercial uses may pose a nuisance.

Mitigation measure AQ-5 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for impacts caused by the Proposed Amendment. It is anticipated that implementation of **MM-AQ-3** would lessen potential odor impacts during operation to a level that is less than significant. Therefore, project operations would result in **no new impact/no impact** and the mitigation measure identified in the 2006 EIR would apply to the Proposed Amendment.

MM-AQ-3 During discretionary review of mixed-use projects involving bars, taverns and nightclubs or personal services such as nail salons, hair salons, and dry cleaners, City reviewers shall ensure odors are reduced or eliminated pursuant to AQMD Rule 402.

References

CARB (California Air Resources Board). 2014. *2012 State Area Designations*. Area Designations Maps / State and National. Last reviewed August 22, 2014. Accessed at: http://www.arb.ca.gov/desig/adm/adm.htm.

EPA (U.S. Environmental Protection Agency). 2014. "Region 9: Air Quality Analysis, Air Quality Maps." Last updated February 11, 2014. Accessed at: http://www.epa.gov/region9/air/maps/.

Stantec. 2015. Montclair Mall Expansion Traffic Study. January 16, 2015.

SCAQMD (South Coast Air Quality Management District). 2009. *South Coast Air Quality Management District Final Localized Significance Threshold Methodology*. Appendix C. Revised October 21, 2009.

SCAQMD. 2011. *SCAQMD CEQA Handbook*. Originally published 1993; revised March 2011.

SCAQMD. 2013a. *Final 2012 Air Quality Management Plan*. Revised February 2013.

SCAQMD. 2013b. Rule 1113 – Architectural Coatings. Amended September 6,2013. Accessed at: http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1113.pdf?sfvrsn=15.

SCAQMD. 2015. Fact Sheet for Applying CalEEMod to Localized Significance Thresholds. Accessed January 30, 2015 at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2.

3.4 Biological Resources

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

Setting

The Proposed Amendment area is largely devoid of natural vegetation, and is dominated by pavement and existing development. This is consistent with existing conditions that show that the area is developed with commercial structures, residences and surface parking lots. The entire area is almost entirely covered with impervious surfaces, with the exception of four vacant dirt lots that are highly disturbed and support minimal amounts of low-growing vegetation. The potential for sensitive species, therefore, is uniformly low across the Proposed Amendment area.

Several sensitive species, however, have historically been sighted in areas throughout the United States Geological Survey (USGS) Ontario quadrangle, [1] where the Proposed Amendment area is located. Although some sensitive species are suspected to occur in the region, the Proposed Amendment area has limited suitable habitat area.

The only waterway in the area is the San Antonio Wash, a maintained concrete flood control channel.

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

New Potentially Significant Impact.

The 2006 NMDSP EIR found that based on the lack of suitable habitat within the planning area, the implementation of the NMDSP would not affect sensitive species.

The Proposed Amendment area is located in the center third of the USGS Ontario quadrangle. An electronic database review of this area was conducted in the California Natural Diversity Database (CNDDB) to generate a project vicinity species occurrence report (see Appendix C, California Natural Diversity Database Occurrence Report). This report includes a list and description of any candidate, sensitive, or special-status wildlife or plant species that has been historically sighted on, or within a five-mile radius of, the Proposed Amendment area. According to the CNDDB report, several sensitive species have historically been sighted in areas throughout the Ontario quadrangle.

Sensitive Wildlife Species

The CNDDB report found that the following sensitive wildlife species have the potential to occur on or near the Proposed Amendment area:

- Swainson's hawk — *Buteo swainsoni*
- Burrowing Owl — *Athene cunicularia*
- Coastal California Gnatcatcher — *Polioptila californica californica*
- Wester Yellow bat — *Lasiurus xanthinus*

[1] Quadrangles are areas established by the United States Geological Survey as a way of categorizing and dividing topographical maps. Quadrangles cover an area measuring 7.5 minutes of latitude and 7.5 minutes of longitude. The Proposed Amendment is approximately located in the center third of the Ontario quadrangle.

- Pallid bat *Antrozous pallidus*
- Western mastiff bat *Eumops perotis californicus*
- Big free-tailed bat *Nyctinomops macrotis*
- Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*
- San Diego desert woodrat *Noetoma lepida intermedia*
- Coast horned lizard *Phrynosoma blainvillii*
- Two-striped gartersnake *Thamnophis hammondii*

Sensitive Plant Species

The CNDDB report found that the following sensitive plant species have the potential to occur on or near the Proposed Amendment area:

- White rabbit-tobacco *Pseudonagphalium leucocephalum*
- San Bernardino aster *Symphyotrichum defoliatum*
- Rigid fringepod *Thysanocarpus rigidus*
- Salt Spring checkerbloom *Sidalcea neomexicana*
- Slender-horned spineflower *Dodecahema leptoceras*
- Prostrate vernal pool navarretia *Navarretia prostrata*
- Mesa horkelia *Horkelia cuneate* var. *puberula*
- California saw-grass *Cladium californicum*

While sensitive wildlife and plant species are known to occur on or within the general vicinity of the Proposed Amendment area, the area is developed with commercial structures, residences and surface parking lots. Planters with ornamental trees, shrubs, and grasses are scattered sparsely throughout the surface parking lots. The planning area is almost entirely covered with impervious surfaces with the exception of the planters, street trees and four vacant dirt lots. The two largest vacant properties are located at the southeastern and southwestern corners of Arrow Highway and Fremont Avenue. These vacant areas are highly disturbed, and support minimal amounts of low-growing vegetation. The vegetation on the vacant lots are largely seasonal weeds that have been cut down fairly routinely due to aesthetic and fire concerns. Therefore, while the planning area contains some vegetation and small amounts of unpaved areas, the vegetation is ornamental in nature, and the Proposed Amendment area is entirely

surrounded by urban development. As such, the minimal amounts of vegetation in the planning area and vacant dirt areas would not likely serve as suitable habitat for wildlife. Therefore, the Proposed Amendment area and vicinity are highly urbanized with few natural areas that could support wildlife.

Based on the disturbed and developed condition of the NMDSP area and the relative lack of suitable habitat, the potential for any known sensitive species to occur in the planning area is anticipated to be low. Additionally, the City's General Plan states that "significant" wildlife population no longer exists in the study area[2] due to the elimination of wildlife habitat" (City of Montclair 1999).

Implementation of the Proposed Amendment is not expected to result in the removal of sensitive species and is not expected to directly impact sensitive species, since none are expected to be present on-site. Nonetheless, this impact is considered to be a **new potentially significant impact** because the CNDDB database review has identified a number of sensitive plant and wildlife species that have the potential to occur on or within the general vicinity of the Proposed Amendment area. As such, this issue will be studied further in the EIR.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No New Impact/No Impact. The 2006 NMDSP EIR found that based on a site survey and review of aerial photographs, the planning area did not contain riparian habitat.

As described under item 3.4(a) above, the Proposed Amendment area is currently developed with residential and commercial uses and is surrounded by commercial and residential uses. The planning area supports limited vegetation consisting of ornamental trees, grasses, and shrubs. Because the vegetation is ornamental in nature and is situated in an urban environment, it does not constitute a sensitive natural community in itself.

Thus, riparian habitats and sensitive natural communities are not expected to exist on or in the vicinity of the Proposed Amendment area, and the Proposed Amendment would result in **no new impact/no impact** on riparian habitats and other sensitive natural communities.

[2] The "study area" refers to the City of Montclair plus its Sphere of Influence. Because the NMDSP area is located within the City of Montclair, it is included in the General Plan study area.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

New and Potentially Significant. The 2006 NMDSP EIR found that there were no wetlands in evidence on or adjacent to the planning area that would be impacted by future development under the NMDSP.

While the majority of the Proposed Amendment area has been developed for approximately 40 years, the CNDDB Occurrence Report found that sensitive plant species (i.e., Prostrate vernal pool navarretia, etc.) that may be considered federally protected wetlands, have the potential to occur on or near the Proposed Amendment area. If federally protected wetlands are discovered in the Proposed Amendment area, implementation of the Proposed Amendment may cause significant impacts, and mitigation in the form of buffers or other measures to protect the wetlands would be required.

In addition, the San Antonio Channel runs through a portion of the planning area, but it is a former natural channel that is now a concrete-lined drainage. Two water storage basins associated with the San Antonio Wash are located west and north of the NMDSP area. One water storage basin is located approximately 100 feet north of the northern edge of the NMDSP area and is separated from the area by the Pacific Electric Inland Empire Trail. The other water storage basin is located immediately adjacent to the western edge of the proposed new NMDSP boundary area. These basins are mapped as freshwater ponds by the U.S. Fish and Wildlife Service National Wetland Inventory. They are also mapped as being diked/impounded or excavated; indicating that the ponds are substantially modified and/or created by artificial means (USFWS 2014). Therefore, the water course and the water storage basins are modified in nature and surrounding by urban development. Despite this, these areas could contain federally protected wetland areas. While the majority of the Proposed Amendment area is separated from the water storage basins and from the San Antonio Channel by roadways, residential and commercial development, there is a portion of the area that is located adjacent to the basins. Thus, there is the potential for indirect impacts to occur on any wetlands located within the basins and mitigation measures may be required to avoid impacts. Thus, impacts to federally protected wetlands are considered to be a **new potentially significant impact**. This issue will be studied further in the EIR.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

No New Impact/No Impact. The 2006 NMDSP EIR found that there was no habitat appropriate for resident or migratory fish located in the area and that habitat for resident or migratory wildlife species was limited on-site due mainly to the developed nature of the area. Wildlife corridors were found to be limited on-site, due to the lack of intact cover, waterways, and the relatively developed nature of the site. Furthermore, the potential for wildlife nursery sites was found to be limited due to the lack of intact natural habitat on-site. Therefore, future development under the NMDSP was not found to interfere substantially with movement or nesting/breeding of wildlife species and impacts were considered less than significant.

There continues to be no running waters within the Proposed Amendment area, and therefore, future development under the Proposed Amendment would have no potential to affect the movement of migratory fish. The planning area has been developed for approximately 40 years and is located within a developed, urbanized area. The San Antonio Channel is channelized and would not be expected to support substantial fish populations. No habitat appropriate for resident or migratory fish is located on-site. Habitat for resident or migratory wildlife species is limited on-site due mainly to the developed nature of the area. Wildlife corridors are likewise limited on-site, due to the lack of intact cover, waterways, and the relatively developed nature of the site. Furthermore, the potential for wildlife nursery sites is still very limited due to the lack of intact natural habitat on-site. Additionally, as stated in the City's General Plan, wildlife populations are no longer existing in the City due to the elimination of habitat. As the City is not expected to support large wildlife populations and does not contain substantial wildlife habitat, the Proposed Amendment area is not part of a wildlife corridor. Migratory or nesting birds that would have the potential to utilize the on-site trees would be protected under the Migratory Bird Treaty Act of 1918. Therefore, the Proposed Amendment would have **no new impact/no impact** on the movement of native or resident species and on the use of native wildlife nursery sites.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No New Impact/No Impact. The 2006 NMDSP EIR found that implementation of future development under the NMDSP would not conflict with any ordinances protecting natural resources.

The City has a variety of policies regarding the preservation and planting of trees. The provisions of these policies that are applicable to the Proposed Amendment are described below:

Tree Policy

The City has an adopted Tree Policy that provides guidelines for the protection and preservation of trees planted within the City's right-of-ways and at City facilities. The Tree Policy contains a provision that prohibits private property owners from performing any planting, pruning, removing, and spraying of a City tree. The Tree Policy also contains the Oak Tree Preservation Guidelines, which prohibits the removal of oak trees within the City on public or private property without obtaining written approval from the City. The Proposed Amendment area may contain Oak trees; therefore, implementation of the Proposed Amendment would have to take the City's Oak Tree Preservation Guidelines into consideration. The Proposed Amendment area also has boundaries along several City streets (Moreno Street, Central Avenue, and Monte Vista Avenue). There are several street trees located along these streets. Future development under the Proposed Amendment would be required to comply with the City's Tree Policy relative to the treatment of any street trees within City right-of-ways. Under the Tree Policy, the City's street trees may be considered for removal under the following conditions: if a tree is diseased or infested, if a tree is causing a liability, if a tree is damaging hardscape such as sidewalks or driveways, if a tree is causing serious damage to the structural integrity of a building, if the tree must be removed to allow for construction, and/or if the tree is causing damage to a sewer. In the event that trees within the City's right-of-ways are proposed to be removed as part of future projects under the Proposed Amendment, the project proponent would be required to obtain an encroachment and construction permit from the City's Public Works Department. Conversely, in the event that trees are proposed to be planted within the City's right-of-ways, the project proponent would be required to conform with the guidelines provided in the City's Tree Policy, which includes specifications for tree species, sizes, spacing, quantity, and tree guards (City of Montclair 2004).

General Plan Community Design Implementing Policies

The City's General Plan also contains Community Design Implementing Policies relative to trees:

CE-1.1.15. *Existing specimens and stands of trees and other plant materials of outstanding scenic value should be protected.*

CD-1.1.16. *Older mature trees provide a sense of age and permanence. Every effort should be made to retain healthy trees in place and incorporate them into the site planning of a proposed development wherever possible, even. As a policy, the City should adopt and maintain a Master Plan of Street Trees that includes a minimum maintenance and replacement program.*

NMDSP Goals, Policies, and Programs

One of the goals set forth in the NMDSP is to maintain a high quality of environment. One of the implementing policies/actions for this goal is to "Recognize that existing mature trees are an important element in the North Montclair environment and preserve them, to the greatest extent feasible, whenever new public or private development occurs" (City of Montclair 1998).

The Proposed Amendment will provide enhanced landscaping standards and guidelines for the public realm and projects located in the Neighborhood Residential, Corridor Residential and Town Center land use designations. Thus, future development under the Proposed Amendment would be required to comply with the landscaping requirements contained in the NMDSP, including those that pertain to the quantity and size of trees that must be planted on-site.

The landscaping design of future projects under the Proposed Amendment would be required to comply with the Tree Policy, the City's General Plan, and the NMDSP landscaping guidelines and standards. Due to the requirement to comply with the City's policies that protect street trees and require trees to be incorporated into project design, implementation of the Proposed Amendment would not conflict with the City's policies protecting biological resources, and as such, there would be **no new impact/no impact**.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No New Impact/No Impact. The 2006 NMDSP EIR found that there were no habitat conservation plans or natural community conservation plans that apply to the NMDSP area. Therefore, the EIR identified no impact.

The City's General Plan does not designate any areas of the City as being within a habitat conservation plan (City of Montclair 1999). Furthermore, the City is not within any of the regional conservation plans designated by the state (CDFW 2014). As such, implementation of the Proposed Amendment would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat plan. **No new impact/no impact** would occur.

References

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed November 3, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

City of Montclair. 2004. *City of Montclair Tree Policy*. Approved by the City Council on January 5, 2004. Accessed November 3, 2014. www.cityofmontclair.org/civica/filebank/blobdload.asp?BlobID=2428.

CDFW (California Department of Fish and Wildlife). 2014. *California Regional Conservation Plans* [map]. March 2014. Accessed November 3, 2014. https://www.wildlife.ca.gov/Conservation/Planning/NCCP/Plans.

Montclair Municipal Code. Section 11.28.100 – Landscaping requirements, and Section 11:60 – Water-Efficient Landscaping and Conservation.

USFWS (United States Fish and Wildlife Service). 2014. National Wetlands Inventory, *Wetlands Mapper*, Search by Address. Accessed November 4, 2014. http://www.fws.gov/wetlands/Data/Mapper.html.

3.5 Cultural Resources

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
e) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC § 21074?	☐	☒	☐	☐

Setting

Most of the Proposed Amendment area is developed and all portions have been subject to previous disturbance as a result of past agricultural activities and more recent residential, commercial or industrial development. Objects over 45 years of age must be evaluated to consider the historical significance and integrity of the resource within the appropriate historic context, and in consideration of both the California Register of Historical Resources (CRHR) and City of Montclair's local landmark designation criteria (Municipal Code 11.56.060). State law requires the California Native American Heritage Commission (NAHC) to be contacted and a Sacred Lands File search of the project area to be requested. As the CEQA lead agency, the City is required to provide notification of proposed projects to tribes pursuant to the requirements of Assembly Bill (AB) 52. State law also requires that construction work stop in the event of an archaeological find. Workers must report finds that include bones or other signs of human burial to the County Coroner.

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

New Potentially Significant Impact. The 2006 NMDSP EIR found that there were no known historic resources in the NMDSP area. The General Plan indicated that some of the older residential neighborhoods in the City might be historic, but the existing single-family neighborhood would be retained through implementation of the NMDSP. However, it was identified that implementation of the NMDSP could result in the removal or alteration of buildings that have the potential to be historic resources. Therefore, mitigation in the form of procedures for land not previously developed or surveyed was assigned.

A California Historical Resources Information System (CHRIS) records search of the Proposed Amendment area and a one-quarter-mile radius was conducted by the staff at the South Central Coastal Information Center (SCCIC) on May 31, 2016. The records search results indicate that one previously recorded built environment resource is located within the Proposed Amendment area: the Island Pacific Ballet building (36-024507), an industrial building built circa 1951 located at 5050 East Arrow Highway. This building was recorded by Myra Frank & Associates/Jones and Stokes in 2004, but does not appear to have been evaluated. Therefore, its status as a historical resource is currently unknown. Three additional previously recorded cultural resources were identified outside of the current planning area but within the one-quarter-mile search radius. These resources consist of a historic archaeological site (CA-SBR-7794H), The Russian Village District (19-180776) which is listed in the National Register of Historic Places, and buildings and structures associated with Claremont Colleges (19-186058) which were found eligible for local listing.

In consideration of whether or not the Proposed Amendment would adversely impact a historical resource under CEQA, the EIR would require evaluation of any buildings, structures, and objects over 45 years of age that may be impacted by actions associated with the Proposed Amendment. Evaluations must consider the historical significance and integrity of the resource within the appropriate historic context, and in consideration of both the California Register of Historical Resources (CRHR) and City of Montclair's local landmark designation criteria (Municipal Code 11.56.060). As such, impacts are considered to be a **new potentially significant impact** and this issue will be studied further in the EIR.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

New Mitigation is Required. The 2006 NMDSP EIR found that the records search yielded only one site of historical significance within the planning area, known as the "Kite Shaped Track." Since the NMDSP did not propose destruction of this site, but rather made it a focal point, impacts were considered less than significant.

A CHRIS records search of the Proposed Amendment area and a one-quarter-mile radius was conducted by the staff at the SCCIC on May 31, 2016. The records search results indicate that no previously recorded archaeological resources are located within the Proposed Amendment area. Four previously recorded cultural resources were identified within one-quarter-mile of the project area; however, only one of these resources is an archaeological resource: CA-SBR-7794H is a historic refuse deposit with rock wall features located approximately one-quarter-mile north of the Proposed Amendment area.

In accordance with AB 52, on May 24, 2016, the California Native American Heritage Commission (NAHC) was contacted and a Sacred Lands File search of the project area was requested. The NAHC emailed a response on May 27, 2016. The Sacred Lands File search was negative, and therefore, did not identify any Native American cultural resources in the immediate project area. The NAHC also provided a list of four Native American individuals/organizations that may have knowledge of cultural resources within and around the project area. Letters to each of the four contacts were mailed on June 8, 2016 requesting any additional information concerning cultural resources within or around the project area. One response was received via email on July 8, 2016 from Andrew Salas, Chairman of the Gabrieleno Band of Mission Indians – Kizh Nation. The response states that the Proposed Amendment area is located in an area where the ancestral and traditional territories of the Kizh Gabrieleno villages adjoined and overlapped each other during the Late Prehistoric and Protohistoric Periods. The Tribe recommends the presence of one of their Native American monitors, as well as an

archaeological monitor, during any ground disturbing activities occurring within the Proposed Amendment area. As such, mitigation meaure **MM-CR-1** has been identified below for future development under the Proposed Amendment. No other responses have been received to date from any of the NAHC-provided contacts.

Most of the Proposed Amendment area is developed and all portions have been subject to previous disturbance as a result of past agricultural activities and more recent development. While no archaeological resources were identified within the Proposed Amendment area as a result of the records search, NAHC Sacred Lands File search, or Native American coordination efforts, there is still the possibility of encountering previously undiscovered archaeological resources at subsurface levels during ground-disturbing activities associated with future development under the Proposed Amendment. In the event that archaeological resources are encountered during construction activities under the Proposed Amendment, mitigation measure **MM-CR-2** shall be implemented to ensure that impacts to archaeological resources are reduced to less than significant levels. Therefore, impacts are less than significant with **new mitigation required**.

MM-CR-1 A qualified archaeologist and Native American monitor shall be present for all initial ground disturbing activities associated with future development under the Proposed Amendment. The monitor(s) shall be responsible for the identification of cultural resources that may be impacted by project activities. The monitor(s) may stop ground disturbing activities in order to assess any discoveries in the field. Monitoring may be discontinued when the depth of grading and soil conditions no longer retain the potential to contain cultural deposits. The project archaeologist shall be responsible for determining the duration and frequency of monitoring.

MM-CR-2 In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Proposed Amendment, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find as determined by the archaeologist, the archaeologist may decide to record the find and allow work to continue. If the discovery proves significant under CEQA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted. Preservation in place shall be the preferred means of mitigation, if determined to be feasible by the archaeologist and the City.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

New Mitigation is Required. The 2006 NMDSP EIR found impacts associated with paleontological or unique geological features to be less than significant.

The Proposed Amendment area is not known to be associated with any paleontological resources or unique geologic features. The project area is underlain by Quaternary aged young alluvial fan deposits and is therefore unlikely to result in the loss of any unique geologic feature or paleontological resource. However, the possibility of a paleontological discovery cannot be discounted. In the event that paleontological resources are inadvertently encountered during construction activities of future projects under the Proposed Amendment, mitigation measure **MM-CR-3** shall be implemented to ensure that impacts to paleontological resources or unique geological features are reduced to less than significant levels. Thus, impacts would be less than significant with **new mitigation required.**

MM-CR-3 In the event that paleontological resources (fossil materials) are exposed during construction activities for the Proposed Amendment, all construction work occurring within 50 feet of the find shall immediately stop until a qualified paleontologist, as defined by the Society of Vertebrate Paleontology, can assess the nature and importance of the find. Depending upon the significance of the find, the paleontologist may record the find and allow work to continue, or may recommend salvage and recovery of the resource. All recommendations shall be made in accordance with the Society of Vertebrate Paleontology's 1995 guidelines and shall be subject to review and approval by the City. Work in the area of the find may only resume upon approval of a qualified paleontologist.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

New Mitigation is Required.. The 2006 NMDSP EIR found that the implementation of the NMDSP may result in human remains being encountered.

There is no indication that human remains are present within the boundaries of the Proposed Amendment area. In the unlikely event that excavation activities during the implementation of future projects under the Proposed Amendment inadvertently discover buried human remains, implementation of **MM-CR-4** would reduce potential impacts to

less than significant levels. Therefore, the impacts would be less than significant with **new mitigation required**.

MM-CR-4 In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be notified within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are or are believed to be Native American, s/he shall notify the NAHC in Sacramento within 48 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

e) Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC § 21074?

New Mitigation is Required. The 2006 NMDSP EIR did not analyze this threshold.

As the CEQA lead agency, the City provided notification of the proposed project to tribes pursuant to the requirements of Assembly Bill (AB) 52. With respect to the confidentiality of this government-to-government process (which is currently on-going), all records related to AB 52 are on file with the City. Should any potential impacts to tribal cultural resources be identified as a result of the AB 52 process, in addition to the implementation of mitigation measures **MM-CR-1** and **MM-CR-4**, appropriate mitigation will be developed in consultation with all applicable tribal representatives. However, given the heavily developed nature of the Proposed Amendment area, it is unlikely that any tribal cultural resources are located within its boundaries. Therefore, impacts would be less than significant with **new mitigation required.** No further mitigation is required.

References

City of Montclair. 2005. *Images of America, Montclair.* Arcadia Publishing. Charleston, South Carolina.

The Department Store Museum. 2014. "The Broadway." Accessed December 18, 2014. http://departmentstoremuseum.blogspot.com/search?q=the+broadway.

Los Angeles Times. 1985. "Greatly Expanded Montclair Plaza Plans 'Reopening.'" In *Los Angeles Times (1923-Current File);* October 27, 1985; ProQuest Historical Newspapers: Los Angeles Times (1881-1990). Pg. J23.

Nationwide Environmental Title Research (NETR). 2011. Historic Aerials. Accessed December 18, 2014. http://www.historicaerials.com/.

Online Archive of California (OAC). 2011. "Finding Aid for the Elliot Mittler Collection of Welton Becket and Associates Photograph Archives, 1940-1979." UCLA Library. Accessed December 18, 2014. http://oac.cdlib.org/findaid/ark:/13030/tf2t1nb0w3/.

The Reeder Heritage Foundation. 2010. "Montclair History." Accessed December 18, 2014. http://www.reederranch.org/montclair%20history/index.asp.

Turpin, Dick. 1968. "$40 Million Montclair Plaza Under Construction." In *Los Angeles Times (1923-Current File);* February 25, 1968; ProQuest Historical Newspapers: Los Angeles Times (1881-1990).

3.6 Geology and Soils

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐

Setting

The planning area is located in California Seismic Zone 4, a seismically active region that includes several active earthquake faults of both local and regional significance, most notably the San Andreas Fault Zone. The fault closest to the planning area is the San Jose Fault. Other significant faults in the region include the Cucamonga, Chino, and San Jacinto Faults. An active fault is defined as a fault that has a historic seismic record (activity in the last 100 years) or displaces Holocene (11,000 years and younger) deposits.

Faults that exhibit signs of geologically recent (active within the past 11,000 years) movement are considered the most likely to experience movement in the near future. Therefore, active faults are generally thought to have the greatest fault rupture potential. Most agencies, however, will consider potentially active faults (active within the post two million years) as being capable of generating future earthquakes. Faults classified as inactive are not considered a significant fault rupture hazard or seismic event source.

Earthquakes along faults are described in terms of Moment Magnitude (M), which is the measure of total energy released. Moment Magnitude is the measurement and term generally preferred by scientists to the Richter scale because moment magnitude is more precise. Moment Magnitude is not based on instrumental recordings of a quake, but on the area of the fault that ruptured in the quake. This means that the Moment Magnitude describes something physical about an

earthquake. Moment Magnitude is calculated in part by multiplying the area of the fault's rupture surface by the distance the earth moves along the fault. A brief description of major active faults in the region, based on data in the City of Montclair follows:

San Andreas Fault System. The San Andreas Fault system (active) is oriented in a northwest-southeast direction and passes along the base of the San Bernardino Mountains and through the Cajon Pass. It is approximately 18 miles from the Proposed Amendment area. The San Andreas Fault is capable of a moment magnitude 8.0 M earthquake and is characterized as a right-lateral strike-slip fault. The last reported land rupture was recorded on April 18, 1906 (in the Northern segment) and on January 9, 1857 (in the Mojave segment).

San José Fault. he San José Fault (active) runs adjacent to and through portions of the planning area roughly paralleling the San Antonio Channel. Its proximity to the project site makes the San José Fault the most likely fault to have a direct impact on the planning area. The fault is not well understood, but is classified as potentially active, capable of a 6.5 M earthquake. The last significant quake associated with the fault was on February 28, 1990, with a magnitude of 5.4 M.

Cucamonga Fault. The Cucamonga Fault (potentially active) passes north of the basin in an east-west direction at the foot of the San Gabriel Mountains, approximately two miles from the planning area. The Cucamonga Fault is capable of a moment magnitude 7.0 M earthquake and is characterized as a thrust fault.

Chino Fault. The Chino Fault (potentially active) is oriented in a northwest-southeast direction and lies at the eastern base of the Chino Hills, approximately five miles from the planning area. The Chino Fault is capable of a moment magnitude 7.0 M earthquake and is characterized as a right-reverse fault.

Topography. The topography of the planning area is typical of the basin's alluvial plain. There exists little slope from east to west and a general two percent slope to the south. Elevations vary from approximately 1,200 feet above mean sea level (msl) at the northeastern corner of the planning area to approximately 1,140 feet above msl at the intersection of Moreno Street and Monte Vista Avenue. Based on information contained in the General Plan, landslide hazards are not significant due to the relatively gentle slope of the planning area topography.

Soils. The planning area contains two main soil groups. Tujunga loamy sand is found in the northwest and southwest corners of the project area, with slopes ranging from 0-5% and 0-8%, respectively. The central portion of the planning area is underlain by soils in the Soboba group. The northwest portion contains Soboba gravelly loamy sand, with slopes ranging from 0-9%, and the southeast portion contains Soboba stoney loamy sand, with slopes ranging from 2-9%.

Both soils groups are very deep, coarse to gravely/cobbly, well-drained with a low water-holding capacity, and have a coarse texture. Both soil groups are found in areas of recent alluvial fans and flood plains, and are classified as having severe load-bearing limitations. The Unified Building Code requires that buildings create a pressure of less than 1,000 pounds per square inch (psi) in areas with these soils. Even though this is only one factor in rating development suitability, future development under the Proposed Amendment may require additional engineering studies and measures to address this concern, including special compaction requirements.

Geologic Hazards

Subsidence. Areas most vulnerable to subsidence are those underlain by loose, compressible clay-rich soils, in an area with excessive groundwater withdrawal and general lowering of the water table. Based on information contained in the General Plan, large-scale subsidence events have not been documented in the planning area.

Expansive Soils/Differential Settlement. Expansive soils tend to swell with seasonal increases in soil moisture and shrink during the dry season as soil moisture decreases. The volume changes that the soils undergo in this cyclical process can stress and damage slabs and foundations if precautionary measures are not taken. Differential settlement can result from expansive soils if a foundation is constructed on two materials having different settling/expansion characteristics, such as rock and soil. Methods commonly used for slab protection include placement of non-expansive material beneath the slab or pre-moistening of sub-slab materials. Both soil groups mentioned above are categorized as having a low soil shrink/swell rate.

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No New Impact/No Impact. The 2006 EIR found that implementation of the NMDSP would result in additional development and population in a seismically active area. The 2006 EIR states that the potentially active San Jose Fault appeared to lie within the boundaries of the planning area, and therefore, posed a particular risk of ground shaking and possible ground rupture.

The planning area continues to be located in California, in Seismic Zone 4, which is considered the most active seismic zone in the state. Rupture of a known, active

earthquake fault would affect development located on or along the fault, causing foundation and other structural damage. The Proposed Amendment area is not located within an "Earthquake Fault Zone" as indicated by Alquist-Priolo Earthquake Fault Zoning Maps. This is confirmed by geologic hazard overlays in the City of Montclair's General Plan Safety Element and the County of San Bernardino's Land Use Plan General Plan, which also indicate that the Proposed Amendment area is not located within a County-designated fault zone (City of Montclair 1999 and County of San Bernardino 2010).

The potentially active San Jose Fault continues to lie within the boundaries of the planning area, and therefore, poses a particular risk of ground shaking and possible ground rupture to existing and proposed development. Mitigation measure GEO-2 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for impacts caused by the Proposed Amendment. With the implementation of mitigation measure **MM-GEO-1**, impacts from future development under the Proposed Amendment would be less than significant. Therefore, **no new impact/no impact** would occur with the Proposed Amendment and the mitigation identified in the 2006 EIR would apply to the Proposed Amendment.

MM-GEO-1 **San Jose Fault.** Prior to the commencement of any construction activities, all projects proposed west of the San Antonio Channel shall submit a geotechnical study prepared by a qualified geologist to document the presence/absence of the San Jose Fault across the site. If the San Jose Fault is identified on-site, California Building Code requirements for siting development near active faults shall be implemented, unless the fault is proven inactive. In general, habitable structures shall be prohibited in areas directly overlying the fault, or within 50 feet of the trace. The City must approve the geotechnical study and may apply additional standards, if warranted by the geotechnical study.

ii) Strong seismic ground shaking?

No New Impact/No Impact. The 2006 NMDSP EIR found that seismic activity along any of the faults in the area would pose varying degrees of ground shaking risk to future development under the NMDSP. Future development under the NMDSP would be required to comply with the Uniform Building Code Seismic Regulations;

however, ground shaking remained a risk to structures proposed in the planning area and impacts were considered potentially significant, but mitigable.

The Proposed Amendment area would likely be subject to strong ground motion from seismic activity similar to that of the rest of seismically active Southern California and its proximity to the San Andreas Fault, the Cucamonga Fault, San Jose Fault, and the Chino Fault. However, the Proposed Amendment area is not within any Earthquake Hazard Zone or found on an Alquist–Priolo Earthquake Fault Zoning Map (Appendix D). As such, the Proposed Amendment area would not be affected by ground shaking any more than other areas in seismically active Southern California. Future projects within the Proposed Amendment area would be developed in accordance with the provisions of the 2016 California Building Code (CBC) (or most applicable building code) and requirements of the local building official. The local building official implements and enforces local amendments to the CBC and any more stringent geologic hazard regulations and guidelines than provided for under State law through building/grading permit requirements and associated plan checks. Any new structures in the Proposed Amendment area, and any seismic upgrades (if required by the CBC or local building official), would be designed in accordance with current building code provisions, which would help minimize the potential effects of strong ground shaking. However, the potentially active San Jose Fault appears to lie within the boundaries of the planning area, and therefore, poses a particular risk of ground shaking and possible ground rupture to existing and proposed development. With the implementation of mitigation measure **MM-GEO-1**, as discussed under item 3.6(a)(i), **no new impact/no impact** would occur for future development allowed under the Proposed Amendment. No further mitigation is required.

iii) Seismic-related ground failure, including liquefaction?

No New Impact/No Impact. The 2006 NMDSP EIR found that future development in the NMDSP area may be at risk of liquefaction during seismic events. Implementation of future development under the NMDSP would increase the density, number of buildings, and total population exposed to this potential hazard.

According to the County of San Bernardino's Land Use Plan General Plan Geologic Hazard Overlays Map, the planning area is not located in an area designated as susceptible to liquefaction (County of San Bernardino 2010). Although there is little indication that the planning area is susceptible to seismic-related ground failure, the CBC requires subsurface exploration, laboratory testing

and engineering analysis to be completed prior to final project design for any development proposed under the Proposed Amendment. This analysis will confirm site-specific conditions and inform engineering specifications for soils and building foundations. The local building official implements and enforces the CBC, local amendments to the CBC, and any more stringent geologic hazard regulations and guidelines through issuance of building/grading permits and associated plan checks. Any new structures proposed in the Proposed Amendment area, and any seismic upgrades (if required by the CBC or local building official), would be designed in accordance with current building code provisions, which will minimize to an acceptable level the potential effects of strong ground shaking, including landslides and liquefaction. However, the planning area may be at risk of liquefaction during seismic events. Implementation of the Proposed Amendment would increase the density of the area, as well as the number of buildings and total population exposed to this potential hazard.

Mitigation measure **MM-GEO-2** was identified in Section 5.1 of the 2006 NMDSP EIR (as GEO-5) and is recommended mitigation for impacts caused by future development under the Proposed Amendment. With the implementation of mitigation measure **MM-GEO-2**, impacts from future development under the Proposed Amendment would be less than significant. Therefore, there would be **no new impact/no impact** from the Proposed Amendment and the mitigation identified in the 2006 EIR would apply to the Proposed Amendment.

MM-GEO-2 **Liquefaction.** Prior to the commencement of any construction activities, all projects proposed in the Proposed Amendment area shall submit a geotechnical study prepared by a qualified geologist to document the potential for liquefaction, unless the City adopts an overlay zone or other special standard district for the area, which specifies strategies to be used in such areas. Projects shall be required to incorporate feasible measures identified in the geotechnical study. The City must approve the geotechnical study and may apply additional standards, if warranted by the geotechnical study.

iv) Landslides?

No New Impact/No Impact. The 2006 NMDSP EIR found that landslides are not a significant issue in the NMDSP area due to the relatively level slope throughout the planning area.

The occurrence of landslides is generally influenced by a number of factors, including slope angle, soil moisture content, vegetative cover and the physical nature of the underlying strata. Landslides can be triggered by one or more specific events including development-related construction, seismic activity, and soil saturation. Landslides are not a significant issue in the planning area due to the relatively level slope throughout. According to the County of San Bernardino's Land Use Plan General Plan Geologic Hazard Overlays Map, the Proposed Amendment area is not located in an area designated as susceptible to earthquake-induced landslides (County of San Bernardino 2010). The Proposed Amendment area is currently developed and gently slopes towards the south and west. There are no slopes of sufficient grade within the planning area for landslides to be of concern. Therefore, there would be **no new impact/no impact** for future development under the Proposed Amendment.

b) Would the project result in substantial soil erosion or the loss of topsoil?

No New Impact/No Impact. The 2006 NMDSP EIR found that implementation of the NMDSP would expose soils to erosion as specific future projects are developed and that impacts would be significant without mitigation.

Erosion may be a concern in the planning area, especially during initial grading stages of specific projects. The greatest potential for erosion from a project is during the initial grading stages, as surfaces are denuded and soil is exposed. The potential for erosion is limited by the relatively shallow slope, and the fact that construction throughout the planning area will occur at different times, which will limit the total area of disturbance. All future development in the Proposed Amendment area would need to employ water quality Best Management Practices (BMPs) during construction in accordance with a Stormwater Pollution Prevention Plan (SWPPP) and the Statewide Construction General Permit. Furthermore, all future development would be required to incorporate Low Impact Development (LID) standards into the project design to minimize, to the maximum extent practicable, long-term effects resulting from changes in post-storm runoff patterns. Examples of LID designs include installation and maintenance of landscaped areas and paving or landscaping of all disturbed areas in order to minimize

erosion. However, the implementation of future projects under the Proposed Amendment would expose soils to erosion as specific projects are developed.

Mitigation measure **MM-GEO-3** was identified in Section 5.1 of the 2006 NMDSP EIR (as GEO-3) and is recommended mitigation for impacts caused by future development under the Proposed Amendment. With the implementation of mitigation measure **MM-GEO-3**, impacts from future development under the Proposed Amendment would be less than significant. Therefore, there would be no new impact/no impact from the proposed amendment and the mitigation identified in the 2006 EIR would apply to the Proposed Amendment. Projects involving land disturbance of greater than one acre are required to obtain coverage under the Construction General Permit, which is only one of many types of National Pollutant Discharge Elimination System (NPDES) permits. The Construction General Permit is a combined NPDES permit/Waste Discharge Requirements (WDR) form specific to construction activity.

MM-GEO-3 **Project Level Water Quality Management Plans (WQMPs)**. Prior to the commencement of construction activities, all projects developed under the Proposed Amendment shall submit a WQMP outlining actions to be taken during the design, construction, and occupancy phases of the project. The WQMPs may include, but not be limited to, the following BMPs:

Site Design BMPs (To be included during the site planning and approval process)

- Maximize permeable area by using alternative materials or surfaces with a lower Coefficient of Runoff ("CFactor").
- Construct walkways, trails, patios, parking areas, alleys, and driveways with open-jointed paving materials or permeable surfaces, such as pervious concrete, porous asphalt, and granular materials. Also, incorporate landscape areas into the drainage design of these areas.
- Minimize use of impervious surfaces, such as decorative concrete in landscape design.
- Where soils conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration.
- Use natural drainage systems and increase the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales.

Source Control BMPs

- Education for property owners, tenants, and occupants on good housekeeping practices to protect stormwater quality.
- Street sweeping of private streets and parking lots.
- Implement roof runoff controls and efficient irrigation systems.

Treatment Control BMPs

- Design landscape drainage features so that they promote infiltration of runoff, but do not inject runoff so that it bypasses the natural processes of filtering and transformation that occur in the soil.
- Pretreat runoff to reduce the risk of contamination of groundwater.

Project WQMPs shall follow the outline established by the San Bernardino County Stormwater Program's Model Water Quality Management Plan Guidance document.

Construction Activity. NPDES Permits are required for all projects in excess of one acre. Erosion control measures are required when run-off could impact the drainages. These include the use of straw bales, siltation fences, berms and basins. It is important to note that specific erosion control measures shall be determined on a project-by-project basis, depending on size and level of disturbance. No specific BMPs are recommended at this level.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

No New Impact/No Impact. The 2006 NMDSP EIR found that soils in the planning area are severely limited in load-bearing capacity and that development on these soils poses risk to property and/or life.

As indicated previously, the local building official implements and enforces the CBC, local amendments to the CBC, and other more stringent geologic hazard regulations and guidelines through the issuance of building/grading permits and associated plan checks. Subsurface exploration, laboratory testing of soils, and engineering analysis will be completed prior to final project designs to confirm site-specific conditions and inform

engineering specifications for site preparation, fill specifications, and building foundations. Potential adverse effects related to undesirable soil qualities will be minimized to an acceptable level through building/grading permits. For this reason, future projects under the Proposed Amendment would not cause or be exposed to an increased potential for landslides, subsidence, or liquefaction compared to existing conditions.

Mitigation measure **MM-GEO-2** was identified in Section 5.1 of the 2006 NMDSP EIR (as GEO-5) and is recommended mitigation for impacts caused by future development under the Proposed Amendment. With the implementation of mitigation measure **MM-GEO-2**, impacts from future development under the Proposed Amendment would be less than significant. Therefore, there would be **no new impact/no impact** from the Proposed Amendment and the mitigation identified in the 2006 EIR would apply to the Proposed Amendment. No further mitigation is required.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

No New Impact/No Impact. The 2006 NMDSP EIR found that soils in the planning area are severely limited in load-bearing capacity and that development on these soils poses risk to property and/or life.

The soils underlying the planning area are known to be relatively unstable and are severely limited in load-bearing capacity. Soil instability is typically remedied through additional engineering work, both in terms of ground preparation and foundation design. Future projects under the Proposed Amendment would need to complete subsurface exploration, laboratory testing of soils, and engineering analysis prior to final project designs to confirm site-specific conditions and inform engineering specifications for site preparation, fill specifications, and building foundations. Since there is the potential for expansive soils, development on these soils poses a risk to property and/or life.

Mitigation measure **MM-GEO-4** was identified in Section 5.1 of the 2006 NMDSP EIR ((as GEO-4) and is recommended mitigation for impacts caused by future development under the Proposed Amendment. With the implementation of mitigation measure **MM-GEO-4**, impacts from future development under the Proposed Amendment would be less than significant. Therefore, there would be **no new impact/no impact** from the Proposed Amendment and the mitigation identified in the 2006 EIR would apply to the Proposed Amendment.

MM-GEO-4 **Load Bearing Capacity**. Prior to the commencement of construction activities, all projects shall submit a geotechnical study prepared by a qualified geologist to document the suitability of soils in terms of load bearing capacity, unless the City adopts an overlay zone or other special standard district for the area which specifies strategies to be used in such areas. Projects shall be required to incorporate all feasible measures as identified by the City identified in the geotechnical study. The City must approve the geotechnical study and may apply additional standards, if warranted by the geotechnical study.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No New Impact/No Impact. The 2006 NMDSP EIR found that future development under the NMDSP would not use septic tanks, and therefore, there would be no impact.

Future development under the Proposed Amendment would not include the use of septic tanks. Therefore, **no new impact/no impact** would occur.

References

California Geological Survey. 2010. *2010 Fault Activity Map of California*. Accessed December 31, 2014. http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed December 31, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

County of San Bernardino. 2010. *San Bernardino County Land Use Plan, General Plan: Geologic Hazard Overlays, Ontario*. March 9, 2010.

3.7 Greenhouse Gas Emissions

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

Setting

Global climate change is a cumulative impact. A project contributes to this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases (GHGs). Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). This approach is consistent with that recommended by the California Natural Resource Agency, which noted in its Public Notice for the proposed CEQA amendments that the evidence indicates in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA 2009a). Similarly, the *Final Statement of Reasons for Regulatory Action* for amendments to the CEQA Guidelines confirms that an environmental impact report or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009b).

Neither the State of California, nor the SCAQMD, nor the City of Montclair has adopted emission-based thresholds for GHG emissions applicable to the Proposed Amendment. The Governor's Office of Planning and Research issued a technical advisory titled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act Review*, which states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current

CEQA practice" (OPR 2008). Such an approach is also consistent with CEQA's provisions regarding the analysis of GHG impacts (see CEQA Guidelines, Section 15064.4). Additionally, the state adopted Senate Bill 375 (SB 375) and Assembly Bill 32 (AB 32), which both provide guidelines and requirements relative to regional GHG emissions. These two regulations are summarized below.

Senate Bill 375

In August 2008, the state legislature passed SB 375, which addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. Regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, as determined by CARB, are required to consider the emission reductions associated with vehicle emission standards, the composition of fuels, and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations are responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan. The goal of the SCS is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. On September 23, 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for the Southern California Association of Governments (SCAG) are an 8% reduction in emissions per capita by 2020 and a 13% reduction by 2035. SCAG prepared its Regional Transportation Plan/SCS, which was adopted by the SCAG Regional Council on April 4, 2012. The plan quantified a 9% reduction by 2020 and a 16% reduction by 2035. On June 4, 2012, the CARB executive officer issued an executive order accepting SCAG's quantification of GHG reductions and the determination that implementation of the SCS would achieve the GHG emission reduction targets established by CARB.

Assembly Bill 32

Assembly Bill 32 requires the state to reduce its GHG emissions to 1990 levels by 2020. CARB has been assigned to carry out and develop the programs and requirements necessary to achieve these goals. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance

mechanism that is adopted. The first action under AB 32 resulted in the adoption of a report listing early action GHG emission reduction measures in 2007. Examples of measures that were adopted include a low-carbon fuel standard and increased methane capture from landfills. Also in 2007, CARB adopted regulations requiring mandatory reporting of GHGs for large facilities that contribute substantially to GHG emissions, such as electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit carbon dioxide (CO_2) in excess of specified thresholds.

On December 11, 2008, CARB approved the *Climate Change Proposed Scoping Plan: A Framework for Change* (Scoping Plan; CARB 2008) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program.

Status of Proposed SCAQMD Thresholds

The SCAQMD has not adopted recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects. In October 2008, SCAQMD presented to the Governing Board the Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold (SCAQMD 2008). The guidance document was not adopted or approved by the Governing Board. However, this document does explore various approaches for establishing a significance threshold for GHG emissions. Among the concepts discussed, the document considered a "de minimis," or screening, threshold to "identify small projects that would not likely contribute to significant cumulative GHG impacts" (SCAQMD 2008). As further explained in this guidance document, "Projects with GHG emissions less than the screening level are considered to be small projects, that is, they would not likely be considered cumulatively considerable" (SCAQMD 2008). The SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. The SCAQMD proposed three tiers of compliance that may lead to a determination that impacts are less than significant, including the following:

1. Projects with GHGs within budgets set out in approved regional plans to be developed under the SB 375 process

2. Projects with GHG emissions that are below designated quantitative thresholds:
   a. Industrial projects with an incremental GHG emissions increase that falls below (or is mitigated to be less than) 10,000 metric tons (MT) carbon dioxide equivalent (CO_2E) per year[3]
      1) Commercial and residential projects with an incremental GHG emissions increase that falls below (or is mitigated to be less than) 3,000 MT CO_2E per year, provided that such projects also meet energy efficiency and water conservation performance targets that have yet to be developed
3. Projects that purchase GHG offsets that, either alone or in combination with one of the three tiers mentioned above, achieve the target significance screening level.

From December 2008 to September 2010, the SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. The most recent working group meeting on September 28, 2010 (SCAQMD 2010), proposed two options lead agencies can select from to screen thresholds of significance for GHG emissions in residential and commercial projects, and proposes to expand the industrial threshold to other lead agency industrial projects. Option 1 proposes a threshold of 3,000 MT CO_2E per year for all residential and commercial projects and Option 2 proposes a threshold value by land use type where the numeric threshold is 3,500 MT CO_2E per year for residential projects, 1,400 MT CO_2E per year for commercial projects, and 3,000 MT CO_2E per year for mixed-use projects (SCAQMD 2010).

Per the SCAQMD guidance, construction emissions should be amortized over the operational life of the project, which is assumed to be 30 years (SCAQMD 2009). Accordingly, amortized construction emissions are to be added to the estimated net annual operational emissions before comparing operational emissions to the proposed SCAQMD threshold.

Although the SCAQMD has not formally adopted the thresholds described above, the City of Montclair has determined that the 3,000 MT CO_2E per year threshold for commercial and residential projects shall be used to analyze the significance of GHG impacts under CEQA.

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind, lasting for an extended period (decades or longer). Gases that trap heat in the atmosphere are often called GHGs. The greenhouse effect traps heat in the troposphere through a threefold process: short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a

[3] The CO_2 equivalent for a gas is derived by multiplying the mass of the gas by the associated global warming potential (GWP), such that MT CO_2E = (metric tons of a GHG) × (GWP of the GHG). For example, the GWP for methane (CH_4) is 21. This means that emissions of 1 MT of CH_4 are equivalent to emissions of 21 MT of CO_2.

portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and back toward the Earth. This "trapping" of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the temperature of the Earth would be about 0°F (−18°C) instead of its current 57°F (14°C). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect (National Climatic Data Center 2015).

Contributions to Greenhouse Gas Emissions

United States Emissions. In 2014, the United States produced 6,870 million metric tons (MMT) of CO_2E. The primary GHG emitted by human activities in the United States was CO_2. This primary GHG represented approximately 80.9% of total GHG emissions. The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.7% of CO_2 emissions in 2014 (EPA 2016).

State of California Emission. According to the 2013 GHG inventory data compiled by the CARB for the California Greenhouse Gas Inventory for 2000–2013, California emitted 459 MMT CO_2E of GHGs, including emissions resulting from out-of-state electrical generation (CARB 2015). The primary contributors to GHG emissions in California are transportation, industry, electric power production from both in-state and out-of-state sources, agriculture, and other sources, which include commercial and residential activities. These primary contributors to California's GHG emissions and their relative contributions in 2014 are presented in Table 3.7-1, GHG Sources in California (2014).

Table 3.7-1
GHG Sources in California (2014)

Source Category	Annual GHG Emissions (MMT CO_2E)	Percent of Total[a]
Agriculture	36.11	8.2%
Commercial uses	13.01	2.9%
Electricity generation	88.24 [b]	20.0%
Industrial uses	93.32	21.1%
Recycling and waste	8.85	2.0%
Residential uses	24.44	5.5%
Transportation	159.53	36.1%
High GWP substances	17.15	3.9%
Totals[c]	**441.54**	**100%**

Source: CARB 2016.
Notes:
[a] Percentage of total has been rounded.
[b] Includes emissions associated with imported electricity, which account for 39.99 MMT CO_2E annually.
[c] Totals may not sum due to rounding.

Potential Effects of Human Activity on Climate Change

According to CARB, some of the potential impacts in California of global warming may include loss of snow pack, sea level rise, more extreme heat days per year, more high O_3 days, more large forest fires, and more drought years (CCCC 2006). Several recent studies have attempted to explore the possible negative consequences that climate change, left unchecked, could have in California. These reports acknowledge that climate scientists' understanding of the complex global climate system and the interplay of the various internal and external factors that affect climate change, remains too limited to yield scientifically valid conclusions on such a localized scale. Substantial work has been done at the international and national level to evaluate climatic impacts, but far less information is available on regional and local impacts.

The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2°C per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using emission rates from the year 2000 shows that further warming would occur, which would induce further changes in the global climate system during the current century. Changes to the global climate system and ecosystems and to California would include, but would not be limited to, the following:

- The loss of sea ice and mountain snowpack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures (IPCC 2007)
- A rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps and the Greenland and Antarctic ice sheets (IPCC 2007)
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns and more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones (IPCC 2007)
- A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 70% to as much as 90% over the next 100 years (CAT 2006)
- An increase in the number of days conducive to O_3 formation by 25% to 85% (depending on the future temperature scenario) in high O_3 areas of Los Angeles and the San Joaquin Valley by the end of the 21st century (CAT 2006)
- A high potential for erosion of California's coastlines and seawater intrusion into the Delta and levee systems due to the rise in sea level (CAT 2006).

a) Does the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

New Potentially Significant Impact. The 2006 NMDSP EIR did not analyze this threshold.

Construction GHG Emissions

Construction of specific projects under the Proposed Amendment would result in GHG emissions, which are primarily associated with the use of off-road construction equipment, on-road hauling and vendor trucks, and worker vehicles. Estimated project-generated construction emissions for future development under the Proposed Amendment would be modeled with the CalEEMod system and amortized over a 30-year period in the EIR. Project-generated GHG emissions during construction of future projects would be short-term in nature, lasting only for the duration of the construction period, and they would not represent a long-term source of GHG emissions. Construction of projects throughout the planning area would also occur at different times, which will limit the amount of project-generated construction GHG emissions occurring at any one time. Estimated amortized construction emissions per year over 30 years will be added to the net change in operational emissions and compared to the proposed SCAQMD GHG thresholds. See discussion below.

Operational GHG Emissions

The Proposed Amendment would allow for the development of an additional 2,688 dwelling units and 1,664,003 additional square feet of commercial use. Operation of the additional development under the Proposed Amendment would result in GHG emissions from the following sources: (1) energy use (natural gas and generation of electricity consumed by the project); (2) vehicular traffic generated by additional residents and customers/employees related to the additional commercial uses; (3) solid waste generation; and (4) generation of electricity associated with water supply/treatment and wastewater treatment. The EIR will estimate annual GHG emissions from these sources using CalEEMod.

The estimated operational GHG emissions from energy usage, motor vehicles, solid waste generation, water consumption, and wastewater treatment associated with the existing plan and Proposed Amendment will be included in the EIR. In order to accurately estimate operational emissions for the net increase in future development, two scenarios will be analyzed: a baseline scenario, which estimates emissions from the existing development potential; and a “Proposed Amendment” scenario, which will

analyze the project with it new development potential. The baseline emissions will be subtracted from the Proposed Amendment emissions to calculate the net increase in GHG emissions for future development under the Proposed Amendment. Consistent with the traffic study that will be conducted for the EIR, mobile source emissions will be estimated using the net increase in vehicle trips that would result following implementation of the Proposed Amendment. Estimated GHG emissions, with and without the incorporation of mitigation measures, will be estimated in the EIR. Estimated amortized construction emissions per year over 30 years will be added to the net change in operational emissions and compared to the proposed SCAQMD GHG thresholds. If emissions exceed the proposed SCAQMD GHG thresholds, mitigation is likely to be proposed to help reduce GHG emissions to a level that is less than significant. Therefore, the project may have a **new potentially significant impact**, and this issue will be studied further in the EIR.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

New Potentially Significant Impact. The 2006 NMDSP EIR did not analyze this threshold.

The Climate Change Scoping Plan, approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Moreover, the Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009b). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high global warming potential GHGs in consumer products) and changes to the vehicle fleet (hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others. While state regulatory measures will ultimately reduce GHG emissions associated with the project through their effect on these sources, no statewide plan, policy, or regulation would be specifically applicable to reductions in GHG emissions from the proposed project.

Additionally, as discussed previously, Executive Order S-3-05 established a goal to reduce statewide GHG emissions to 1990 levels by 2020; and to reduce statewide GHG emissions to 80 percent below the 1990 level by 2050.[4] The Proposed Amendment would support achievement of the Executive Order's near-term 2020 goal (as codified in AB 32) and the long-term 2050 goal through a number of sustainability design features that would be implemented as part of the Proposed Amendment. Moreover, future development under the Proposed Amendment would result in the demolition of older, inefficient structures and the construction of newer, energy-efficient structures and associated improvements.

At the local level, the City of Montclair has not adopted a comprehensive climate action plan; however, in March 2014, the San Bernardino Associated Governments (SANBAG) prepared a Regional Greenhouse Gas Reduction Plan, which outlines reduction strategies for the County and the 21 incorporated cities that participated in the Reduction Plan study. Although the City authorized SANBAG to prepare the Regional Greenhouse Gas Reduction Plan, no formal action has been taken by the City's governing body to adopt the Regional Greenhouse Gas Reduction Plan or the GHG reduction measures that the plan presents. Instead, the City continues to rely on thresholds recommended by SCAQMD.

The Proposed Amendment would amend the land use designations and zoning within the planning area and proposes to extend the westerly boundary of the NMDSP area to include additional parcels that are currently zoned M1 (Limited Manufacturing). The land use designations for the new area would be Neighborhood Residential and Town Center. Therefore, the Proposed Amendment would change the existing land uses and would induce population and housing (an additional 2,688 dwelling units) growth in the City of Montclair, albeit in the form of transit-oriented and mixed-use development, which is intended in part, to reduce reliance on vehicles and thereby reduce GHG emissions from mobile sources. Future development under the Proposed Amendment would be required to implement on-site renewable energy systems and water conservation strategies for outdoor irrigation and water consumption, adhere to the City's Green Building Ordinance for project construction and operational practices and building design, and comply with 2013 Title 24 requirements which are 25 percent more efficient than the previous 2008 Title 24 requirements for commercial buildings. Moreover, as stated previously, the City

[4] In adopting AB 32, the Legislature did not adopt the 2050 horizon-year goal from Executive Order No. S-3-05; and, in the last legislative session (2013-2014), the Legislature rejected bills proposing to enact the Executive Order's 2050 goal (*Cleveland National Forest Foundation v. San Diego Association of Governments* (2014) 231 Cal.App.4th 1056, 1096; *Professional Engineers in California Government v. Schwarzenegger* (2010) 50 Cal.4th 989, 1015; and OPR 2004).

of Montclair would already meet its reduction targets as outlined in the Reduction Plan from federal and state reduction measures alone; therefore, local measures provided in the Reduction Plan would further reduce GHG emissions beyond the target reduction. Despite this, the Proposed Amendment would change existing land uses and may conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, the Proposed Amendment could have a **new potentially significant impact**, and this issue will be studied further in the EIR.

References

CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January 2008.

CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures. August 2010.

City of Covina. 2012. *Energy Action Plan*. Prepared for the City of Covina and the San Gabriel Valley Council of Governments. Prepared by PMC, in association with Fehr & peers and DNV KEMA. Funded by Southern California Edison Company. December 2012.

CNRA (California Natural Resources Agency). 2009a. "Notice of Public Hearings and Notice of Proposed Amendment of Regulations Implementing the California Environmental Quality Act." Sacramento, California: CNRA. http://www.ceres.ca.gov/ceqa/docs/Notice_of_Proposed_Action.pdf.

CNRA. 2009b. Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. December 2009.

OPR (Governor's Office of Planning and Research). 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review.*

SANBAG (San Bernardino Associated Governments). 2014. Regional Greenhouse Gas Reduction Plan. Final. March 2014. Accessed at: http://www.sanbag.ca.gov/planning2/greenhousegas/Final_SBCRegionalGHGReduction.pdf

SCAQMD. 2008. *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*. October 2008.

SCAQMD. 2009. *Greenhouse Gases CEQA Significance Thresholds Stakeholder Working Group Meeting No. 14*. November 19, 2009. Available at http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds.

SCAQMD. 2010. *Greenhouse Gases CEQA Significance Thresholds Stakeholder Working Group Meeting No. 15*. September 28, 2010. Available at http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds.

3.8 Hazards and Hazardous Materials

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☒	☐	☐
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Setting

The planning area contains active and vacant commercial uses, in addition to surface parking areas and light manufacturing uses. The potential for hazardous materials to persist from these uses in this area has not yet been assessed. Other potential sources of hazardous materials include the railroad and I-10 freeway, which both routinely serve as hazardous material transport routes.

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

New Mitigation is Required. The 2006 NMDSP EIR found that the project would not involve the routine use, storage or transport of hazardous materials in the NMDSP planning area.

Based on the types of land uses proposed, future use of hazardous materials within the planning area is expected to be limited to common household chemicals and maintenance products, in addition to limited commercial-grade maintenance products. Relatively small amounts of commonly used hazardous substances, such as gasoline, diesel fuel, lubricating oil, grease, and solvents could be used during demolition and construction of future development under the Proposed Amendment. These materials would be transported and handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. Consequently, use of these materials for their intended purpose would not pose a significant risk to the public or environment. Once construction of specific future development is complete, fuels and other petroleum products would no longer remain on-site.

Hazardous materials that could be used during operation of future development under the Proposed Amendment may include chemical reagents, solvents, fuels, paints, grease, cleaning solvents, fertilizers, and miscellaneous organics and inorganics that are used as part of building and grounds maintenance, as well as vehicle maintenance. All proposed future development would be required to comply with all federal, state, and local laws regulating the management, use, storage, and transportation of hazardous materials. Existing federal, state and local regulations control the use, storage, handling, and disposal of hazardous materials and wastes. Compliance with local, state, and federal regulations and the implementation of mitigation measure **MM-HAZ-1** would ensure that future development under the Proposed Amendment does not create a significant hazard to the public or to the environment through the routine transport, use, or disposal of hazardous materials. As such, impacts are considered less than significant with **new mitigation required**. No further mitigation is required.

MM-HAZ-1 Prior to approval of final construction plans for any proposed development in the planning area, the City of Montclair, or its designee, shall prepare a construction health and safety plan which shall include the following components:

- The plan shall identify all hazardous materials that would be present on any portion of the construction site, including, but not limited to, fuels, solvents, and petroleum products. The plan shall address storage, use, transport, and disposal of each hazardous material anticipated to be used at the site. The plan shall establish inspection procedures, storage requirements, storage quantity limits, inventory control, non-hazardous product substitutes, and disposition of excess materials.
- The plan shall identify secondary containment and spill prevention countermeasures, as well as a contingency plan to identify potential spill hazards, how to prevent their occurrence, and responses for different quantities of spills that may occur. Secondary containment and countermeasures shall be in place throughout construction so that if any leaks or spills occur, responses would occur immediately.
- The plan shall identify materials (and their locations) that would be on site and readily accessible to clean up small spills (i.e., spill kit, absorbent pads, and shovels). Such emergency spill supplies and equipment shall be clearly marked and located adjacent to all areas of work and in construction staging areas. The plan shall identify the spill-response materials that must be maintained in vehicles and substation sites during construction and procedures for notification of the appropriate authorities.
- The plan shall identify adequate safety and fire suppression devices for construction-related activities involving toxic, flammable, or explosive materials (including refueling construction vehicles and equipment). Such devices shall be readily accessible on the Project Site, as specified by the State Fire Marshall and per the Uniform Building Code and Uniform Fire Code. The plan shall be included as part of all contractor specifications and final construction plans to the satisfaction of the City. The plan shall also identify requirements for notices to federal and local emergency response authorities, and shall include emergency response plans.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

New Mitigation is Required.. The 2006 NMDSP EIR found that due to the nature of the proposed land uses, implementation of future projects under the plan would not have the potential to release hazardous materials that may affect the surrounding community. However, the project will involve the introduction of significant amounts of residential uses in an industrial area, bordered by major hazardous materials transport routes.

Construction of future development under the Proposed Amendment would involve hazardous materials such as gasoline, diesel fuel, lubricating oil, grease, solvents, and other vehicle and equipment maintenance fluids. These substances would be used and stored in designated construction staging areas within the specific project site boundaries. These materials would be transported and handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. Compliance would ensure that human health and the environment are not exposed to hazardous materials. Consequently, the materials alone, and use of these materials for their intended purpose, would not pose a significant risk to the public or environment. However, accidental spills or unauthorized releases of hazardous materials during construction, including ground clearing and foundation excavation, could potentially result in soil contamination, which would be a significant impact. In order to reduce this potential impact, mitigation measure **MM-HAZ-1** would be implemented. Additionally, future development under the Proposed Amendment would be required to implement a SWPPP during construction activities to prevent contaminated runoff from leaving the project site. As such, overall impacts would be reduced to less than significant levels.

The Proposed Amendment would allow for the expansion of the westerly boundary of the planning area to include the southwest corner of Arrow Highway and Monte Vista Avenue. The Proposed Amendment would change the zoning of this area from Light Manufacturing (M1) to Neighborhood Residential and Town Center. As such, the Proposed Amendment would involve the introduction of residential and commercial uses in an area historically used for industrial uses. Due to the nature of the historic land use, the implementation of the Proposed Amendment may result in exposure to workers or the public to hazardous substances and contamination related to historical industrial land uses. In order to reduce this potential impact, mitigation measure **MM-**

HAZ-1 would be implemented. Therefore, impacts are considered less than significant with **new mitigation required**. No further mitigation is required.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

New Mitigation is Required. Due to the nature of the proposed land use, the 2006 NMDSP EIR found that the implementation of the NMDSP would not have the potential to release hazardous materials that may affect surrounding community, including nearby schools.

There are three schools located within 0.25 mile of the Proposed Amendment area. International Montessori School is located approximately 0.09 mile south of the Proposed Amendment area; Moreno Elementary School is located approximately 0.12 mile southwest of the Proposed Amendment area; and OPARC (adult day care center) is located approximately 0.23 mile east of the Proposed Amendment area.

The Proposed Amendment would allow for new residential and commercial development in the NMDSP area. Construction of future development projects under the Proposed Amendment could involve the use of relatively small amounts of commonly used hazardous substances, such as gasoline, diesel fuel, lubricating oil, grease, and solvents. However, the transportation, storage, use, and disposal of hazardous materials during demolition and construction activities would be required to comply with applicable federal, state, and local statutes and regulations. Compliance would ensure that children, teachers, staff, and visitors at the nearby schools are not exposed to hazardous materials. However, in order to reduce potential accident conditions during construction, mitigation measure **MM-HAZ-1** would be implemented on all future projects under the Proposed Amendment.

During operation and maintenance of future projects under the Proposed Amendment, hazardous materials could be used and stored on-site. These hazardous materials include chemical reagents, solvents, fuels, paints, cleansers and miscellaneous organics and inorganics that are used as part of building and landscape maintenance. The materials would be transported, handled, and contained in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. Due to the nature of the proposed land uses, the implementation of future projects under the Proposed Amendment may have the potential to emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing school. However, through compliance with local, state, and federal regulations, it is unlikely that

implementation of the Proposed Amendment would result in the emission of hazardous materials, substances, or wastes in a manner that poses a threat to nearby schools. As such, impacts are less than significant with **new mitigation required**. No further mitigation is required.

d) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

New Mitigation is Required. The 2006 NMDSP EIR found that, based on a review of hazardous waste lists compiled pursuant to Government Code Section 65962.5, there were no listed waste sites in the City of Montclair, including the planning area. As such, impacts were considered less than significant.

Government Code, Section 65962.5, combines several regulatory lists of sites that may pose a hazard related to hazardous materials or substances. According to Government Code, Section 65962.5(a), there are no hazardous materials or waste sites located in the City of Montclair (DTSC 2007).The Proposed Amendment could involve the demolition of structures in the future. Due to the age of structures in the planning area, lead-based paint and asbestos-containing materials could be present. Since painted surfaces could be disturbed during future demolition, it is recommended that testing of any painted surfaces for lead-based paint occur prior to any disturbance given the age of the structures (mitigation measure **MM-HAZ-2**). Therefore, implementation of future projects under the Proposed Amendment would have less than significant impacts with **new mitigation required**. No further mitigation required.

MM-HAZ-2 Prior to demolition activities, a lead-based paint and asbestos survey shall be conducted for the on-site structures. Should lead-based paint or asbestos-containing materials be identified during the surveys, abatement and removal of the lead-based paint and asbestos-containing materials shall be conducted in accordance with applicable local, state, and federal guidelines.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No New Impact/No Impact. The 2006 NMDSP EIR found that the project site was not located within the planning area of a private or public airport. The nearest airport was the Ontario International Airport. The Cable Airport was a private area located northeast of

the planning area. The NMDSP was not identified to be located within the planning area of either airport at the time, so no impact was identified.

Cable Airport

Cable Airport is located approximately one mile north of the northern border of the Proposed Amendment area. The northeast portion of the Proposed Amendment area is located within Zone E of Cable Airport's Airport Influence Area (AIA), as shown in Figure 13 (Cable Airport Influence Area). Thus, this portion of the Proposed Amendment Area is subject to Cable Airport's Airport Land Use Compatibility Plan (ALUCP). According to the ALUCP, this area of the Proposed Amendment is not located within a safety zone area. According to Compatibility Policy Map: Airspace Protection Zones, in the Cable ALUCP (City of Upland 2015), the proposed building heights would be within the allowable height in the Cable ALUCP and is not subject to the Federal Aviation Administration height notification area. Based on the Cable Land Use Compatibility Policy Map: Overflight Notification Zones, in the Cable ALUCP (City of Upland 2015), the planning area is subject to the real estate transaction disclosure policy. Any future development in the Proposed Amendment area would be required to comply with the real estate transaction disclosure policy of the Cable ALUCP, which requires navigational easement dedication and recorded overflight notification. Therefore, based on compliance with the Cable ALUCP regarding the real estate transaction disclosure policy, safety hazards related to an airport being located near people working in the project area would result in n**o new impact/no impact**.

Ontario International Airport

The Proposed Amendment area is located within the Ontario International Airport's AIA as shown on Figure 14 (Ontario International Airport Influence Area), and thus, is subject to the Ontario International Airport ALUCP. According to Policy Map 2-2, Compatibility Policy Map: Safety Zones (City of Ontario 2011), the planning area is not located within any safety zone areas. According to Policy Map 2-4, Compatibility Policy Map: Airspace Protection Zones, in the ONT ALUCP (City of Ontario 2011), the proposed building heights would be within the allowable height in the ONT ALUCP and is not subject to the Federal Aviation Administration height notification area. Based on the ONT Land Use Compatibility GIS Analysis Tool and Policy Map 2-5, Compatibility Policy Map: Overflight Notification Zones, in the ONT ALUCP (City of Ontario 2011), the planning area is subject to the real estate transaction disclosure policy. Any future development in the Proposed Amendment area would be required to comply with the real estate transaction disclosure policy of the ONT ALUCP, which requires avigational easement

dedication and recorded overflight notification. Therefore, based on compliance with the ONT ALUCP regarding the real estate transaction disclosure policy, safety hazards related to an airport being located near people working in the project area would result in n**o new impact/no impact**.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No New Impact/No Impact. The 2006 NMDSP EIR found that the project site was not located within the planning area of a private airstrip.

There continues to be no private airstrips in the project vicinity; therefore, future development under the Proposed Amendment would not result in a safety hazard for people residing or working in the project area. Therefore, n**o new impact/no impact** would occur.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No New Impact/No Impact. The 2006 NMDSP EIR found that the NMDSP proposed to significantly alter the development mix and street network in the planning area. However, emergency access for specific project phases or components would be evaluated by the police and fire departments during the development approval process. As such, impacts were considered less than significant.

The Proposed Amendment would amend the NMDSP to significantly increase the development potential allowed in the planning area, which would increase the number of residents and commercial patrons visiting the area. The Proposed Amendment would also alter certain streets in the planning area. The City adopted an emergency operations plan that follows the California Office of Emergency Services' multi-hazard functional planning guidelines. The City's Emergency Operations Plan was approved by the California Emergency Management Agency on September 26, 2009 (City of Montclair 2002). The City's existing emergency operations plan includes a basis for conducting and coordinating operations in the management of critical resources during emergencies; a mutual understanding of authority, responsibilities, functions, and operations of civil government emergencies; and a basis for incorporating into the city emergency organization, nongovernmental agencies and organizations having resources necessary to meet foreseeable emergency requirements (City of Montclair 1999). Additionally, mutual aid/automatic aid and cooperation with surrounding jurisdictions would occur in

accordance with the California Master Mutual Aid Agreement. The City's Fire Department has mutual aid and automatic aid agreements with all surrounding communities, has enhanced emergency services response protocols with the City of Upland, and is a member of the San Bernardino County Fire Department CONFIRE Joint Powers Authority (JPA) for emergency dispatch services (City of Montclair Agenda Report 2013). CONFIRE is a multi-agency emergency fire- and medical service-only dispatch center that provides direct fire/EMS dispatch services 24 hours, 7 days a week. CONFIRE JPA also functions as the Operational Area's dispatch for the County (City of Montclair 2014). Future development under the Proposed Amendment would be required to comply with the City's Emergency Operations Plan. Emergency vehicle access to specific project sites during construction and operation of future development would be provided. Proposed site plans, including access driveways, would be reviewed and approved by the City during plan check review and prior to approval by the City's Planning Commission and City Council. Adherence to these requirements would mean **no new impact/no impact** would be created by the Proposed Amendment related to emergency plans

h) Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No New Impact/No Impact. The 2006 NMDSP EIR found that there were no wildlands adjacent to the NMDSP area; therefore, there was no impact identified.

The Proposed Amendment area is located within an urban setting, surrounded by mostly developed properties on all sides. To the west of the NMDSP boundary, across Monte Vista Avenue and south of Arrow Highway, is a mix of residential, industrial, conservation and business park uses. To the north of the NMDSP boundary across Huntington Drive and the Pacific Electric Inland Empire Trail, land uses include public utility, commercial and residential properties. To the east of the NMDSP boundary, across Central Avenue, land uses include commercial businesses and service uses, with some residential properties. To the south of the NMDSP area boundary, across Moreno Street, land uses include commercial uses part of Montclair Place (formerly known as Montclair Plaza), a major regional mall. Because of the urbanized nature of the City, wildland fires do not pose a serious threat; however, the only areas subject to such fires are the vacant lands within the City (City of Montclair 1999). During preparation of the City's General Plan, the City noted that there were no vacant lots identified as potential fire hazards (City of Montclair 1999). In the unlikely event of a fire emergency in the Proposed Amendment area due to brush and/or trash fires, the Montclair Fire Department, specifically Fire Station 1 (8901 Monte Vista Avenue, Montclair,

California 91763) would provide fire protection services. As such, implementation of future development under the Proposed Amendment is not likely to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Thus, **no new impact/no impact** would be created by future projects developed under the Proposed Amendment.

References

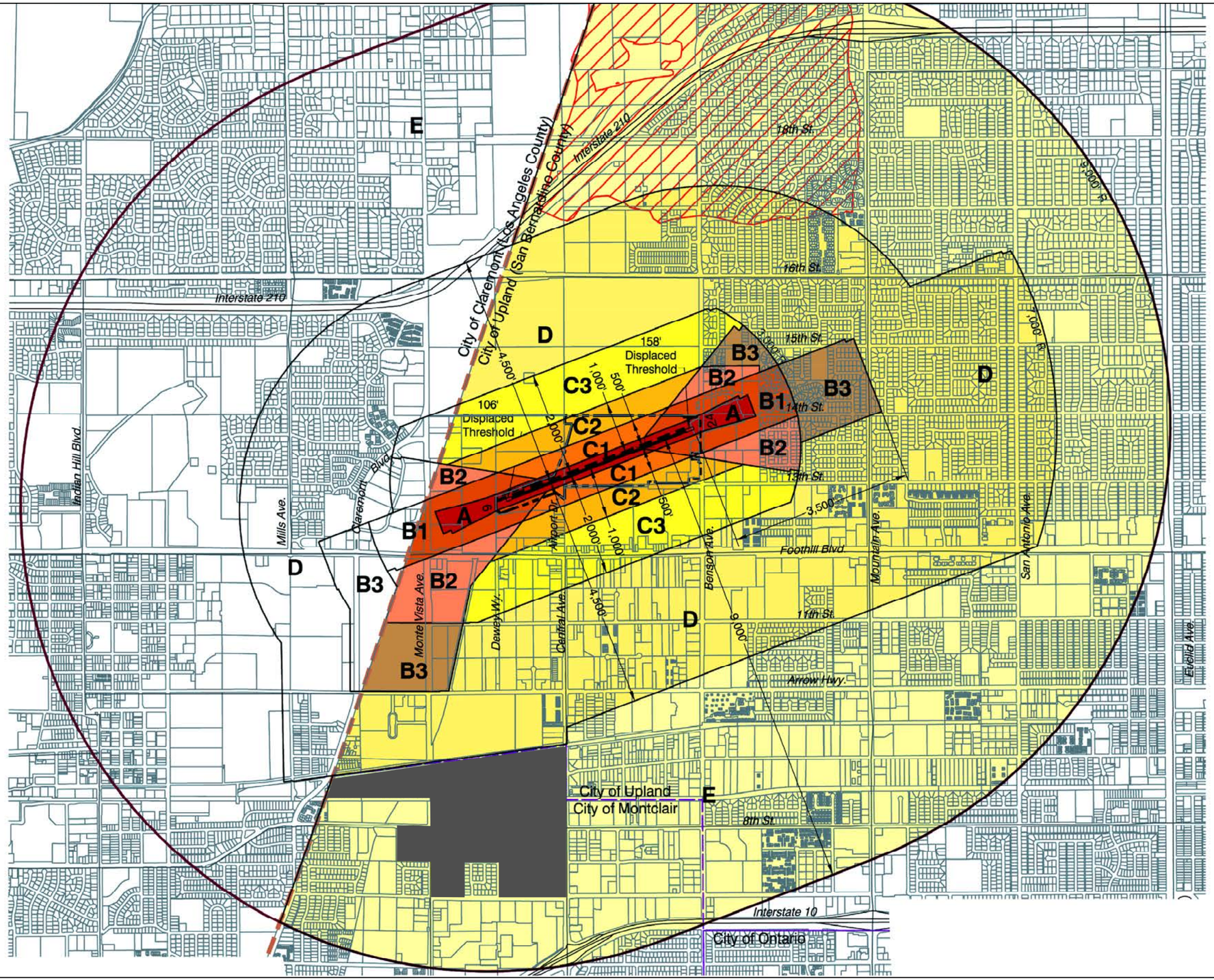
City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed November 3, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

City of Montclair. 2014. *City of Montclair Weekly Report: June 2026, 2014.* Accessed February 13, 2015: http://www.cityofmontclair.org/civica/filebank/blobdload.asp?BlobID=7214

DTSC (California Department of Toxic Substances Control). 2007. Hazardous Waste and Substances Site List. Accessed October 7, 2014. http://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST.

City of Ontario. 2011. *Ontario International Airport Land use Compatibility Plan*. Prepared by Mead and Hunt, Inc. April 19, 2011. Accessed February 13, 2015. http://www.ontarioplan.org/index.cfm/33710.

The Orin Group. 2010. *Phase I Environmental Site Assessment*. Prepared for CWCapital Asset Management. June 25, 2010.



- Airport Property Line
- Airport Influence Area
- High Terrain Zone
- Project Site
- Existing Runway
- Future Runway

Compatibility Zone

- Zone A
- Zone B1
- Zone B2
- Zone B3
- Zone C1
- Zone C2
- Zone C3
- Zone D
- Zone E

SOURCE: Mead & Hunt 6/2013; North Montclair Downtown Specific Plan 05/28/2016

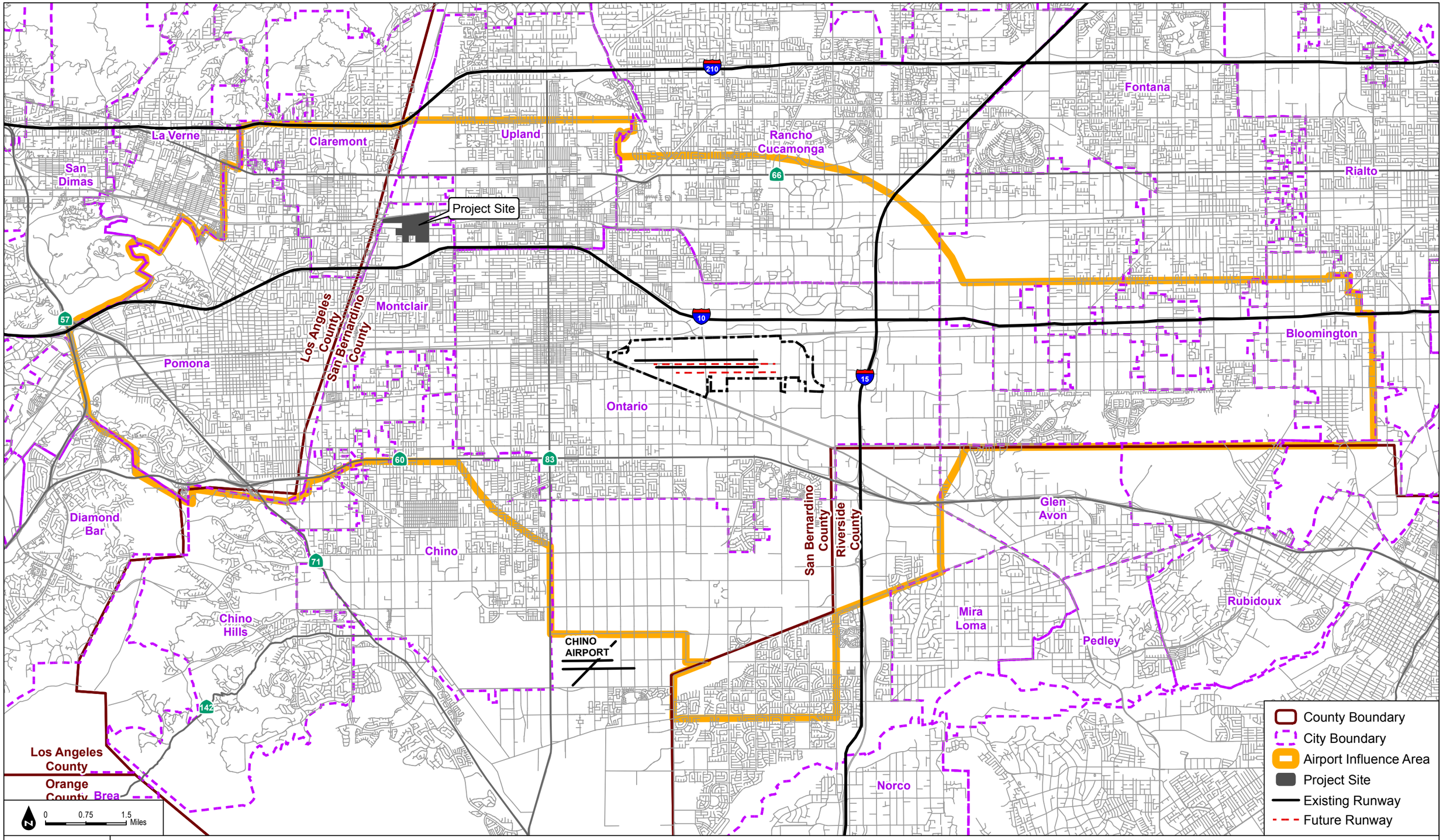
DUDEK

FIGURE 13

Cable Airport - Airport Influence Area

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK



SOURCE: Mead & Hunt 12/21/2010; North Montclair Downtown Specific Plan 05/28/2016; County of San Bernardino; County of Riverside; County of Los Angeles

FIGURE 14

Ontario Airport - Airport Influence Area

North Montclair Downtown Specific Plan Amendment Project

INTENTIONALLY LEFT BLANK

3.9 Hydrology and Water Quality

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☒	☐	☐	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Setting

The City of Montclair and much of the surrounding area is subject to rapid, sheet flow during significant rain events. In Montclair, much of the significant rainfall is controlled through the existing stormwater infrastructure, including a number of flood control basins and the San Antonio Channel. The San Bernardino County Flood Control District, in conjunction with the Army Corps of Engineers, is responsible for addressing flood-related issues throughout the basin.

a) Would the project violate any water quality standards or waste discharge requirements?

No New Impact/No Impact. The 2006 NMDSP EIR found that the NMDSP would be subject to federal water quality requirements during grading and construction. The Federal Clean Water Act (Section 4021p)) requires discharges of storm water associated with industrial and construction activity to be regulated by national Pollutant Discharge Elimination System (NPDES) permits. NPDES compliance involves understanding the nature and feasibility of Best Management Practices (BMP's) for water quality control. Additionally, the permit requires development and implementation of stormwater pollution prevention plan (SWPPP) emphasizing stormwater BMP's. It was identified that compliance with these required permitting procedures would ensure that the project would not violate water quality or waste discharge requirements, and therefore, impacts were considered potentially significant, but mitigable.

Because construction of future development under the Proposed Amendment would require land disturbance of greater than one acre, project-level developments would be required to prepare and implement a SWPPP in accordance with the Statewide Construction General Permit (State Water Resources Control Board Order 2009-0009-DWQ, as amended). This requires the construction contractor to implement water quality BMPs to ensure that water quality standards are met, and that stormwater runoff from construction work areas do not cause degradation of water quality in receiving water bodies (in this case the regional storm drain system). Some of these BMPs include appropriate handling and disposal of contaminants, fertilizer and pesticide application restrictions, litter control and pick up, and vehicle and equipment repair and maintenance in designated areas.

Mitigation measure HYD-1 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for impacts caused by future development under the Proposed Amendment. Mitigation measure **MM-WQ-1** would require the preparation of a Water Quality Management Plan (WQMP) as part of final project design for specific projects under the Proposed Amendment to demonstrate how the project would comply with all applicable water quality standards and discharge requirements of the City of

Montclair and the Regional Water Quality Control Board (RWQCB) Region 8 Order Number R8-2010-0036, National Pollutant Discharge Elimination System (NPDES) Number CAS618036. The RWQCB Order Number R8-2010-0036 implements the waste discharge requirements for all of the jurisdictions within San Bernardino County, including the City of Montclair. The WQMP would show how specific projects would minimize impervious surfaces, retain or treat stormwater runoff from the site, and implement LID designs in a manner that collectively matches the rate and volume of runoff to existing conditions. The WQMP would also address long-term effects on water quality within the basin and ensure BMPs and LID designs minimize potential water quality concerns to the maximum extent practicable. Compliance with these required permitting procedures would ensure that future development under the Proposed Amendment do not violate water quality or waste discharge requirements. Therefore, implementation of future projects under the Proposed Amendment would have **no new impact/no impact** and the mitigation measure identified in the 2006 EIR would apply to the Proposed Amendment.

MM-WQ-1 **Project Level Water Quality Management Plans.** All projects developed under the Proposed Amendment shall submit a WQMP to be implemented during the project planning, design, approval, permitting, construction, acceptance, and occupancy phases. These WQMPs may include, but are not limited to, the following BMPs:

Site Design BMPs

(To be included during the site planning and approval process)

- Maximize permeable area by using alternative materials or surfaces with a lower Coefficient of Runoff, or "C-factor."
- Construct walkways, trails, patios, parking areas, alleys, driveways, low traffic streets, and other low-traffic areas with open-jointed paving materials or permeable surfaces, such as pervious concrete, porous asphalt, and granular materials. Also, incorporate landscape areas into the drainage design of these areas.
- Minimize use of impervious surfaces, such as decorative concrete in landscape design.
- Where soils conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration.

- Use natural drainage systems and increase the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales.

Source Control BMPs

- Education for Property Owners, Tenants, and Occupants on good housekeeping practices to protect stormwater quality.
- Street Sweeping Private Streets and Parking Lots
- Roof Runoff Controls and Efficient Irrigation

Treatment Control BMPs

- Design landscape drainage features so that they promote infiltration of runoff, but do not inject runoff so that it bypasses the natural processes of filtering and transformation that occur in the soil.
- Pretreat runoff to reduce risk of contamination of groundwater.

Project WQMPs shall follow the outline established by the San Bernardino County Stormwater Program's Model Water Quality Management Plan Guidance document.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

No New Impact/No Impact. The 2006 NMDSP EIR found that implementation of the NMDSP would result in the development of vacant, exposed land in the planning area, which could interfere with groundwater recharge.

The planning area is almost entirely covered with impervious surfaces with the exception of the planters, street trees, and four vacant dirt lots. Two of the largest vacant parcels are located at the southeastern and southwestern corners of Arrow Highway and Fremont Avenue. Therefore, future development under the Proposed Amendment would not contribute significantly to decreases in infiltration rates or groundwater recharge across the planning area. Additionally, future projects would be designed with hardscape materials selected to maximize permeability; for example, projects would use permeable pavers, decomposed granite, or gravel instead of more

impervious hardscape materials. Plantings within open space and landscaped areas throughout the planning area would also allow for stormwater capture and retention and increase permeability.

The Proposed Amendment area receives water from the Monte Vista Water District. The Monte Vista Water District sources the majority of its water from groundwater from the Chino Groundwater Basin. Thus, although groundwater is not extracted in the planning area, the ultimate source of domestic water for future development proposed in the planning area is groundwater. Groundwater demand has exceeded supply in Montclair in the past. To the extent that future development under the Proposed Amendment would result in an increase in demand for potable water, the proposed project would have **new** potentially significant impacts in this regard. With the implementation of **MM-WQ-1**, it is expected that **no new impact/no impact** to groundwater recharge would occur.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

No New Impact/No Impact. The 2006 NMDSP EIR found that the NMDSP area was relatively level and does not contain existing rivers or streams, the courses of which would be altered through construction of the plan. The planning area was largely developed and paved. Therefore, continued on-site urban development would not substantially alter drainage patterns such that siltation or flooding would occur on- or off-site. However, development with increased roof space, as opposed to open parking lots, may result in more concentrated flows at gutter outlets, and into the stormwater system, resulting in more concentrated flows at outlets. As such, impacts were considered potentially significant in the 2006 EIR.

The planning area is relatively level and does not contain existing rivers or streams, the courses of which would be altered through construction of future development under the Proposed Amendment. The San Antonio Channel runs through a portion of the planning area, but it is a former natural channel that is now a concrete-lined drainage. With the exception of four vacant areas, the planning area is largely developed and paved. All disturbed areas would be landscaped or paved, reducing the potential for erosion due to stormwater runoff. However, development of the four vacant areas that exist in the planning area would increase the total impervious surface associated with the existing planning area and may alter the drainage patterns found under existing conditions. Therefore, future development under the Proposed Amendment could contribute to a change in the existing drainage pattern that would result in substantial erosion. Impacts

would be potentially significant for future development under the Proposed Amendment, but NPDES permits would be required for all specific projects in excess of one acre and erosion control measures would be required when runoff could impact drainages. Potential measures include the use of straw bales, siltation fences, berms, and basins. Mitigation measures shall be addressed on a project-by-project basis, depending on size and level of disturbance. With the implementation of these requirements and mitigation measure **MM-WQ-1**, impacts would be lessened to a level that is less than significant. Therefore, there are **no new impact/no impact** with regards to drainage in the plan area.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

No New Impact/ No Impact. The 2006 NMDSP EIR found that the NMDSP area was relatively level and does not contain existing rivers or streams, the courses of which would be altered through construction of the plan. The planning area was largely developed and paved. Therefore, continued urban development on-site would not substantially alter drainage patterns such that siltation or flooding would occur on- or off-site. However, development with increased roof space, as opposed to open parking lots, may result in more concentrated flows at gutter outlets, and into the stormwater system, resulting in more concentrated flows at outlets.

The planning area is relatively level and does not contain existing rivers or streams, the courses of which would be altered through construction of future development under the Proposed Amendment. The San Antonio Channel runs through a portion of the planning area, but it is a former natural channel that is now a concrete-lined drainage. With the exception of four vacant areas, the planning area is largely developed and paved. Continued urban development of the planning area is not anticipated to substantially alter drainage patterns such that siltation or flooding would occur on- or off-site. Open space areas are proposed and additional landscaping would be incorporated throughout the planning area to increase stormwater infiltration and reduce the potential for flooding from surface runoff. However, development of the four vacant areas that exist in the planning area and other development would increase impervious areas and create additional stormwater runoff. In addition, development with increased roof space, as opposed to open parking lots, may result in more concentrated flows or gutter outlets, ultimately flowing into the stormwater system and thereby resulting in more concentrated flows at outlets. For this reason, the Proposed Amendment would potentially result in an increase for potential flooding on- or off-site.

Mitigation measure HYD-2 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for impacts caused by future development under the Proposed Amendment. to lessen this potential impact, mitigation measure **MM-WQ-2** would be implemented. Therefore, implementation of future projects under the Proposed Amendment would have **no new impact/no impact** and the mitigation measure identified in the 2006 EIR would apply to the Proposed Amendment.

MM-WQ-2 **Stormwater Infrastructure**. Prior to grading permit approval, project proponents, if applicable, shall be required to document sufficient stormwater capacity. If sufficient capacity is not available at the time of the project proposal, the proponent, in cooperation with the City and/or other affected agencies, shall document necessary improvements. Improvements shall be made prior to, or concurrent with, new development.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

No New Impact/No Impact. The 2006 NMDSP EIR found that the planning area is largely developed with urban uses; therefore, redevelopment of the planning area with the uses proposed in the NMDSP would not substantially change the development pattern in such a way (e.g., extent of paving, types of sources) that substantial additional volumes of runoff, polluted or not, would be created. However, the development of a more concentrated and point-specific storm flow, as opposed to the current pattern of sheet flow off parking lots, may have adverse impacts at outfalls. Impacts were considered potentially significant without mitigation in the 2006 EIR.

The planning area is currently largely developed with urban uses. Therefore, redevelopment of the planning area with the uses proposed under the Proposed Amendment would not substantially change the development pattern in such a way (e.g., extent of paving, types of sources) that substantial additional volumes of runoff, polluted or not, would be created. Improvements associated with future development under the Proposed Amendment area could include placing landscaping in existing impervious parking areas and including open space areas that would allow infiltration of stormwater. Therefore, these project requirements could limit the increase in impervious area and additional stormwater runoff. Nonetheless, as with current conditions, all future stormwater runoff would be collected by a series of area drains and catch basins throughout the planning area and discharged to storm drain systems. Before discharging, all stormwater would be pretreated through a continuous deflection separation system,

which would screen, separate, and trap all solid oil, grease, and debris. Therefore, future development under the Proposed Amendment would not increase the amount of runoff to the existing storm drain system or provide substantial additional sources of polluted runoff. However, the development of a more concentrated and point-specific storm flow, as opposed to the current pattern of sheet flow off parking lots, may have adverse impacts at outfalls. However, with the implementation of mitigation measure **MM-WQ-2**, this potential impact would be less than significant. Therefore, implementation of future projects under the Proposed Amendment would have **no new impact/no impact** and the mitigation measure identified in the 2006 EIR would apply to the Proposed Amendment. No further mitigation is required.

f) Would the project otherwise substantially degrade water quality?

No New Impact/No Impact. The 2006 NMDSP EIR found that implementation of the NMDSP would result in the presence of additional vehicles and commercial/residential land uses, which could negatively affect water quality in the long term.

Development of the planning area as defined under the Proposed Amendment would result in the presence of additional vehicles and commercial/residential land uses, which could negatively affect water quality in the long term. However, with the implementation of mitigation measure **MM-WQ-1**, potential impacts would be less than significant. Therefore, implementation of future projects under the Proposed Amendment would have **no new impact/no impact** and the mitigation measure identified in the 2006 EIR would apply to the Proposed Amendment.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No New Impact/No Impact. The 2006 NMDSP EIR found that, based on information presented in the General Plan, the planning area is not within a 100-year flood hazard zone, nor is the planning area subject to risk of flooding from failure of a dam. The General Plan noted that the City is classified as a controlled flooding area, and that failure of the San Antonio Dam, north of the City limits, is a low risk to the planning area since is requires the darn to be entirely filled and to collapse due to a seismic event. In addition, the EIR found that the planning area was classified as a protected zone (Zone C), meaning that it was not within the 100-year floodplain as determined by the Federal Emergency Management Agency (FEMA). Flooding was determined to be not likely on

in the planning area because improvements to streets and drainage systems were identified to be adequate to protect life and property.

The Proposed Amendment would allow for land uses that include an additional 2,688 dwelling units in the planning area. However, the Proposed Amendment area is not located on a Flood Insurance Rate Map published by the Federal Emergency Management Agency (FEMA). According to the City of Montclair's General Plan Public Health and Safety Element, the entire city is classified as "Zone C," which is a zone protected from 100-year flood hazards. As such, FEMA rescinded the Flood Insurance Rate Map for the City (City of Montclair 1999). Additionally, as indicated on the County of San Bernardino's Land Use Plan General Plan Hazard Overlays map, the Proposed Amendment area is not within a 100-year flood zone (County of San Bernardino 2007). Therefore, **no new impact/no impact** would occur.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No New Impact/No Impact. The 2006 NMDSP EIR found that the planning area was classified as a protected zone (Zone C), meaning that it was not within the 100-year floodplain as determined by the Federal Emergency Management Agency (FEMA). Flooding was not determined to be likely in the planning area because improvements to streets and drainage systems were identified to be adequate to protect life and property. Therefore, structures from development under the NMDSP would not impede or redirect flood flows. Impacts were considered less than significant.

The Proposed Amendment area is not located on a Flood Insurance Rate Map published by the Federal Emergency Management Agency (FEMA). According to the City of Montclair's General Plan Public Health and Safety Element, the entire City is classified as "Zone C," which is a zone protected from 100-year flood hazards. As such, FEMA rescinded the Flood Insurance Rate Map for the City (City of Montclair 1999). Additionally, as indicated on the County of San Bernardino's Land Use Plan General Plan Hazard Overlays map, the Proposed Amendment area is not within a 100-year flood zone (County of San Bernardino 2007). Therefore, **no new impact/no impact** would occur.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

New Potentially Significant Impact. The 2006 NMDSP EIR found that, based on information presented in the General Plan, the planning area is not within a 100-year

flood hazard zone, nor is the planning area subject to risk of flooding from failure of a dam. The General Plan noted that the City is classified as a controlled flooding area, and that failure of the San Antonio Dam, north of the City limits, is a low risk to the planning area since is requires the darn to be entirely filled and to collapse due to a seismic event. In addition, the EIR found that the planning area was classified as a protected zone (Zone C), meaning that it was not within the 100-year floodplain as determined by the Federal Emergency Management Agency (FEMA). Flooding was not likely on this site because improvements to streets and drainage systems were adequate to protect life and property.

According to the County of San Bernardino's Land Use Plan General Plan Hazards Overlay map, the Proposed Amendment area is located within the dam inundation area of the San Antonio Dam. As indicated in the City of Montclair's General Plan Public Health and Safety Element, dam failure is not considered a substantial threat as San Antonio Dam is rarely filled to capacity and would likely withstand seismic events that could occur due to nearby earthquake faults (City of Montclair 1999). Future development under the Proposed Amendment would introduce land uses that allow for up to 2,688 additional dwelling units and 782,285 additional square feet of commercial space, which means that the exposure of the general public and structures to inundation hazards would be higher than under existing conditions. Therefore, the proposed project could have **new potentially significant impact** in this regard. This issue will be studied further in the EIR.

j) Inundation by seiche, tsunami, or mudflow?

No New Impact/No Impact. The 2006 NMDSP EIR found that the project site was not located near the ocean or other water body that would put it at risk by seiche, tsunami, or mudflow. As such, the 2006 EIR concluded there was no impact.

Due to distance of the City from the Pacific Ocean, the Proposed Amendment area would not be exposed to inundation by a tsunami. A seiche, or standing wave, typically occurs in partially or fully enclosed bodies of water such as lakes, reservoirs, or bays, often resulting from seismic disturbance. The Proposed Amendment area is not located within close proximity of a body of water that would likely produce a seiche hazard. Mudflow is a response to heavy rainfall in steep terrain (made more likely in recent burn areas). Because the Proposed Amendment area is currently developed and flat-lying, it is not subject to mudslides. For these reasons, **no new impact/no impact** resulting from inundation by a seiche, tsunami, or mudflow would result from implementation of the Proposed Amendment.

References

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed December 31, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

County of San Bernardino. 2007. *San Bernardino County Land Use Plan, General Plan: Hazard Overlays, Ontario*. May 29, 2007.

County of San Bernardino. 2010. *San Bernardino County Land Use Plan, General Plan: Geologic Hazard Overlays, Ontario*. March 9, 2010.

Fusco Engineering, Inc. 2014. Water Quality Management Plan Montclair Plaza. October 31, 2014.

3.10 Land Use and Planning

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Physically divide an established community?	☐	☐	☒	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☐

Setting

The governing land use documents applicable to the planning area are the Montclair General Plan and the NMDSP. The NMDSP is required to be consistent with the General Plan. The Proposed Amendment would amend a portion of the NMDSP. The full implementation of the Proposed Amendment would result in approximately 2,688 net new dwelling units and 782,285 net new square feet of commercial space in the planning area.

a) Would the project physically divide an established community?

No New Impact/No Impact. The 2006 NMDSP EIR found that the land uses in the planning area was predominantly large-scale commercial uses. One residential subdivision inhabited the southern end of the planning area. At the time, the residential area was surrounded by commercial uses. The implementation of the NMDSP was to provide infill residential and commercial development in the areas surrounding the existing residential area. Development was to be designed to enhance connections and access throughout the planning area, and would not include impediments to access to and from the existing residential area. Impacts were considered less than significant in the 2006 EIR.

Implementation of the Proposed Amendment would not physically divide an established community. The Proposed Amendment area is located in a developed urban area and is currently developed with existing commercial and residential uses and associated surface parking lots and streets. The Proposed Amendment area is generally bordered to the south, east, and west by roadways of four to six lanes each. Moreno Street is to the south, Central Avenue is to the east, Monte Vista Avenue is to the west, and Huntington Drive is to the north. The NMDSP area is surrounded by mostly developed properties on all sides. To the west of the NMDSP boundary, across Monte Vista Avenue and south of Arrow Highway, is a mix of residential, industrial, conservation and business park uses. To the north of the NMDSP boundary, across Huntington Avenue and the Pacific Electric Inland Empire Trail, land uses include public utility, commercial, and residential properties. To the east of the NMDSP boundary, across Central Avenue, land uses include commercial and service uses, with some residential uses. To the south of the NMDSP area boundary, across Moreno Street, land uses include commercial uses in the Montclair Place (formerly known as Montclair Plaza), a major regional mall. The City has adopted a Specific Plan of Development No. 81-2 for the northwest corner of Moreno Street and Fremont Avenue. This area has been developed as a single-family residential neighborhood.

With implementation of the Proposed Amendment, existing uses would be expanded and enhanced, and portions of the surface parking lots would be demolished and redeveloped. The Proposed Amendment would expand the westerly boundary of the NMDSP planning area at the southwest corner of Arrow Highway and Monte Vista Avenue. The proposed amendment would revise the official NMDSP site plan and other map-based exhibits to reflect the expansion of the NMDSP westerly planning boundary line to incorporate this area. A General Plan Amendment (GPA) would be required to allow this area to be incorporated into the NMDSP planning area and to be re-designated in the General Plan as Planned Development. The proposed change would also require a zone change to

reflect new zoning of the area as part of the NMDSP. The area would be rezoned Town Center along Arrow Highway and Corridor Residential for the remainder of the area .

The Proposed Amendment would also replace and incorporate the Turner Montclair Specific Plan into the expanded boundaries of the NMDSP. The current boundaries of the area within the Turner Montclair Specific Plan are Monte Vista Avenue on the west, the boundary line between the cities of Montclair and Upland on the north, Central Avenue on the east, and the Metrolink rail line on the south.

While there are residential neighborhoods in the planning area, the Proposed Amendment does not propose that any neighborhoods be removed or divided. Furthermore, the implementation of the Proposed Amendment would provide infill residential and commercial development in the areas surrounding the existing residential areas. The Proposed Amendment has been designed to enhance connections and access throughout the planning area, and would not include impediments to access to and from the existing residential areas. Thus, the Proposed Amendment would result in **no new impact/no impact** to established communities.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No New Impact/No Impact. The 2006 NMDSP EIR found that the NMDSP was consistent with, or directly implemented, most of the plans, goals and policies as set forth in the plan. The NMDSP did not meet parkland standards as set by the City, and was inconsistent with household and populations forecasts set by the Southern California Association of Government (SCAG).

The Proposed Amendment area is subject to the development regulations and guidelines set forth in the City's General Plan, the NMDSP, the City's Municipal Code, and the Cable Airport and Ontario International Airport ALUCPs.

General Plan Consistency

The southwest corner of Arrow Highway and Monte Vista Avenue currently lies outside the NMDSP planning boundary and has a land use designation of Business Park in the City's General Plan. This parcel is also zoned M1 Limited Manufacturing on the City's zoning map. The proposed amendment would revise the official NMDSP site plan and other map-based exhibits to reflect the expansion of the NMDSP easterly planning

boundary line to incorporate this area as shown in Figure 6 (Existing vs. Proposed North Montclair Downtown Specific Plan Westerly Boundary).

A GPA would be required to allow this area to be incorporated into the NMDSP planning area and be re-designated in the General Plan as Planned Development. This change would include the revision of the site plan and the other map-based exhibits to reflect this expansion.

The Proposed Amendment would also expand the existing easterly area boundary line to incorporate approximately 22 acres of land on the west side of Central Avenue at Richton Street, as shown in Figure 2-7 (Existing vs. Proposed North Montclair Downtown Specific Plan Easterly Boundary). This area is currently designated as the Turner Montclair Specific Plan (1990) which would be replaced and incorporated into the NMDSP.

With the adoption of the GPA, the Proposed Amendment would not conflict with, and would be consistent with, the land use designations and regulations established in the General Plan for the planning area. Thus, there would be **no new impact/no impact** from future development under the Proposed Amendment.

North Montclair Downtown Specific Plan Consistency

The NMDSP includes a "form-based" code to regulate development on properties covered by the plan. The form-based code in the NMDSP differs from typical zoning in that the form-based zoning is organized by geography or place. There are three unique places within the NMDSP: (1) the Town Center, (2) Corridor Residential, and (3) Neighborhood Residential.

The Proposed Amendment would involve amending the 2006 NMDSP to allow for the future development of projects that are tied to the Montclair Transcenter, and the anticipated extension of the Foothill Gold Line that will extend light rail line to the City. The Proposed Amendment would shift or reallocate a portion of the density planned in the northern area of the NMDSP to allow for additional mixed-use transit oriented development (TOD) projects along the new Foothill Gold Line Extension. The Proposed Amendment would also expand the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue and approximately 22 acres of land on the west side of Central Avenue at Richton Street. In both of these areas, appropriate land use zones, density levels, and street patterns would be determined and incorporated into the NMDSP.

The Proposed Amendment would amend the NMDSP to allow for a maximum number of 5,888 dwelling units, which is 2,688 more dwelling units than allowed under the current

NMDSP. The Proposed Amendment would also amend the NMDSP to allow for a total of 1,681,285 square feet of non-residential uses, which is 782,285 square feet more than what is allowed in the current NMDSP. The Proposed Amendment would assign land use designations to properties within the NMDSP where there currently are none or where a new land use mix is more appropriate. For more details about the Proposed Amendment, please refer to Section 2.6.2 of this Initial Study.

With the adoption of the NMDSP amendment, the Proposed Amendment would be consistent with the land use designations and regulations established in the NMDSP for the planning area. Furthermore, the City's hope to revitalize the planning area consistent with the goals and objectives of the General Plan is further accomplished with the Proposed Amendment. The NMDSP was designed to function like a land use ordinance for the area by providing land use regulations, development standards and design guidelines for new development. Similar to the NMDSP, the Proposed Amendment continues to promote mixed-use as a land use and development concept and provides a more cohesive plan and vision for the downtown area, with an aim for more unified linkages in terms of both circulation and design. Therefore, **no new impact/no impact** would be created by implementation of future development under the Proposed Amendment.

Ontario International Airport Land Use Compatibility Plan Consistency

The Proposed Amendment area is located within the AIA of the ONT ALUCP. The ONT ALUCP applies to new development or future development within the AIA. The ONT ALUCP requires that the compatibility of proposed amendments within the AIA be evaluated in accordance with the specific safety, noise, airspace protection, overflight policies, and special compatibility policies set forth in the plan. The Proposed Amendment's consistency with the policies established for each of these categories is addressed as follows:

- **Safety.** The safety compatibility policies are intended to minimize the risk associated with an off-airport aircraft accident or emergency landing. The safety compatibility policies and criteria apply only to the City of Ontario, since the safety zones established in the ONT ALUCP are located solely within the City of Ontario. As such, the Proposed Amendment is not subject to the safety policies.
- **Noise.** The noise compatibility policies are intended to avoid the establishment of noise-sensitive land uses in portions of the AIA that are exposed to significant levels of aircraft noise. While portions of the City are within an airport Noise Impact Zone of 60–65 dB CNEL, as established in the ONT ALUCP, the Proposed Amendment area is not located within this zone.

- **Airspace Protection.** The airspace protection policies are intended to prevent the creation of land use features that can be hazards to aircraft flight. Such hazards may be physical, visual, or electronic. The Proposed Amendment area is located outside of the airspace protection zones established in the ONT ALUCP. Furthermore, the Proposed Amendment would not introduce land uses that may cause visual, electronic, or wildlife hazards to aircraft. The Proposed Amendment would not involve changes in land use to the extent that additional wildlife would be attracted to the area. Furthermore, the Proposed Amendment would not be a substantial source of steam or dust that would impair pilots' vision or cause thermal plumes and would not present a substantial source of glare or electrical interference.
- **Overflight Policies.** The Proposed Amendment area is located within an area requiring real estate transaction disclosure. In accordance with the ONT ALUCP and state law, the project area's proximity to the Ontario International Airport must be disclosed during real estate transactions using the disclosure language set forth in state law and incorporated into the ONT ALUCP.
- **Special Compatibility Policies.** These policies are intended to address unique land use concerns. The Proposed Amendment does not apply to these policies, which generally pertain to avigation easements and nonconforming land uses (City of Ontario 2011).

For the reasons described above, the Proposed Amendment would not conflict with, and would be consistent with, the ONT ALUCP and there would be **no new impact/no impact**.

Cable Airport Land Use Compatibility Plan Consistency

The Proposed Amendment area is located within Zone E of the AIA of the Cable ALUCP. The Cable ALUCP applies to new development or future development within the AIA. The Cable ALUCP requires that the compatibility of proposed amendments within the AIA be evaluated in accordance with the specific safety, noise, airspace protection, overflight policies, and special compatibility policies set forth in the plan. The Proposed Amendment's consistency with the policies established for each of these categories is addressed as follows:

- **Safety.** The safety compatibility policies are intended to minimize the risk associated with an off-airport aircraft accident or emergency landing. The Proposed Amendment area is located within Zone E of the Compatibility Policy Map; however, the land uses that are proposed are allowed within the safety compatibility policies and criteria

for Zone E. As such, the Proposed Amendment is consistent with the safety policies of the Cable ALUCP.

- **Noise.** The noise compatibility policies are intended to avoid the establishment of noise-sensitive land uses in portions of the AIA that are exposed to significant levels of aircraft noise. One small portion of the Proposed Amendment area is located within an airport Noise Impact Zone of 55–60 dB CNEL, as established in the Cable ALUCP. This area is at the corner of Huntington Drive and Monte Vista Avenue where Open Space and Station District uses are proposed (refer to Cable ALUCP Airport Noise Impact Zones). The acceptable exterior noise exposure policies in the ALUCP state that new residential development is incompatible with the CNEL 60-65 dB contour of the Cable Airport; however, the Proposed Amendment elements that fall within the noise contours are located within the 55-60 dB contour and not the 60 dB contour. There is no limitation in the 55-60 dB contour that would prohibit the Station District uses that are proposed for this area. As such, the Proposed Amendment would not conflict and is consistent with the noise policies of the Cable ALUCP.
- **Airspace Protection.** The airspace protection policies are intended to prevent the creation of land use features that can be hazardous to aircraft flight. Such hazards may be physical, visual, or electronic. The Proposed Amendment area is located inside the 150 foot Allowable Object Height Zone established in the Cable ALUCP; however, all future development allowed under the Proposed Amendment would have a maximum building height of 65-feet , which would be below the 150 feet height limit. The Proposed Amendment would also not introduce land uses that may cause visual, electronic, or wildlife hazards to aircraft. The Proposed Amendment would not involve changes in land use to the extent that additional wildlife would be attracted to the area. Furthermore, the Proposed Amendment would not be a substantial source of steam or dust that would impair pilots' vision or cause thermal plumes, and would not present a substantial source of glare or electrical interference. The Proposed Amendment area is located within the FAA Height Notification Area, which requires that the project proponent and City notify the FAA of any proposed construction or alteration within 20,000 feet of a runway prior to any permits being issued. All future development in the Proposed Amendment area would be required to comply with this requirement. As such, the Proposed Amendment is consistent with the airspace protection policies of the Cable ALUCP.
- **Overflight Policies.** The Proposed Amendment area is located within an area requiring real estate transaction disclosure. In accordance with the Cable ALUCP and state law, the project area's proximity to Cable Airport must be disclosed during real estate transactions using the disclosure language set forth in state law and

incorporated into the Cable ALUCP. The Proposed Amendment would be required to comply with this policy, therefore, it is consistent with the Overflight Policies in the Cable ALUCP.

For the reasons described above, the Proposed Amendment would not conflict with, and would be consistent with, the Cable ALUCP and there would be **no new impact/no impact**.

Zoning Code Consistency

The Proposed Amendment would extend the westerly boundary of the planning area at the southwest corner of Arrow Highway and Monte Vista Avenue. This would require a zone change in the official City of Montclair Zoning Map and other exhibits to reflect the new zoning at this area. The zoning would be changed from M1 Limited Manufacturing to Specific Plan with the land use zones of Town Center along Arrow Highway and Corridor Residential on the rest of the property.

The Proposed Amendment would also expand the existing easterly area boundary line to incorporate approximately 22 acres of land on the west side of Central Avenue at Richton Street, as shown in Figure 2-7 (Existing vs. Proposed North Montclair Downtown Specific Plan Easterly Boundary). This area is currently designated as the Turner Montclair Specific Plan (1990), which would be replaced and incorporated into the NMDSP.

The rest of the planning area is zoned Specific Plan and reflects the land use zones in the existing NMDSP's regulating plan. With the adoption of the Proposed Amendment, the land use designations would be amended to reflect the new regulating plan (see Figure 2.5b (North Montclair Downtown Specific Plan Proposed Regulating Plan)). As such, the Proposed Amendment would be consistent with the uses permitted within the Zoning Code.

For these reasons, the Proposed Amendment would be consistent with the applicable land use plans and zoning ordinances of the City, and **no new impact/no impact** would be created by future development under the Proposed Amendment

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No New Impact/No Impact. The 2006 NMDSP EIR found that there were no habitat conservation plans or natural community conservation plans that applied to the NMDSP area, and therefore, there was no impact.

The City's General Plan does not designate any areas of the City as being within a habitat conservation plan (City of Montclair 1999). Furthermore, the City is not within any of the regional conservation plans designated by the state (CDFW 2014). As such, implementation of the Proposed Amendment would not conflict with any applicable habitat conservation plan or natural community conservation plan. **No new impact/no impact** would occur.

References

CDFW (California Department of Fish and Wildlife). 2014. *California Regional Conservation Plans* [map]. March 2014. Accessed November 3, 2014. https://www.wildlife.ca.gov/Conservation/Planning/NCCP/Plans.

City of Montclair. 1998. *North Montclair Specific Plan*. Prepared by Urban Design Studio and LSA Associates, Inc. Adopted January 5, 1998.

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed November 3, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

City of Montclair. 2013. *General Plan Land Use Map*. July 24, 2013. Accessed October 30, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan_map.asp.

City of Ontario. 2011. *Ontario International Airport Land Use Compatibility Plan*. Prepared by Mead and Hunt, Inc. Adopted April 19, 2011. Accessed February 11, 2015. http://www.ontarioplan.org/index.cfm/33710.

Montclair Municipal Code. Chapter 11.28 – General Commercial.

Montclair Municipal Code. Section 11.38.030 – Height Limits.

3.11 Mineral Resources

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

Setting

Based on the Montclair General Plan, the region is historically a source of aggregate materials. However, there are no active extraction operations in the City at this time. Abandoned gravel pits west of the planning area are currently used as flood control structures. The General Plan states that "Future utilization of sand and gravel resources is unlikely due to the extensive urban development within the study area." The entire planning area is currently developed with urban uses.

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No New Impact/No Impact. The 2006 NMDSP EIR found that the NMDSP planning area may be underlain by aggregate resources as indicated in the General Plan. However, the planning area is currently developed with urban uses, and there are no active extraction operations in the planning area.

As indicated on California Geological Survey maps, the City lies within the Claremont-Upland Production-Consumption region for Portland Cement Concrete–grade aggregate. The planning area is primarily located within a Mineral Resource Zone 2, as mapped by the California Geological Survey. A designation of Mineral Resource Zone 2 is assigned to areas where geologic data indicates that significant mineral resources are present. In this case, the mineral resources that may be present are Portland Cement Concrete–grade aggregate. As such, the City as a whole, including the Proposed Amendment area, may contain mineral resources that have been identified by the state (California Geological Survey 2007).

As described in the City's General Plan, Montclair is located on an alluvial fan created by deposits brought down by water movement from the mountain ranges to the north of the City. The material composition of the alluvium is generally gravelly cobbled, or stony, coarse granite that can be extracted and used for sand and gravel resources. Several areas adjacent to the San Antonio Channel have supported surface mining operations in the past. The San Antonio Channel is located in the Proposed Amendment area. All mining operations have subsequently become inactive due to poor economic return. As extraction operations cut deeper into the earth, the quality of the material declined, and the cost of processing the material increased. Mining operations within the City have attained these depths, causing a negative cost/benefit relationship (City of Montclair 1999). As such, while mining operations once occurred within the City, they no longer occur there today. Additionally, the planning area has been occupied by residential, commercial and industrial uses since 1968 and is surrounded on all sides by roadways, residential

development, and commercial development. As such, in the unlikely event that mineral extraction activities were to resume within the City, future development under the Proposed Amendment, under existing conditions, would not be expected to support such activities. Therefore, the future development under the Proposed Amendment would not lead to the loss of availability of regionally important mineral resources in the City, and **no new impact/no impact** would result.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No New Impact/No Impact. The 2006 NMDSP EIR found that there are no locally important mineral resources mapped in local land use plans. Therefore, the implementation of the NMDSP would have no impact.

As described under item 3.11(a), the City's General Plan states that several areas adjacent to the San Antonio Channel have supported surface mining operations in the past. However, as described above, the City no longer contains mineral extraction land uses, as the areas used for these purposes no longer support economically viable mining operations (City of Montclair 1999). Portions of the Proposed Amendment area are located in areas that previously supported mining activities, but these areas have been occupied by residential and commercial uses since 1968. For these reasons, future development under the Proposed Amendment would not result in the loss of availability of a locally important mineral resource and **no new impact/no impact** would occur.

References

California Geological Survey. 2007. *Updated Mineral Land Classification Map for Portland Cement Concrete-Grade Aggregate in the Claremont-Upland Production Consumption (P-C) Region, Los Angeles and San Bernardino Counties, California.* [map]. 1:100,000. Prepared by Russell V. Miller and Lawrence L. Bush. Accessed November 5, 2014. ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_202/.

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed November 3, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

3.12 Noise

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

Setting

The planning area is proximate to rail lines and a number of major city streets, all of which are significant noise sources. The Montclair General Plan states that noise in the Proposed Amendment area ranges from 69-88 dBA, which is greater than levels typically acceptable for residential uses. Increased operations along the rail lines is expected to increase existing noise levels in the vicinity of the rail lines. The General Plan states that CNEL values in the range of 70 to 80 dBA "is greater than considered acceptable and would compromise the welfare of residents exposed for a long period of time."

The Proposed Amendment area is within the AIA for both the Ontario International Airport, which is located 4.3 miles southeast of the planning area, and the Cable Airport, which is located approximately 0.9 mile north of the Proposed Amendment area.

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

New Potentially Significant Impact. The 2006 NMDSP EIR concluded that construction activities in the planning area would generate short-term noise associated with equipment and vehicles but that this potential impact would be mitigated by existing regulations. The EIR also concluded that buildout of the NMDSP would introduce sensitive land uses into areas with noise above acceptable levels. The EIR concluded that noise from retail components of mixed-use projects may adversely impact nearby residential components, and that buildout of the NMDSP would generate additional traffic on area roadways, which would increase noise levels.

Based on information contained in the General Plan, noise levels in the vicinity of the planning area already exceed normally acceptable levels for residential use. The planning area is bordered by a number of major noise sources, as described above. The proposed increase in residential use and associated resident population in the planning area would increase the number of persons exposed to these noise levels.

Implementation of future development under the Proposed Amendment would result in two primary types of potential noise impacts: short-term noise (i.e., temporary) during construction and long-term noise during continued operation of specific projects. Specific projects could generate off-site traffic noise along various roadways in the area. In addition, the proposed residential uses would be exposed to traffic noise from Monte Vista Avenue, Moreno Street, Central Avenue, Richton Street, and Huntington Drive.

Short-Term Construction Noise

Construction activities for future development under the Proposed Amendment are anticipated to consist of the following typical sequence, as applicable: demolition (as needed), site preparation, grading, trenching, building construction, paving and architectural coating. Typical construction equipment for each specific project (i.e., concrete/industrial saws, excavators, crawler tractors, tractors/loaders/backhoes, graders, scrapers, cranes, forklifts, welders, pavers, paving equipment, rollers, and air compressors) would be used. If demolition occurs, haul trucks to transport demolition material would also likely be used.

Sensitive receptors to project construction work exist in the planning area, such as single-family/multi-family residences, the Unitarian Universalist Congregation, and the

International Montessori School, both located approximately 460 feet south of the planning area.

Routine noise levels from conventional construction activities (with a typical number of three to four pieces of equipment operational on the site) range from 75 to 86 dBA L_{eq} at a distance of 50 feet. The typically quietest phase of building site construction for similar projects is that associated with constructing foundations (75 dBA L_{eq} at a distance of 50 feet), and the typically loudest phases, producing 86 dBA L_{eq} at 50 feet, are those associated with grading and finishing activities. Noise levels from construction activities generally decrease at a rate of 6 dB per doubling of distance away from the activity.

However, as mentioned above, the proposed increase in residential use and resident population in the planning area would increase the number of persons exposed to these construction-generated noise levels that could range from 77 to 88 dBA $L_{eq.}$

Noise-generating sources in the City are regulated in Chapter 6.12 of the City's Municipal Code (City of Montclair 2009). The noise limits apply to noise generation from one property to an adjacent property. The noise level limits depend on time of day, duration of the noise, and land use. The base ambient exterior noise levels are depicted in Table 3.12-1 (Operational Base Ambient Exterior Noise Levels). These tables also show the noise levels used to determine long-term operational noise impacts associated with on-site activities.

Table 3.12-1
Operational Base Ambient Exterior Noise Levels

Land Use Category	Noise Level (dBA)	
	Nighttime 10:00 p.m.–7:00 a.m.	*Daytime 7:00 a.m.–10:00 p.m.*
Residential	45	55
Commercial	55	65
Industrial	60	70

Source: City of Montclair, 2015

According to Chapter 6.12 of the City's Noise Ordinance (City of Montclair 2009), noise associated with construction, repair, remodeling, or grading of any real property are exempt, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on any given day and provided that the City Building Official determines that public health and safety are not impaired. Project construction activities would be short-term, occurring eight hours per day, five days per week, and would cease upon

construction completion. In order to ensure that noise impacts are minimized given the proximity of construction activities to sensitive receptors, construction hours for any specific project would be limited to what is described in Chapter 6.12 of the City's Noise Ordinance, and all project proponents would be required to ensure that engine silencers are in working order, among other mitigation measures.

Additionally, project proponents would be required to notify surrounding neighbors of construction activity and construction hours proposed at their project site, as well as provide contact information in the event a property owner or residence has noise complaint issues. Construction noise is considered a **new potentially significant impact**, and therefore, this issue will be studied further in the EIR.

Long-Term Operational Noise

Long-term operational noise for future development under the Proposed Amendment includes surface parking lots, on-site stationary sources include heating, ventilation, and air conditioning (HVAC) equipment and emergency generators. Long-term operational noise also includes project-generated traffic along Monte Vista Avenue, Moreno Street, Central Avenue, Richton Street and Huntington Drive, as well as overall traffic noise in the planning area.

Mitigation measure N-2 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for impacts caused by the Proposed Amendment. It is expected that implementation of mitigation measure MM-NO-1 would help reduce noise impacts in areas with sensitive land uses. However, even with the implementation of mitigation measure MM-N-1, future development could result in a **new potentially significant impact**. Therefore, this issue will be studied further in the EIR.

MM-NO-1 The following mitigation measures are recommended to reduce potential long-term noise impacts: Sound attenuation walls, tree-lines, and/or setbacks shall be incorporated into future development plans for the Specific Plan area and installed by the City and/or future developers between proposed noise sensitive uses, such as residential units and noise sources including roads, rail tracks and noise generating land uses, such as commercial buildings to reduce the noise levels at proposed sensitive uses to City standards (65 dBA CNEL or below.

Proposed Parking Structures and Surface Parking Noise

Traffic associated with future parking area noise would not be of sufficient volume to exceed community noise standards based on a time-averaged scale, such as community noise equivalent level (CNEL) or L_{eq} (Mestre Greve Associates 2011). However, the instantaneous maximum sound levels generated by a car door slamming, an engine starting up, or cars passing by could be annoying to sensitive receptors.

On-site Noise Generators

On-site stationary equipment includes HVAC equipment mounted on the roof of buildings. The noise levels generated by this type of equipment would vary, but would typically range from approximately 45 dBA to 55 dBA at a distance of 50 feet. The closest sensitive receptors in the planning area are multi-family/single-family residences, the Unitarian Universalist Congregation, and the International Montessori School. Both the Unitarian Universalist Congregation and the International Montessori School are located approximately 460 feet south of the planning area.

Retail Noise in Mixed-Use Projects

The Proposed Amendment would continue to allow for mixed-use projects that would include retail uses that could continue to have the potential to generate noise that could adversely impact the residential components of those mixed-use projects.

Mitigation measure N-3 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for impacts caused by the Proposed Amendment. With the implementation of mitigation measure MM-NO-2, it is expected that noise created by retail uses in mixed-use projects would be reduced. However, this issue is considered a **new potentially significant impact** and will be studied further in the EIR.

MM-NO-2 Commercial facilities adjacent to noise sensitive uses such as residential units shall be designed so that noise-generating activities, including outdoor sales or activities, truck-loading areas, garbage dumpsters, and loud-speaker systems are not adjacent to or directed toward these uses

Off-Site Traffic Noise

The Proposed Amendment would generate traffic along adjacent roadways including Monte Vista Avenue, Moreno Street, Central Avenue, Richton Street, and Huntington Drive. Potential noise effects from vehicular traffic would be assessed in the EIR using

the Federal Highway Administration's Traffic Noise Model version 2.5. Noise levels along the roads would be evaluated to show if future development under the Proposed Amendment would increase the noise level along the roads by one dB or less along the study area roadways in the vicinity of the Proposed Amendment area. In community noise assessments, a one dB increase is not noticeable to the human ear. Therefore, the Proposed Amendment would be evaluated to see if the noise impacts due to project-related traffic would exceed applicable noise standards or be significant.

Build-out of the Proposed Amendment area would introduce sensitive land uses into areas with noise above acceptable levels. The implementation of **MM-N-1** and **MM-N-2** will help to reduce impacts, but impacts from traffic noise and other operational noise associated with future development under the Proposed Amendment could remain significant. Therefore, this issue is considered a **new potentially significant impact** and will be studied further in the EIR.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

New Potentially Significant Impact. The 2006 NMDSP EIR found that land uses proximate to the rail lines may experience groundbourne noise and/or vibration from passing trains.

Construction activities that might expose persons to excessive ground-borne vibration or ground-borne noise could cause a potentially significant impact. Ground-borne vibration information related to construction activities has been collected by the California Department of Transportation (Caltrans 2004). Information from Caltrans indicates that continuous vibrations with a peak particle velocity of approximately 0.1 inch/second begin to annoy people. Ground-borne vibration is typically attenuated over short distances. Sensitive receptors are within the planning area in the form of single-family and multi-family residences. The heavier pieces of construction equipment, such as loaded trucks, would have peak particle velocities of approximately 0.076 inch/second or less at a distance of 25 feet (Federal Transit Administration 2006). Although construction activities are not anticipated to use construction equipment that would result in continuous vibration levels that typically annoy people, sensitive receptors could be temporarily annoyed with the use of some construction equipment.

The major concern with regards to construction vibration is related to building damage. Construction vibration as a result of future development under the Proposed Amendment could result in structural building damage, which typically occurs at

vibration levels of 0.5 inch/second or greater for buildings of reinforced-concrete, steel or timber construction. It is anticipated that the heavier pieces of construction equipment used would include typical construction equipment for residential and commercial projects such as excavators, graders, dump trucks, and vendor trucks. Pile driving, blasting, or other special construction techniques are not anticipated to be used for construction of most future projects in the Proposed Amendment area; however, excessive ground-borne vibration and ground-borne noise could be generated if this equipment is required.

The Proposed Amendment would place additional development in close proximity to the rail lines. Land uses proximate to rail lines may experience ground-borne noise and/or vibration from passing trains and may require the implementation of mitigation measures to ensure that impacts related to ground-borne vibration are lessened. Therefore, construction and operational impacts from future development under the Proposed Amendment are considered a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

New Potentially Significant Impact. The 2006 NMDSP EIR found that the introduction of a substantial additional population in the planning area would result in increases in vehicle traffic, the operation of which may significantly increase ambient noise levels in the area.

The introduction of a substantial population in the planning area would result in increases in vehicle traffic, the operation of which may significantly increase ambient noise levels in the area. Long-term operational noise associated with future development under the Proposed Amendment includes the proposed parking areas. On-site stationary sources include HVAC equipment and emergency generators. Long-term operational noise also includes project-generated traffic along Monte Vista Avenue, Moreno Street, Central Avenue, Richton Street, Huntington Drive, and the I-10 freeway, along with overall traffic noise at specific project sites. Therefore, the Proposed Amendment would have a **new potentially significant** impact. As such, this issue will be studied further in the EIR.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

New Potentially Significant Impact. The 2006 NMDSP EIR found that the introduction of a substantial additional population in the planning area would result in increases in vehicle traffic, the operation of which may significantly increase ambient noise levels in the area.

The Proposed Amendment's temporary noise increases would result from construction activities of future development. As discussed previously under item 3.12(a), construction activities for the Proposed Amendment are anticipated to consist of the following typical sequence: demolition (as needed), site preparation, grading, trenching, building construction, paving and architectural coating. As described under item 3.12(a), construction equipment anticipated for project development would include standard equipment that would be employed for any routine construction project, and construction equipment with substantially higher noise-generating characteristics (such as pile drivers, rock drills, and blasting equipment) is not be anticipated for future development under the Proposed Amendment.

As mentioned under item 3.12 (a), there are sensitive receptors in the Proposed Amendment area in the form of existing single-family and multi-family residences. In order to ensure that noise impacts are minimized given the proximity of construction activities to the sensitive receptors, construction hours would be limited to what is described in Chapter 6.12 of the City's Noise Ordinance. Additionally, specific projects shall be required to ensure that engine silencers are in working order. Project proponents would also be required to notify surrounding neighbors, including any residences in proximity of their project site, of the construction activity and hours to take place. The project proponents would be required to provide contact information in the event a property owner or residence has noise complaint issues. Despite these requirements, future development under the Proposed Amendment could result in a **new potentially significant impact**, and as such, this issue will be studied further in the EIR.

e) Would the project be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No New Impact/No Impact. The 2006 NMDSP EIR concluded that since the NMDSP was not located within the vicinity of an airport, there was no impact.

Cable Airport

Cable Airport is located approximately 1.44 miles northeast of the planning area. The Proposed Amendment area is located within the AIA of Cable Airport, as shown in Figure 13 (Cable Airport Influence Area), and thus is subject to the Cable ALUCP. The noise compatibility policies are intended to avoid the establishment of noise-sensitive land uses in portions of the AIA that are exposed to significant levels of aircraft noise. As shown in the Cable ALUCP's Noise Compatibility Map, one small portion of the Proposed Amendment area is within an airport Noise Impact Zone of 55–60 dB CNEL, as established in the Cable ALUCP. This area is at the corner of Huntington Drive and Monte Vista Avenue where Civic, Open Space and Station District uses are proposed. The acceptable exterior noise exposure policies in the ALUCP state that new residential development is incompatible with the CNEL 60-65 dB contour of Cable Airport; however, the Proposed Amendment elements that fall within the noise contours are located within the 55-60 dB contour and not the 60 dB contour. There is no limitation in the 55-60 dB contour that would prohibit the transit oriented development that is proposed in the Station District. As such, the Proposed Amendment is consistent with the noise policies of the Cable ALUCP and would not expose people residing or working in the planning area to excessive noise levels. Thus, **no new impact/no impact** would occur with the implementation of future development under the Proposed Amendment.

The Proposed Amendment area is also located within the AIA of the Ontario International Airport, as shown in Figure 14 (Ontario International Airport Influence Area), and thus is subject to the ONT ALUCP. According to the Noise Compatibility Map in the ONT ALUCP, the planning area is not located within a noise impact zone. Therefore, future development under the Proposed Amendment would not expose people residing or working in the project area to excessive noise levels. Thus, n**o new impact/no impact** would result from future development allowed under the Proposed Amendment.

f) Would the project be within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No New Impact/No Impact. The 2006 NMDSP EIR concluded that the NMDSP was not located within the vicinity of an airport, and therefore, there was no impact**.**

There are no private airstrips in the project vicinity; therefore, future development under the Proposed Amendment would not expose people residing or working in the project area to excessive noise levels. **No new impact/no impact** would result.

References

Caltrans (California Department of Transportation). *Transportation- and Construction-Induced Vibration Guidance Manual*. June 2004.

City of Montclair. 2009. Code of Ordinances, Chapter 6.12 – Noise Control.

FHWA (Federal Highway Administration). 2004. "Highway Traffic Noise." Accessed December 17, 2014. http://www.fhwa.dot.gov/environment/noise/traffic_noise_model/.

FTA (Federal Transit Administration). 2006. *Transit Noise and Vibration Impact Assessment*. May 2006. Accessed February 12, 2015. http://www.ontarioplan.org/index.cfm/33710/33960.

City of Ontario. 2011. *Ontario International Airport Land use Compatibility Plan*. Prepared by Mead and Hunt, Inc. April 19, 2011. Accessed February 13, 2015. http://www.ontarioplan.org/index.cfm/33710.

Mestre Greve Associates. 2011. *Typical A-Weighted Noise Levels*.

3.13 Population and Housing

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☒	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Setting

There are approximately eight existing single-family residences within the NMDSP area, located along Huntington Drive, east of Claremont Boulevard. An additional 40 single-family residences are located in close proximity to, but not within, the NMDSP area at the northwest corner of Fremont Avenue and Moreno Street.

Multi-family residential uses in the NMDSP area include a 385-unit residential complex, called The Paseos at North Montclair, that was recently constructed at the northeast corner of Monte Vista Avenue and Moreno Street. An additional 129-unit residential development called Arrow Station is under construction on the north side of Arrow Highway approximately 200 feet east of Monte Vista Avenue.

Using the household occupancy rate of 3.6, as reported by the City in the 2010 census, the existing resident population of downtown Montclair is estimated to be 2,023 persons, which is approximately 5 percent of the City total.[5]

The implementation of the two multi-family attached residential projects marks an uptick in population growth in the NMDSP area and is in line with the residential zoning and development envisioned for the NMDSP area.

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

New Potentially Significant Impact. The 2006 NMDSP EIR found that the NMDSP would introduce between 8 and 10 thousand people to the planning area. The EIR concluded that this increase in population would have a number of direct and indirect significant impacts.

The Proposed Amendment would amend the NMDSP to allow for an increase in the number of residences by 2,688 dwelling units and increase the amount of commercial space by 782,285 square feet. Using the occupancy rate of 3.6, as reported for Montclair in the 2010 Census, the construction of 2,688 new residential units would introduce approximately 9,677 people to the planning area.

In addition, the Proposed Amendment's increase in non-residential space would likely increase the number of jobs available in the planning area relative to the number of jobs that are currently available. The employees for the additional jobs in the Proposed Amendment area would likely be hired from the existing workforce within the City and within the nearby cities and communities in San Bernardino County and Los Angeles County.

[5] United States Census Bureau: http://www.census.gov/quick facts/table/PST045215/0648788/accessible, accessed September 2016.

Therefore, the increase in population may have a number of direct and indirect significant impacts. Therefore, this is considered a **new potentially significant impact** relative to population growth under the Proposed Amendment. As such, this issue will be studied further in the EIR.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No New Impact/No Impact. The 2006 NMDSP EIR concluded that the proposed project would not displace substantial numbers of existing housing in the planning area.

The Proposed Amendment would not displace existing housing. Instead the Proposed Amendment would amend the existing NMDSP to shift or reallocate a portion of the density planned to the northern area of the NMDSP. This shift would allow for additional mixed-use projects in the Station District zone along the new Foothill Gold Line Extension. The Proposed Amendment would also expand the area of the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway/Monte Vista Avenue. This area is currently zoned M-1, Light Manufacturing, and would be rezoned to Neighborhood Residential and Town Center to allow for additional residential and commercial uses in the NMDSP area.

The Proposed Amendment also would incorporate approximately 22 acres of land on the west side of Central Avenue at Richton Street into the NMDSP and assign land uses in the area as Open Space, Neighborhood Residential, and Town Center. This would allow an area that currently has industrial and commercial uses to ultimately be developed with mixed-use residential and commercial uses.

As such, the Proposed Amendment would amend the NMDSP to provide for an additional 2,688 +/- dwelling units and an additional 782,285 +/- square feet of commercial space, and would also assign land use designations to properties within the NMDSP where there currently are none or where a new land use mix is appropriate. The Proposed Amendment would not result in the displacement of existing housing. As such, there would be **no new impact/no impact**.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No New Impact/ No Impact. The 2006 NMDSP EIR concluded that the NMDSP would not displace substantial numbers of people or necessitate the construction of replacement housing elsewhere.

Future development under the Proposed Amendment would not displace existing housing. Instead, future development would amend the existing NMDSP to shift or reallocate a portion of the density planned to the northern area of the NMDSP. This shift would allow for additional mixed-use projects in the Station District zone along the new Foothill Gold Line Extension. The Proposed Amendment would also expand the area of the current specific plan boundary to incorporate approximately 10 acres of land at the southwest corner of Arrow Highway and Monte Vista Avenue. This area is currently zoned M-1 Light Manufacturing, and would be rezoned to Neighborhood Residential and Town Center to allow for more residential and commercial uses in the NMDSP area.

The Proposed Amendment also would incorporate approximately 22 acres of land on the west side of Central Avenue at Richton Street into the NMDSP area and assign land uses in the area as Open Space, Neighborhood Residential, and Town Center. This would allow an area that currently has industrial and commercial uses to include mixed-use and residential uses.

As such, the Proposed Amendment would amend the NMDSP to provide for an additional 2,688 +/- dwelling units and an additional 782,285 +/- square feet of commercial space, and would also assign land use designations to properties within the NMDSP where there currently are none or where a new land use mix is appropriate. The Proposed Amendment would not result in the displacement of substantial numbers of people. As such, there would be **no new impact/no impact**.

References

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed November 3, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

City of Montclair. 2011. Zoning Map. Accessed October 8, 2014. http://www.cityofmontclair.org/civica/filebank/blobdload.asp?BlobID=6574.

City of Montclair. 2013. *General Plan Land Use Map*. July 24, 2013. Accessed October 30, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan_map.asp.

CIM Group. 2015. Draft Project Description. January 29, 2015.

Southern California Associated of Governments. 2001. *Employment Density Study Summary Report*. Prepared by Natelson Company in association with Terry A. Hayes Associates. October 31, 2001. Accessed October 3, 2014. http://www.mwcog.org/uploads/committee-documents/bl5aX1pa20091008155406.pdf.

Southern California Associated of Governments. 2012. *Adopted 2012 Regional Transportation Plan Growth Forecast*. 2012. Microsoft Excel data accessed from SCAG's Economic and Demographic Library on December 15, 2014. http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting.

United States Census Bureau. 2014a. 2009 – 2013 American Community Survey 5-Year Estimates. Accessed December 15, 2014. http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk.

United States Census Bureau. 2014b. State & County QuickFacts – Montclair (city), California. Accessed December 15, 2014. http://quickfacts.census.gov/qfd/states/06/0648788.html.

United States Census Bureau. Accessed September 2016. http://www.census.gov/quick facts/table/PST045215/0648788/accessible

3.14 Public Services

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☒	☐	☐	☐
Police protection?	☒	☐	☐	☐
Schools?	☒	☐	☐	☐
Parks?	☒	☐	☐	☐
Other public facilities?	☒	☐	☐	☐

Setting

The downtown area of Montclair is currently served with standard government services, such as fire, police, school, and library services.

Fire Services. Fire Station No. 1 is currently situated within the downtown area at the southeast corner of Monte Vista Avenue and Arrow Highway. A second fire station (Fire Station No. 2) is located in the southern portion of the City near the intersection of Monte Vista Avenue and Mission Boulevard. Fire Station No. 1 is currently staffed with a three-person engine and a two-person paramedic squad, has one triple combination pumper, and one quint (engine) with a 55-

foot ladder. On a 24-hour basis, the downtown area is served by 16 firefighters, one chief officer, and one fire investigator.

Police Services. Police protection services in the City are provided by the Montclair Police Department, located on the northwest corner of Arrow Highway and Monte Vista Avenue, at 4870 Arrow Highway. The Montclair Police Department employs approximately 53 sworn officers. Typically, the station is staffed with at least four patrol officers per shift.

Schools. Currently no schools are located in the NMDSP area. However, the NMDSP is served by Moreno Elementary School and Serrano Middle School. Moreno Elementary School is located on Moreno Street, southwest of the downtown area. Serrano Middle School is located on San Jose Street, also southwest of the downtown area. Montclair High School serves the entire City and is located on Benito Street, approximately 1.1 miles south of the NMDSP area.

Library. The Montclair Branch of the San Bernardino County Library system is located at 9955 Fremont Avenue in the Montclair Civic Center, approximately 1.5 miles south of the NMDSP area. The Montclair Library is one of the largest facilities in the regional library system. It encompasses 20,200 square feet and 59,100 volumes. The library serves approximately 14,000 patrons per month.

Parks. Park and open space in the vicinity of the planning area is limited to the Pacific Electric Inland Empire Trail along the northern boundary of the planning area, Sycamore Park (at the intersection of Moreno Street and Sycamore Avenue), and Moreno Vista Park. Moreno Vista Park is located approximately 1,000 feet from the NMDSP area. The General Plan sets a goal of three acres of recreational area per 1,000 residents.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection

New Potentially Significant Impact. The 2006 NMDSP EIR concluded that although continued development would place additional demand on fire service, impacts would be less than significant. The EIR also concluded that implementation of the NMDSP would result in an increased amount and density of development, which would increase the fire flows required in the planning area. Impacts were considered significant but mitigable.

Fire protection services and emergency medical services are provided by the Montclair Fire Department. The Montclair Fire Department operates two fire stations. Station 151 is located in the planning area at 8901 Monte Vista Avenue and Station 152 is located at 10825 Monte Vista Avenue, approximately two miles southwest of the planning area. Station 151 is closest to the planning area and would be the first responder to any individual site within the NMDSP area. In the event that Station 151 cannot meet the immediate needs of a call for services independently or does not have capability to address the full extent of a larger incident, Station 152 could respond or provide support. Additionally, the cities of Montclair and Upland have an agreement for shared fire services. In the event that additional support were needed in the planning area, the four Upland Fire Department stations (Station 161, 162, 163, and 164) could provide support.

Future development under the Proposed Amendment would be subject to current Montclair Fire Department requirements for fire sprinkler systems, fire alarm systems, fire flow, and equipment and firefighter access, as well as International Fire Code requirements. Additionally, in accordance with the requirements of the Montclair Fire Department, a Knox Box would be installed at future project sites to enable emergency service personnel to access buildings (Montclair Fire Department 2011). However, the implementation of the Proposed Amendment would result in the development of a substantial numbers of residential dwelling units (2,688 additional units), vastly changing both the makeup and population in this portion of the fire service area and may require additional physical facilities, expanded facilities, equipment or personnel in order to maintain existing fire department service rations, response times, or other performance objectives.

Mitigation measure PUB-2 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for impacts caused by the Proposed Amendment. It is expected that implementation of mitigation measure **MM-PUB-1** would help reduce impacts on fire flows.

MM-PUB-1 Projects under the NMDSP shall ensure that infrastructure is in place that provides adequate fire flow. This includes performing any engineering surveys required by the City or the Water District to assess ability of existing infrastructure to accommodate the project proponent to coordinate with the appropriate agencies to ensure fire flows shall be based on the size of the buildings, their relationship to other structures, property lines, and types of construction used.

Event with the implementation of **MM-PUB-1**, there may still be a **new potentially significant impact** to fire services to be provided to future development under the Proposed Amendment. As such, this issue will be studied further in the EIR.

Police protection?

New Potentially Significant Impact. The 2006 NMDSP EIR concluded that while implementation of the NMDSP would place additional demand upon police services, impacts were still considered less than significant.

Police protection services in the City are provided by the Montclair Police Department. The Montclair Police Department is located at 4870 Arrow Highway, which is located in the center of the NMDSP area. The Montclair Police Department employs approximately 53 sworn officers. Typically, the station is staffed with at least four patrol officers per shift.

Future development under the Proposed Amendment would result substantial numbers of residential dwelling units (2,688 additional units), vastly changing both the makeup and population in this portion of the police service area. An increase in activity in the planning area would potentially lead to an increase in the number of calls that the Montclair Police Department receives from the downtown area. Additional police staffing in the planning area could result in the physical alteration of governmental facilities. With additional residents in the planning area, future development under the Proposed Amendment may adversely affect service levels or response times and may result in the need for additional or expanded police facilities to maintain existing police department service ratios, response times, or other performance objectives. Therefore, the potential impacts related to the construction of new police facilities are considered to be a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

Schools?

New Potentially Significant Impact. The 2006 NMDSP EIR found that buildout of the NMDSP would increase the demand for schools in the area that may already experience capacity problems. Impacts were considered less than significant assuming the payment of the required fees.

The City is served by the Ontario-Montclair School District and by the Chaffey Joint Union High School District. The need for new school facilities is typically associated with a population increase that generates an increase in enrollment large enough to cause new schools to be constructed.

Although the General Plan states that school facilities are sufficient to serve the future needs of the City, the growth projected under the Proposed Amendment was not included in this assessment. As described in Section 3.13, the Proposed Amendment involves the development of substantial numbers of residential dwelling units (2,688 additional units) that vastly changes both the makeup and population in the school districts. Future development under the Proposed Amendment would cause population growth in the City and would consist of a maximum of 2,688 additional households. According to the California School Board, the average number of students generated per dwelling unit is 0.7 student (California Department of General Services, Office of Public School Construction 2009). Assuming that each additional household would occupy a dwelling unit, the Proposed Amendment could result in approximately 1,783 new students. In the event that 1,783 students were to be added to the Ontario-Montclair School District and/or the Chaffey Joint Union High School District due to the Proposed Amendment, this addition would occur over time and may generate the need for new schools in the area.

Due to the increase in population that would be associated with future development under the Proposed Amendment, potential impacts related to the need for new school facilities in the area is considered a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

Parks?

New Potentially Significant Impact. The 2006 NMDSP EIR concluded that implementation of the NMDSP would place additional demand upon park facilities and would not provide sufficient parkland to meet the City standards. Impacts were considered to be significant and unavoidable.

Existing park space in the community appears to be insufficient to reach the stated goal of three acres per thousand new residents. Future development under the Proposed Amendment would result in substantial numbers of new residential dwelling units (2,688 additional units), vastly changing both the makeup and population in the NMDSP area. The Proposed Amendment is expected to generate substantial population growth within the City. The new residents of the planning area would use nearby park facilities. While outdoor open space areas would likely be provided as part of future development under the Proposed Amendment, existing parks and park facilities may not accommodate the increase in demand. As such, potential impacts to existing parks in the area is considered a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

Other public facilities?

New Potentially Significant Impact. The 2006 NMDSP EIR found that the NMDSP would increase the demand for library services. Impacts were considered less than significant. The EIR also found that implementation of the NMDSP would increase solid waste generation and demand for disposal capacity. Impacts were considered less than significant.

Other public facilities and services provided within the City include library services and City administrative services. Library services are provided at the Montclair Branch Library, which is located at 9955 Fremont Avenue. The library serves approximately 14,000 people per month and is a member of the San Bernardino County Library System and the San Bernardino, Inyo, Riverside Counties United Library Service Network (SIRCULS Network). Because the library is part of a greater network of other county library services, residents and registered borrowers have access to over three million titles (City of Montclair 1999; San Bernardino County Library 2014). City administrative services are generally provided at the Montclair City Hall, located at 5111 Benito Street, south of the Proposed Amendment area. Residents from future development under the Proposed Amendment could use the library services and the City administrative services. The Proposed Amendment would involve an increase in residential housing (2,688 additional units) and would be expected to generate substantial population growth within the Proposed Amendment area. Thus, it is anticipated that existing library and City administrative services may not accommodate the increase in demand due to implementation of the Proposed Amendment. As such, potential impacts to other public facilities in the area is considered a **new potentially significant impact**, and this issue will be studied further in the EIR.

References

California Government Code. Section 65995–65996.

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed November 3, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

Montclair Fire Department. 2011. “Montclair Fire Department Fire Prevention Bureau Knox Box Program.” Last revised June 15, 2011. Accessed November 3, 2014. http://www.cityofmontclair.org/depts/fire/prevention/knox_box_program.asp.

Montclair Fire Department. 2014. “Overview of the Department.” Accessed November 3, 2014. http://www.cityofmontclair.org/depts/fire/admin/overview.asp.

Montclair Police Department. 2014. "Plaza Precinct." Accessed October 31, 2014. http://cityofmontclair.org/depts/police/substations/plaza_precinct.asp.

San Bernardino County Library. 2014. "Montclair Branch Library." Accessed October 31, 2014. http://www.sbclib.org/LibraryLocations/MontclairBranchLibrary.aspx.

3.15 Recreation

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☒	☐	☐	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☒	☐	☐	☐

Setting

The City has approximately 43.7 acres of parkland city-wide. The City's General Plan states that standards developed by state and City policies suggest that an average of one acre of parkland for each 3,000 residents is needed. The nearest recreational facility to the Proposed Amendment area is the play fields at Moreno Elementary School. Other passive recreational facilities include the open space along the San Antonio Channel.

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

New Potentially Significant Impact. The 2006 NMDSP EIR found that full implementation of the NMDSP would induce substantial population growth in the planning area, which could have significant adverse impacts in terms of both existing and proposed recreational facilities. Existing facilities could be adversely affected through substantial increases in use, and proposed facilities, when considered along with development of the planning area, could have at least temporary significant construction impacts. The project could also fail to meet the stated goal of providing three acres of recreational facilities per one thousand residents.

The City has approximately 43.7 acres of parkland city-wide. The City's General Plan states that standards developed by state and City policies suggest that an average of one acre of park land for each 3,000 residents is needed. At the time of General Plan adoption in 1999, this equated to a deficiency of 35 acres of parkland (City of Montclair 1999). Because no substantial amounts of park acreage have been added to the City since adoption of the General Plan, this deficiency has increased as the population of the City has grown from approximately 29,735 residents in 1997 to approximately 38,686 residents in 2016 (City of Montclair 2010; City of Montclair 1999; State of CA Department of Finance 2016).

While the City is deficient in parkland acreage, future development under the Proposed Amendment would induce substantial population growth in the NMDSP area, which would substantially exacerbate this deficiency. As such, implementation of the Proposed Amendment could generate population growth of a magnitude that could substantially increase the use of existing recreational facilities to the extent that physical deterioration of the facilities occurs. For these reasons, implementation of future projects under the Proposed Amendment could result in a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

New Potentially Significant Impact. The 2006 NMDSP EIR found that full implementation of the NMDSP would induce substantial population growth in the planning area, which could have significant adverse impacts in terms of both existing and proposed recreational facilities. Existing facilities could be adversely affected through substantial increases in use, and proposed facilities, when considered along with development of the planning area, could have at least temporary significant construction impacts. The project could also fail to meet the stated goal of providing three acres of recreational facilities per one thousand residents.

Future development under the Proposed Amendment would induce population growth in the planning area, which could have a significant adverse impact on existing and proposed recreational facilities. Existing facilities could be adversely affected through substantial increases in use by new residents. Outdoor open space areas would likely be provided by future development under the Proposed Amendment as each development is required to provide some element of common open space areas and amenities for its residents. These spaces could contain plantings, areas for outdoor events such as yoga

classes, and seating areas. All recreational facilities associated with future development under the Proposed Amendment would be evaluated as part of the specific development project. As described above 3.15(a), the Proposed Amendment would result in increases in demand on the City's recreational resources and is expected to result in the need for expanded facilities or new facilities. Therefore, implementation of future projects under the Proposed Amendment could result in a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

References

City of Montclair. 1999. *City of Montclair General Plan*. Prepared with assistance by L.D. King, Inc. Accessed November 3, 2014. http://www.cityofmontclair.org/depts/cd/planning/general_plan.asp.

City of Montclair. 2010. *City Parks Map – Montclair, CA*. 2010. Accessed December 14, 2014. http://www.cityofmontclair.org/about/parks.asp.

State of California, Department of Finance, 2016.

3.16 Transportation and Traffic

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☒	☐	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☒	☐	☐	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous	☐	☐	☒	☐

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
intersections) or incompatible uses (e.g., farm equipment)?				
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Setting

The planning area is affected by, and would affect, a number of important transportation facilities, including the rail lines and I-10 freeway. These facilities are managed on a regional scale, through comprehensive planning efforts, including the following:

- Comprehensive Transportation Plan (CTP) – subregional traffic model
- SANBAG – Regional Transportation Plan (RTP)

Improvements to and extension of rail service in the area (the Foothill Gold Line) would extend commuter service to Montclair. The Proposed Amendment is being examined in anticipation of this extension.

Existing Roadway System

The existing arterial roadway system in the study area includes all of the currently built arterial roadways together with a number of midblock travel lanes on individual roadway segments. Regional access for the City is provided via two interchanges with the I-10 freeway, located at Monte Vista Avenue and at Central Avenue. The I-10 freeway is the principal east-west freeway in the Pomona Valley, just south of the Proposed Amendment area. Other primary arterials include Central Avenue, Moreno Street, and Monte Vista Avenue. Additionally, Richton Street is located on the north side of the Metrolink railway and provides a vehicular link between Central Avenue and Monte Vista Avenue, as well as direct vehicular access to the transit center.

Existing Public Transit System

Foothill Transit provides local transit service and regional transit connections between Montclair and destinations to the west in Pomona, the San Gabriel Valley, and downtown Los Angeles. These services include express routes, local routes, and school supplementary routes. Omnitrans

provides public transit to the West Valley area of San Bernardino County. Its services include demand response for those who use Americans with Disabilities Act (ADA) facilities. Riverside Transit Agency provides express service to downtown Riverside. The Metrolink San Bernardino line is the busiest of Southern California's seven Metrolink lines, running from downtown Los Angeles east through the San Gabriel Valley and the Inland Empire to San Bernardino. It is one of the three initial lines (along with the Santa Clarita and Ventura Lines) on the original Metrolink system. The San Bernardino Line serves the following stations:

1. Union Station, Los Angeles
2. Cal State L.A., Los Angeles
3. El Monte
4. Baldwin Park
5. Covina
6. Pomona (North)
7. Claremont
8. Montclair, Montclair Transcenter
9. Upland
10. Rancho Cucamonga
11. Fontana
12. Rialto
13. Santa Fe Depot, San Bernardino
14. Downtown San Bernardino/San Bernardino Transit Center (under construction)
15. Redlands (proposed for construction)

Phase 2B of the Gold Line light rail service is proposed for construction from Azusa to the Montclair Transcenter (located on Arrow Highway in the planning area). If approved, project construction is scheduled to begin in 2017, with completion in the first half of 2022. Pursuant to Assembly Bill 2574, the Montclair Transcenter is the designated terminus for the Gold Line Foothill Extension from Pasadena to Montclair. The Final EIR for the project was certified by the Construction Authority Board in March 2013, and advanced engineering and environmental consulting work began in 2014. This two-year process would advance design for the project to a point where it would be ready for a design-build procurement. The foothill corridor extension would be a part of the Los Angeles County Metro Rail System and, when completed, would be

served by the Metro Gold Line. The Foothill Gold Line is being planned and implemented by the Gold Line Foothill Extension Construction Authority. Other regional transportation options that operate throughout the County include bicycle routes and park-and-ride facilities. The Pacific Electric Inland Empire Trail is located in the northern section of Montclair. Montclair, San Bernardino County, and neighboring cities continue to develop new transit alternatives to improve regional mobility.

San Bernardino Congestion Management Program

San Bernardino County adopted the Congestion Management Program (CMP) with passage of the Proposition 111 gas tax increase in June 1990. This allowed for the coordination of local land use planning and regional transportation improvement decisions. The CMP program falls under the jurisdiction of SANBAG. The performance standard for CMP intersections is Level of Service (LOS) E, and the following CMP intersection is located within the study area:

- Monte Vista Avenue at Arrow Highway

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

New Potentially Significant Impact. The 2006 NMDSP EIR found that the project would: 1) increase traffic on roadways and intersections serving the planning area and surrounding areas; 2) contribute to regional circulation infrastructure, including the I-10 freeway; and 3) adversely impact the level of service of intersections serving the plan are and surrounding neighborhoods and districts.

The addition of significant amounts of new residential development (2,688 additional dwelling units) and associated population would result in an increase in traffic on the surrounding transportation infrastructure, roadways, and intersections serving the Proposed Amendment area and its surroundings. A traffic impact analysis (TIA) for the Proposed Amendment will be prepared and summarized in the EIR. The TIA will contain updated baseline information and impact analysis. The TIA will conform to the methods and requirements of the City, and to the applicable CMP requirements. The EIR will present a summary of the existing setting, impacts and mitigation measures. As discussed in Section 1.1 above, in May 2006, the City of Montclair City Council certified the Final EIR for the NMDSP (City of Montclair 2006). The 2006 Program EIR is incorporated by

reference into this Initial Study and will also be included as applicable in the EIR. Potential impacts are considered to be a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

New Potentially Significant Impact. The 2006 NMDSP EIR found that the addition of significant amounts of new residential development and population would result in an increase in traffic on the surrounding transportation infrastructure, which was considered to be significant. A traffic impact analysis was conducted for the proposed project. The TIA conformed to the requirements of the Congestion Management Plan.

As noted above, the performance standard for CMP intersections is LOS E, and the Monte Vista Avenue/Arrow Highway intersection is the only CMP intersection located within the study area. The addition of new residential development (2,688 additional units) and associated population would result in an increase in traffic on the surrounding transportation infrastructure that may be significant. A TIA for the Proposed Amendment will be prepared and summarized in the EIR. The TIA will contain updated baseline information and impact analysis The TIA will conform to the methods and requirements and will analyze whether the Proposed Amendment would add trips to the CMP intersection at Monte Vista Avenue and Arrow Highway that would exceed CMP thresholds during peak hours as stated in the CMP manual. The EIR will present a summary of the existing traffic setting, impacts and mitigation measures. Impacts are considered to be a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

New Potentially Significant Impact. The 2006 NMDSP EIR found that the implementation of the NMDSP would have no impact to traffic patterns.

The addition of significant amounts of new residential development and population will result in an increase in traffic levels at surrounding airports. Therefore, impacts to local air traffic patterns are considered to be a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No New Impact/No Impact. The 2006 NMDSP EIR found that implementation of future projects under the NMDSP would result in new development patterns throughout the planning area. The safety of the patterns and infrastructure was assessed throughout the NMDSP development area by project engineers. Impacts were concluded to be potentially significant, but mitigable.

Future development under the Proposed Amendment would result in new development patterns and street design/infrastructure throughout the planning area to encourage walkability and bicycle circulation. Pedestrian corridors would be provided throughout the Proposed Amendment area, and dedicated bike lanes would be provided to encourage bicycle circulation throughout the planning area where feasible. By improving pedestrian and bicycle connections throughout the Project area, potential safety hazards to cyclists and pedestrians would be reduced or eliminated. Additionally, the safety of the patterns and infrastructure would be assessed and approved through the plan development/check process by City staff. As such, **no new impact/no impact** would occur due to increased traffic hazards in the plan area.

e) Would the project result in inadequate emergency access?

No New Impact/No Impact. The 2006 NMDSP EIR found that implementation of the NMDSP would result in new development patterns throughout the planning area. The safety of the patterns and infrastructure was assessed throughout the NMDSP development area by project engineers. Impacts were concluded to be potentially significant, but mitigable.

The Proposed Amendment would result in new development patterns and street design/infrastructure throughout the planning area. Emergency vehicle access to the planning area would be provided along Central Avenue, Moreno Street, Huntington Drive, Richton Street, and Monte Vista Avenue, at a minimum. Because the Proposed Amendment would result in modification of the existing roadway network or cause significant intersection operation impacts, the Proposed Amendment may affect existing emergency vehicle access. However, future development under the Proposed Amendment would be required to comply with applicable federal and state design standards. Project-level design plans would be reviewed and approved by the City for compliance with accessibility requirements and the City Fire Department would review design plans to ensure compliance with requirements for adequacy of emergency vehicle access. The

safety of the patterns and infrastructure would also be assessed and approved through the plan development/check process by City staff. Therefore, implementation of future development under the Proposed Amendment would have **no new impact/no impact** on emergency access to the planning area.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No New Impact/No Impact. The 2006 NMDSP EIR found that buildout of the NMDSP may result in an increase in hazards to pedestrians, bicyclists, and motorists, particularly near the railroad. The EIR also found that buildout of the NMDSP would provide a range of complementary land uses in close proximity to alternative modes of transportation, which in turn facilitates the use of transit versus individual motor vehicles. The EIR concluded that construction activities associated with buildout of the NMDSP would temporarily disrupt roadways and transit routes throughout the planning area, and may pose temporary hazards to motorists, pedestrians and cyclists.

As discussed above, Foothill Transit provides local transit service and regional transit connections between Montclair and destinations to the west in Pomona, the San Gabriel Valley, and downtown Los Angeles. These services include express routes, local routes, and school supplementary routes. Omnitrans provides public transit to the West Valley area of San Bernardino County. Its services include demand response for those who use ADA facilities. Riverside Transit Agency provides express service to downtown Riverside. The Metrolink San Bernardino line is the busiest of Southern California's seven Metrolink lines, running from downtown Los Angeles east through the San Gabriel Valley and the Inland Empire to San Bernardino. It is one of the three initial lines (along with the Santa Clarita and Ventura Lines) on the original Metrolink system.

As discussed above, Phase 2B of the Gold Line light rail service is proposed for construction from Azusa to the Montclair Transcenter (located on Arrow Highway in the planning area). Other regional transportation options that operate throughout the County include bicycle routes and park-and-ride facilities. The Pacific Electric Inland Empire Trail is located in the northern section of Montclair. Montclair, San Bernardino County, and neighboring cities continue to develop new transit alternatives to improve regional mobility.

Additionally, the 2006 NMDSP sets forth TOD land use regulations for the areas near the Montclair Transcenter, which is currently a stop on the Metrolink San Bernardino Line and is a planned future stop for the Metro Gold Line light rail line. Generally speaking, NMDSP, as currently designed, encourages a high level of pedestrian and bicycle

activity by promoting implementation of complete streets within the area as a means to facilitate development of pedestrian and bicycle corridors. The Montclair Transcenter provides an array of transit services, including bus and heavy rail public transit. The Montclair Transcenter is also the designated terminus for the Gold Line light rail service. On the north border of the Montclair Transcenter is the Pacific Electric Inland Empire Trail —a bicycle, running, horse riding and walking trail in the West Valley area of San Bernardino County, with expansive views and connections to community centers, parks, transit areas, and shopping and residential districts. The trail follows the old Pacific Electric Railway, a former, privately owned mass transit system in Southern California, also known as the Red Car system consisting of electrically powered streetcars, light-rail, and buses.

The Red Car system was the largest electric railway system in the world in the 1920s, declining only after regional planners agreed to construct a web of freeways across the region to accommodate population movement away from city centers to suburbia. Organized around the city centers of Los Angeles and San Bernardino, Red Cars connected cities in Los Angeles, Orange, Riverside, and San Bernardino Counties. When fully completed, the Pacific Electric Inland Empire Trail will run 21 miles east-west between Rialto and Claremont, with direct connection to the prestigious Claremont Colleges system of campuses, approximately 1 mile west of the Planning area. The Pacific Electric Inland Empire Trail has possibilities for connecting to a massive network of pathways that include the Santa Ana River Trail and San Jose Creek connecting to the San Gabriel River Trail.

The Proposed Amendment would continue to develop pedestrian and bicycle corridors throughout the planning area, interconnecting these corridors with planned City development of bicycle and pedestrian paths, including connection to the Pacific Electric Inland Empire Trail. The Proposed Amendment would continue to construct bike trails and pedestrian walkways throughout the planning area, incorporating bike lanes and recreation space to encourage a reduction in motor vehicle traffic. Future users may be encouraged to ride bicycles to the newly expanded and enhanced commercial uses. Clustering of new higher density residential uses around transit facilities would encourage the use of alternative transit like light rail and bus. The Proposed Amendment would not have an adverse effect on the existing transit, pedestrian, or bicycle facilities in the planning area. Any future increase in demand for bike lanes and bike parking would be addressed by the construction of bike corridors throughout the Proposed Amendment area and planned construction by the City of a bicycle corridor to the Pacific Electric Inland Empire Trail. Further, the Proposed Amendment would not conflict with any adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian

facilities. The Proposed Amendment is designed to support vehicle trip reduction efforts in the region by proposing TOD projects. The plan includes a number of components, including pedestrian-oriented neighborhoods, which will promote, rather than conflict with, policies regarding alternative transportation.

Mitigation measure T-7 was identified in Section 5.1 of the 2006 NMDSP EIR, but is also recommended mitigation for impacts caused by the Proposed Amendment. It is expected that implementation of mitigation measure **MM-T-1** would help reduce disruption to roadways and transit routes throughout the planning area.

MM-T-1 Project proponents shall designate a haul route and staging plan for review by the City that avoids sensitive noise receptors, such as schools, hospitals and elderly housing. The haul route must also have the purpose of avoiding conflicts between equipment and pedestrians and vehicles.

Thus, there would be **no new impact/no impact** to alternative transportation in the planning area.

3.17 Utilities and Service Systems

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☒	☐	☐	☐
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

Would the project:	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Setting

Wastewater. The Inland Empire Utilities Agency (IEUA), in conjunction with the City of Montclair Public Works Department, provides wastewater service and treatment to the Proposed Amendment area. The following two wastewater treatment facilities operated by IEUA serve the City of Montclair: (1) Regional Plant #1, which has a design flow of 44 million gallons per day (mgd) and is located at 2450 East Philadelphia Street, Ontario; and (2) the Carbon Canyon Water Reclamation Facility, which has a design flow of 11.4 mgd and is located at 14950 Telephone Avenue, Chino (IEUA 2015a; 2015b). Regional Plant #1 and the Carbon Canyon Water Reclamation Facility operates under the RWQCB Order No. R8-2009-0021, NPDES Permit No. CA8000409, which specifies wastewater treatment requirements for both facilities.

The IEUA 2010 Urban Water Management Plan states that by 2015, the IEUA has a projected treatment supply of 303.66 mgd (IEUA 2010).

Water. Potable and recycled water are provided by the Monte Vista Water District (MVWD) for most of the NMDSP area. A small portion of the area at the northwest corner is served by the Golden State Water Company. Both entities are under the regulatory obligations to treat the water to appropriate standards set by the U.S. EPA, the State Water Resources Control Board, and the RWQCB. The MVWD, who currently serves some 11,000 connections in a 30-square mile portion of the Chino Basin, provides water service in the Proposed Amendment area. The main source of water is the Chino Groundwater Basin.

The MVWD 2010 Urban Water Management Plan states that by 2015 the MVWD has a projected potable water supply of approximately 48.3 mgd (MVWD 2010).

Solid Waste. According to the California Integrated Waste Management Board (CIWMB), solid waste generated in the City of Montclair is routed to at least seven facilities, including three landfills.

The nearest landfill is the Mid-Valley Sanitary Landfill, located at 2390 North Alder Avenue, Rialto. As of 2009, the Mid-Valley Landfill has an estimated remaining capacity of 67,520,000 cubic yards with an approximate cease operation date of April 2033 (CalRecycle 2014).

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No New Impact/No Impact. The 2006 NMDSP EIR found that development accommodated by the NMDSP would increase flows through the existing collection infrastructure. The EIR also found that the development pursuant to the NMDSP would increase the volume of wastewater requiring treatment and change the makeup of wastewater requirement treatment.

The IEUA in conjunction with the City of Montclair Public Works Department provides wastewater service and treatment to the Proposed Amendment area. The following two wastewater treatment facilities operated by IEUA serve the City of Montclair: (1) the Regional Water Recycling Plant #1, which has a design flow of 44 mgd and is located at 2450 East Philadelphia Street, Ontario; and (2) the Carbon Canyon Water Recycling Facility, which has a design flow of 11.4 mgd and is located at 14950 Telephone Avenue, Chino (IEUA 2015a; 2015b). The Regional Water Recycling Plant #1 and the Carbon Canyon Water Recycling Facility operates under the RWQCB Order No. R8-2009-0021, NPDES Permit No. CA8000409, which specifies wastewater treatment requirements for both facilities.

The Proposed Amendment would introduce new residential and commercial land uses beyond that of the existing commercial and residential land uses within the NMDSP area and those allowed in the existing NMDSP, which means the Proposed Amendment would contribute additional sewage flows beyond those that currently occur. In the context of the millions of gallons treated per day by regional wastewater treatment plants, the Proposed Amendment's contribution would be low. Regardless, wastewater customers pay service connection fees and monthly service fees that are used at least in part by IEUA to meet its obligations under RWQCB Order R8-2009-0021 to provide the required level of wastewater treatment. Future development under the Proposed Amendment would not generate waste of a composition or in a manner that would exceed the wastewater treatment requirements of the RWQCB. All components of future projects would be designed consistent with wastewater conveyance regulations. Furthermore, the IEUA is continually upgrading its facilities to respond to increased development in the service area in general. To pay for the upgrades, the IEUA charges developers a fee based on the amount of new sewage going into the system. The fee is based on the equivalent

amount of sewage that a single-family dwelling unit would produce (measured as an EDU for equivalent dwelling unit). The fee is due upon the issuance of building permits. Future development under the Proposed Amendment would be subject to the fees charged by the IEUA. Therefore, **no new impact/no impact** would result from future development allowed under the Proposed Amendment.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

New Potentially Significant Impact. The 2006 NMDSP EIR found that development accommodated by the NMDSP would increase demand on water supply and water supply infrastructure and improvements to infrastructure would impact traffic operations.

Development allowed under the Proposed Amendment would connect to municipal water and wastewater services, which are operated and maintained by the MVWD and IEUA, respectively. These entities are under regulatory obligations to treat the water to appropriate standards set by the U.S. EPA, the State Water Resources Control Board, and the RWQCB. Because existing potable water and wastewater services are available, the Proposed Amendment would have no direct impact with respect to the construction of new water or wastewater treatment facilities.

The Proposed Amendment would result in 2,688 additional dwelling units in the planning area and an additional 782,285 square feet of commercial uses. Developments of that size require preparation of a water supply assessment. A discussion meeting these requirements will be included in the EIR. To the extent that future development under the Proposed Amendment results in an increase in demand for water or wastewater services, it could require the service providers to upgrade or expand their facilities. According to the MVWD 2010 Urban Water Management Plan and the IEUA 2010 Urban Water Management Plan, by 2015 the MVWD has a projected potable water supply of approximately 48.3 mgd, and IEUA has a projected treatment supply of 303.66 mgd (MVWD 2010; IEUA 2010). The EIR will determine the increase in water demand and total wastewater demand attributed to the Proposed Amendment.

Future development under the Proposed Amendment would be charged service connection fees and monthly usage fees by both districts, in part to continue providing adequate treatment capacity within their service areas. Should cumulative increases in demand within the service area require facility upgrades, MVWD and IEUA would include those in their capital improvement plans and environmental review of such

proposals would occur at that time. The impact is considered to be a **new potentially significant impact** for future development under the Proposed Amendment. As such, this issue will be studied further in the EIR.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

New Potentially Significant Impact. The 2006 NMDSP EIR found that the stormwater infrastructure in place at the time the EIR was written was sufficient to handle the flows from the new development. The composition of the stormwater was expected to improve as open parking areas were converted to residential units.

Certain improvements associated with future development under the Proposed Amendment would increase impervious area or create additional stormwater runoff. Existing stormwater infrastructure may be insufficient to handle the flows from the new development. The composition of the stormwater may change, but is expected to improve as open parking areas are converted to residential uses. Regardless, future development under the Proposed Amendment could increase stormwater runoff or require the construction of new stormwater drainage facilities. Impacts are considered to be a **new potentially significant impact**. As such, this issue will be studied further in the EIR.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

New Potentially Significant Impact. The 2006 NMDSP EIR found that development accommodated by the NMDSP would increase demand on water supply and water supply infrastructure and improvements to infrastructure would impact traffic operations.

As previously described, water service is provided by the MVWD. The EIR will evaluate how much future development under the Proposed Amendment would increase water demand in the Proposed Amendment area and whether the MVWD would have the ability to accommodate this increase in water demand, as discussed under response 3.17(b). Impacts are considered to be a **new potentially significant impact** for future development under the Proposed Amendment. As such, this issue will be studied further in the EIR.

e) Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No New Impact/No Impact. The 2006 NMDSP EIR found that development accommodated by the NMDSP would increase demand on water supply and water supply infrastructure and improvements to infrastructure would impact traffic operations.

As discussed under response 3.17(b), the Regional Water Recycling Plant #1 and the Carbon Canyon Water Recycling Facility have a combined available capacity of 20.4 mgd, based on designed treatment capacity and average daily treatment flow. As the proposed residential and commercial land uses would be expected to generate substantial wastewater, the IEUA would be expected to have sufficient treatment capacity to serve future development under the Proposed Amendment in addition to existing commitments. The IEUA is continually upgrading its facilities to respond to increased development in the service area in general. To pay for the upgrades, the IEUA charges developers a fee based on the amount of new sewage going into the system. The fee is based on the equivalent amount of sewage that a single-family dwelling unit would produce (measured as an EDU for equivalent dwelling unit). The fee is due upon the issuance of building permits. Future development under the Proposed Amendment would be subject to the fees charged by the IEUA. Therefore, **no new impact/no impact** would result from future development allowed under the Proposed Amendment.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

No New Impact/No Impact. The 2006 NMDSP EIR found that implementation of the NMDSP would increase solid waste generation and demand for disposal capacity. The City of Montclair and surrounding areas would continue to increase the amount of solid waste going into the San Timateo Sanitary Landfill, Victorville Sanitary Landfill, and Olinda Alpha Landfill and the EIR stated that these landfills have finite capacities and new landfills are increasingly difficult to site. However, the remaining capacities at these landfills was found to be sufficient to accept the waste of future development under the NMDSP; therefore, impacts were considered to be less than significant.

Solid waste disposal services go to the nearest landfill. The nearest landfill is the Mid-Valley Sanitary Landfill, located at 2390 North Alder Avenue, Rialto. As of 2009, the Mid-Valley Landfill has an estimated remaining capacity of 67,520,000 cubic yards with an approximate cease operation date of April 2033 (CalRecycle 2014). The Proposed

Amendment would produce solid waste during construction from demolition of existing pavement and landscaping, as well as typical building construction processes. The Proposed Amendment would also generate solid waste during the operation of future development. Additionally, there are Material Recovery Facilities (MRF), which sort and process recyclable materials. With a continuous increase in the amount of recyclables being discarded, MRFs play an important role in the process of collecting and redistributing recyclables to third parties, as well as reintroducing recycled products to the general public. Local MRF's in the Proposed Amendment area include the West Valley Transfer Station, located at 13373 Napa Street, Fontana. Therefore, the planning area would be served by a landfill with sufficient permitted capacity to accommodate the future development under the Proposed Amendment's solid waste disposal needs, as well as a MRF to accommodate future recycled materials disposal needs. Thus, **no new impact/no impact** would result from future development allowed under the Proposed Amendment.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

No New Impact/No Impact. The 2006 NMDSP EIR found that implementation of the NMDSP would increase solid waste generation and demand for disposal capacity.

Construction and operation associated with future development under the Proposed Amendment would be required to comply with federal, state, and local statutes and regulations related to solid waste. Solid waste generated by future development under the Proposed Amendment would be disposed of in accordance with the City's Municipal Code. Additionally, future development under the Proposed Amendment would not interfere with the California Integrated Waste Management Act which requires that local municipalities implement programs to divert at least 50 percent of their solid waste from landfills. Therefore, future development under the Proposed Amendment would result in **no new impact/no impact** regarding compliance with the regulations related to solid waste.

References

CalRecycle. 2014. Facility/Site Summary Details: Mid-Valley Sanitary Landfill. Accessed January 5, 2015. http://www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0055/Detail.

IEUA (Inland Empire Utilities Agency). 2010. *2010 Urban Water Management Plan*. http://www.ieua.org/urban-water-management-plan-2010-june-01-2011/.

IEUA. 2015a. "Regional Water Recycling Plant #1." Accessed January 5, 2015. http://www.ieua.org/facilities/rp-1/.

IEUA. 2015b. "Carbon Canyon Water Recycling Facility." Accessed January 5, 2015. http://www.ieua.org/facilities/carbon-canyon-water-recycling-facility/.

MVWD. 2010. 2010 Urban Water Management Plan. Accessed January 5, 2015. http://www.mvwd.org/pubdocs.cfm?task=detail&ID=30.

3.18 Mandatory Findings of Significance

	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐
a. Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☒	☐	☐	☐

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

New Potentially Significant Impact. The Proposed Amendment area is located in a fully developed and urbanized area, and the Proposed Amendment area has been developed for approximately 40 years with commercial and residential uses. The proposed improvements in the Proposed Amendment area would not degrade the quality of the environment. As the planning area has been developed for nearly a half century, it does not currently support substantial wildlife or fish habitat, fish or wildlife populations, or plant and wildlife communities. The sparsely scattered ornamental vegetation does not constitute a contiguous plant community and does not provide substantial amounts of habitat for native wildlife species. Furthermore, much of this vegetation would remain in place under future development. However, as described in Section 3.4, Biological Resources, the CNDDB Occurrence Report found that sensitive wildlife and plant species have the potential to occur on or near the Proposed Amendment area. Thus, future development allowed under the Proposed Amendment would have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number of a rare or endangered plant or animal, or restrict the range of a rare or endangered plant or animal. Therefore, future development under the Proposed Amendment could result in a **new potentially significant impact** on sensitive wildlife and plant species. As such, this issue will be studied further in the EIR.

As described in Section 3.5, Cultural Resources, in the event that sub-surface cultural resources were to be discovered during grading/construction activities, the resource would be preserved in accordance with mitigation measures **MM-CR-1** through **MM-CR-3**. However, the Proposed Amendment area may support important examples of major periods in California history or prehistory. The EIR would require evaluation of any buildings, structures, and objects over 45 years of age that may be impacted by actions associated with the Proposed Amendment. Evaluations must consider the historical significance and integrity of the resource within the appropriate historic context, and in consideration of both the California Register of Historical Resources (CRHR) and City of Montclair's local landmark designation criteria (Municipal Code 11.56.060). Therefore, future development under the Proposed Amendment could result

in a **new potentially significant impact** on important examples of California history. As such, this issue will be studied further in the EIR.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

New Potentially Significant Impact. In an effort to determine whether or not future development allowed under the Proposed Amendment's potential impacts are cumulatively considerable, a regional plan approach was used to consider the Proposed Amendment with anticipated growth in the region. The Proposed Amendment would result in potentially significant impacts to aesthetics, air quality, biological resources, cultural resources, greenhouse gas emissions, hydrology and water quality, noise and vibration, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. In some cases, new mitigation measures have been identified that would reduce these impacts to a less-than-significant level. Furthermore, because the Proposed Amendment creates new housing opportunities (2,688 additional units) and would add substantial numbers of residents and employees (see Section 3.13, Population and Housing), the Proposed Amendment would cumulatively contribute to population-driven impacts (such as air quality, greenhouse gas emissions, population and housing, recreation facilities, public services, traffic and transportation and utilities and service systems). All reasonably foreseeable future development in the City would be subject to the same land use and environmental regulations that have been described throughout this document. Furthermore, all development projects are guided by the policies identified in the City's General Plan, the NMDSP and regulations established in the Montclair Municipal Code. Therefore, with the adoption of the GPA, NMDSP, and a rezone to the Zoning Map, the Proposed Amendment would be in compliance with applicable land use. Furthermore, environmental regulations would ensure that environmental effects associated with future development under the Proposed Amendment do not combine with effects from reasonably foreseeable future development in the City to cause cumulatively considerable significant impacts. Nonetheless, because the Proposed Amendment creates new housing opportunities and would add substantial numbers of residents and employees to the Proposed Amendment area, cumulative impacts are considered to be a **new potentially significant impact** until these issues can be further studied in the EIR to determine if the Proposed Amendment would cumulatively contribute to population-driven impacts.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

New Potentially Significant Impact. The Proposed Amendment could have an environmental effect that would cause significant adverse effects on human beings either directly or indirectly. The increase in population could adversely affect aesthetics, air quality, biological resources, cultural resources, greenhouse gas emissions, hydrology and water quality, noise and vibration, population and housing, public services, recreation, transportation and traffic, utilities and service systems, and other issue areas, as noted throughout this IS. Therefore, impacts are considered to be a **new potentially significant impact**. This issue will be discussed further in the EIR.

d) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?

New Potentially Significant Impact. The project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals and may impact humans by increasing the population in the area, and causing other indirect impacts, as noted throughout this IS. Therefore, impacts are considered to be a **new potentially significant impact**. This issue will be discussed further in the EIR.

INTENTIONALLY LEFT BLANK

4 REPORT PREPARERS

City of Montclair

Edward C. Starr, City Manager
Marilyn J. Staats, Deputy City Manager/Executive Director
Michael C. Hudson, PE, Public Works Director/City Engineer
Michael Diaz, City Planner
Mikey D. Fuentes, Administrative Analyst

Dudek

Ruta K. Thomas, REPA, Project Manager
Samantha Murray, RPA, Archaeologist/Architectural Historian
Candice D. Magnus, Environmental Analyst
Andrew Greis, GIS Technician
Devin Brookhart, Publications Specialist Lead
Taylor Eaton, Publications Specialist

INTENTIONALLY LEFT BLANK

North Montclair Downtown Specific Plan Amendment Project (9633)
Agency IS/NOP Distribution List (09-30-16)

SOUTHERN CAL EDISON
THIRD PARTY ENV REVIEW
2244 WALNUT GROVE AVENUE
ROSEMEAD, CA 91770

MONTE VISTA WATER DISTRICT
10575 CENTRAL AVENUE
MONTCLAIR, CA 91763-4810

COMMUNITY DEVT DIRECTOR
CITY OF UPLAND
406 EUCLID AVE
UPLAND, CA 91785-0460

ONTARIO-MONTCLAIR SCHOOL DIST
950 W. D STREET
ONTARIO, CA 91762-3026

INLAND EMPIRE UTILITIES AGENCY
6075 KIMBAL AVE
CHINO, CA 91708

STATE CLEARINGHOUSE
1400 TENTH STREET RM 121
SACRAMENTO, CA 95814
(15 Printed Copies of IS/NOP with appendices on CD with one copy of NOC)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION
3737 MAIN STREET, STE 500
RIVERSIDE, CA 92501

AL SHAMI, PROJECT MANAGER
DEPT OF TOXIC SUBSTANCES CONTROL
5796 CORPORATE AVE
CYPRESS, CA 90630

MONTCLAIR CHAMBER OF COMMERCE
8880 BENSON AVENUE, STE 110
MONTCLAIR, CA 91763-1660

OFFICE OF HISTORIC PRESERVATION
ATTN: RON PARSONS OR CEQA CONTACT
1725 23RD STREET, SUITE 100SACRAMENTO, CA 95816

SAN BERNARDINO COUNTY
LAND USE SERVICES DEPARTMENT – CURRENT PLANNING DIVISION
385 N. ARROWHEAD AVENUE, 1ST FLOOR
SAN BERNARDINO, CA 92415

SO CALIFORNIA GAS COMPANY
1981 W. LUGONIA AVENUE
REDLANDS, CA 92374-9720

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS
INTER-GOVERNMENTAL REVIEW
818 WEST 7TH STREET, 12TH FLOOR
LOS ANGELES, CA 90017

STATE OF CALIFORNIA
DEPT OF TRANSPORTATION, DISTRICT 8
464 W. FOURTH STREET, FL 6
SAN BERNARDINO, CA 92401-1400

CHAFFEY JOINT UNION HSD
211 W FIFTH STREET
ONTARIO, CA 91762-1653

STATE WATER RESOURCES CONTROL BOARD
1001 I STREETSACRAMENTO, CA 95812-0100

LOCAL GOVERNMENT – CEQA PROGRAM SUPERVISOR
SOUTH COAST AQMD
21865 COPLEY DRIVE
DIAMOND BAR, CA 91765-4182

CA DEPT OF FISH AND WILDLIFE
3602 INLAND EMPIRE BLVD., STE C-220
ONTARIO, CA 91764

SOUTHERN CALIFORNIA EDISON
LOCAL PUBLIC AFFAIRS
1351 E. FRANCIS STREET
ONTARIO, CA 91761

BURRTEC WASTE INDUSTRIES
1250 E. HOLT AVENUE
POMONA, CA 91767-5818

NATIVE AMERICAN HERITAGE COMMISSION
ATTN: DEBBIE TREADWAY
1556 HARBOR BOULEVARD
WEST SACRAMENTO, CA 95691

CITY OF MONTCLAIR - COMM DEVT DEPARTMENT
ATTN: MICHAEL DIAZ, CITY PLANNER
PLANNING DIVISON
5111 BENITO STREET
MONTCLAIR, CA 91763

VERIZON CALIFORNIA
1400 E. PHILLIPS BOULEVARD
POMONA, CA 91766-5432

COMMUNITY DEVT DIRECTOR
CITY OF CLAREMONT
207 HARVARD AVE
CLAREMONT, CA 91711-0880

SAN BERNARDINO ASSOC OF GOVTS
1170 W. 3RD STREET, FL 2
SAN BERNARDINO CA 92410-1715

CLERK OF THE BOARD OF SUPERVISORS
COUNTY OF SAN BERNARDINO
385 N. ARROWHEAD AVENUE, FL 2
SAN BERNARDINO, CA 92415

STATE LANDS COMMISSION
100 HOWE AVENUE, STE 100-S
SACRAMENTO, CA 95825

US FISH & WILDLIFE SERVICE
2177 SALK AVENUE, STE 250
CARLSBAD, CA 92008

DANIEL F. MCCARTHY, MS, RPA, DIRECTOR
SAN MANUEL BAND OF MISSION INDIANS
26569 COMMUNITY CENTER DRIVE
HIGHLAND, CA 92346

TIME WARNER CABLE
1260 S. DUPONT AVENUE
ONTARIO, CA 91761-1561

METROPOLITAN TRANSPORTATION AUTHORITY
CEQA REVIEW COORDINATION
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012

MONTCLAIR BRANCH LIBRARY
9955 FREMONT AVENUE
MONTCLAIR, CA 91763

(CTY: 5 Printed Copies of IS/NOP with appxdices on CD + 2 CD Copies of entire IS/NOP)

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Memorandum

Date: October 3, 2016

To: All Reviewing Agencies

From: Scott Morgan, Director

Re: SCH # 2016101001

Norht Montclair Downtown Specific Plan Amendment Project

The State Clearinghouse forwarded the above-mentioned project to your office for review on **October 3, 2016** incorrectly noting the project title and document type as *Notice of Determination*. It has come to our attention that the document is actually a **Notice of Preparation**.

The correct project title is:

North Montclair Downtown Specific Plan Amendment Project

We apologize for this error and request that you note the above information for your files. All other project information remains the same.

CITY OF MONTCLAIR
OCT 06 2016
COMMUNITY DEVELOPMENT
DEPARTMENT

cc: Michael Diaz
City of Montclair
5111 Benito Street
Montclair, CA 91763

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Notice of Preparation

October 3, 2016

To: Reviewing Agencies

Re: North Montclair Downtown Specific Plan Amendment Project
SCH# 2016101001

Attached for your review and comment is the Notice of Preparation (NOP) for the North Montclair Downtown Specific Plan Amendment Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Michael Diaz
City of Montclair
5111 Benito Street
Montclair, CA 91763

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2016101001
Project Title North Montclair Downtown Specific Plan Amendment Project
Lead Agency Montclair, City of

Type NOP Notice of Preparation

Description The key project components of the proposed Amendment include: 1) replace the existing regulating plan in the NMDSP with a new regulating plan and zones; 2) extend the NMDSP westerly boundary to incorporate an area to the southwest at Arrow Highway and Monte Vista Avenue; 3) extend the NMDSP easterly boundary to incorporate 22 acres of land on the west side of Central Avenue at Richton Street; 4) assign land use designations on several properties located along the west side of Central Avenue; 5) introduce a two new land use overlays, the Transition Overlay and the Shopfront Overlay; 6) alter the development potential for the planning area to allow for approx. 2,688 additional residential dwelling units and approx. 782,285 additional sq. ft. of non-residential transit-oriented development; 7) establish minimum intensity standards for the NMDSP area; 8) provide a new street alignment at Arrow Highway and Fremont Ave.; 9) reconfigure the street pattern at Moreno Street and Fremont Street; 10) update the street pattern on the northeast corner of Arrow Highway and Vista Avenue; 11) update the street pattern and park at the northeast corner of Monte Vista Avenue and Moreno Street; 12) update the street pattern north of the railroad right-of-way; 13) relocate the parking structures; 14) establish minimum lot and maximum building size standards; 15) allow for tandem parking standards; 16) remove references to single-family residential uses; 17) provide new signage standards; 18) provide public realm and landscape standards; and 19) update the exhibits in the NMDSP.

The proposed project would require a General Plan Amendment to allow for the revision of the official boundary of the NMDSP site plan and other map-based exhibits reflecting the expansion area at the southwest corner of Arrow Highway and Monte Vista Ave. This area would be re-designated in the General Plan from Business Park to Planned Development. The proposed project would also require a zone change in the official City of Montclair Zoning Map and other exhibits to reflect the new zoning of the southwest corner of Arrow Highway and Monte Vista Avenue from MI Limited Manufacturing to Specific Plan with the land use zones of Town Center along Arrow Hwy and Corridor Residential on the rest of the property. A Specific Plan Amendment as described above. Additionally, the project proposes to rescind the Turner Montclair Specific Plan, annex the territory that was previously within the Turner Montclair Specific Plan into the North Montclair Downtown Specific Plan, and apply the new North Montclair Downtown Specific Plan land use designations and regulations to that area. This area is currently designated as the Turner Montclair Specific Plan (1990). Other regulatory agencies that may also require permits or other approvals for the Proposed Amendment include the Airport LAnd Use Commission for Cable Airport and Ontario International Airport, the Native American Heritage Commission for the Assembly Bill 52 consultation process, and the CA Native American tribes for the Senate Bill 18 consultation process.

Document Details Report
State Clearinghouse Data Base

Lead Agency Contact

Name	Michael Diaz		
Agency	City of Montclair		
Phone	909-625-9432	***Fax***	
email			
Address	5111 Benito Street		
City	Montclair	***State*** CA	***Zip*** 91763

Project Location

County	San Bernardino
City	Montclair
Region	
Cross Streets	Moreno & Monte Vista; Moreno & Central; Monte Vista & Huntington; Central & Huntington
Lat / Long	34° 05' 19.29" N / 117° 41' 53.77" W
Parcel No.	numerous
Township	***Range*** ***Section*** ***Base***

Proximity to:

Highways	I-10
Airports	Cable Airport/Ontario Intl. Airp
Railways	Mentrolink/MNSF
Waterways	San Antonio Wash
Schools	Multiple
Land Use	North Montclair Downtown Specific Plan - Neighborhood Residential (NR), Corridor Residential (CR), Town Center (TC), Business

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Economics/Jobs; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Landuse; Cumulative Effects; Growth Inducing; Minerals

Reviewing Agencies Resources Agency; Department of Conservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 6; Department of Housing and Community Development; Office of Emergency Services, California; Native American Heritage Commission; Public Utilities Commission; California Highway Patrol; Caltrans, Division of Aeronautics; Caltrans, District 8; Air Resources Board; Air Resources Board, Transportation Projects

Date Received 10/03/2016 ***Start of Review*** 10/03/2016 ***End of Review*** 11/01/2016

Note: Blanks in data fields result from insufficient information provided by lead agency.

NM

NOP Distribution List

County: San Bernardino

SCH# 2016101001

esources Agency

- Resources Agency
  Nadell Gayou
- ☐ Dept. of Boating & Waterways
  Denise Peterson
- ☐ California Coastal Commission
  Elizabeth A. Fuchs
- ☐ Colorado River Board
  Lisa Johansen
- ■ Dept. of Conservation
  Elizabeth Carpenter
- ☐ California Energy Commission
  Eric Knight
- ☐ Cal Fire
  Dan Foster
- ☐ Central Valley Flood Protection Board
  James Herota
- ☐ Office of Historic Preservation
  Ron Parsons
- Dept of Parks & Recreation
  Environmental Stewardship Section
- ☐ California Department of Resources, Recycling & Recovery
  Sue O'Leary
- ☐ S.F. Bay Conservation & Dev't. Comm.
  Steve Goldbeck
- ■ Dept. of Water Resources
  Resources Agency
  Nadell Gayou

Fish and Game

- ☐ Depart. of Fish & Wildlife
  Scott Flint
  Environmental Services Division
- ☐ Fish & Wildlife Region 1
  Curt Babcock
- ☐ Fish & Wildlife Region 1E
  Laurie Harnsberger
- ☐ Fish & Wildlife Region 2
  Jeff Drongesen
- ☐ Fish & Wildlife Region 3
  Craig Weightman
- ☐ Fish & Wildlife Region 4
  Julie Vance
- ☐ Fish & Wildlife Region 5
  Leslie Newton-Reed
  Habitat Conservation Program
- ■ Fish & Wildlife Region 6
  Tiffany Ellis
  Habitat Conservation Program
- ☐ Fish & Wildlife Region 6 I/M
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- ☐ Dept. of Fish & Wildlife M
  William Paznokas
  Marine Region

Other Departments

- ☐ Food & Agriculture
  Sandra Schubert
  Dept. of Food and Agriculture
- ☐ Depart. of General Services
  Public School Construction
- ☐ Dept. of General Services
  Cathy Buck/George Carollo
  Environmental Services Section
- ☐ Delta Stewardship Council
  Kevan Samsam
- ■ Housing & Comm. Dev.
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- ☐ Delta Protection Commission
  Erik Vink
- ■ OES (Office of Emergency Services)
  Monique Wilber
- ■ Native American Heritage Comm.
  Debbie Treadway
- ■ Public Utilities Commission
  Supervisor
- ☐ Santa Monica Bay Restoration
  Guangyu Wang
- ☐ State Lands Commission
  Jennifer Deleong
- ☐ Tahoe Regional Planning Agency (TRPA)
  Cherry Jacques

Cal State Transportation Agency CalSTA

- ■ Caltrans - Division of Aeronautics
  Philip Crimmins
- ☐ Caltrans – Planning HQ LD-IGR
  Terri Pencovic
- ■ California Highway Patrol
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- ☐ Caltrans, District 1
  Rex Jackman
- ☐ Caltrans, District 2
  Marcelino Gonzalez
- ☐ Caltrans, District 3
  Eric Federicks – South
  Susan Zanchi - North
- ☐ Caltrans, District 4
  Patricia Maurice
- ☐ Caltrans, District 5
  Larry Newland
- ☐ Caltrans, District 6
  Michael Navarro
- ☐ Caltrans, District 7
  Dianna Watson
- ■ Caltrans, District 8
  Mark Roberts
- ☐ Caltrans, District 9
  Gayle Rosander
- ☐ Caltrans, District 10
  Tom Dumas
- ☐ Caltrans, District 11
  Jacob Armstrong
- ☐ Caltrans, District 12
  Maureen El Harake

Cal EPA

Air Resources Board

- ■ Airport & Freight
  Cathi Slaminski
  - ■ Transportation Projects
    Nesamani Kalandiyur
  - ☐ Industrial/Energy Projects
    Mike Tollstrup
- ☐ State Water Resources Control Board
  Regional Programs Unit
  Division of Financial Assistance
- ☐ State Water Resources Control Board
  Cindy Forbes – Asst Deputy
  Division of Drinking Water
- ☐ State Water Resources Control Board
  Div. Drinking Water #_____
- ☐ State Water Resources Control Board
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- ☐ State Water Resouces Control Board
  Phil Crader
  Division of Water Rights
- ☐ Dept. of Toxic Substances Control
  CEQA Tracking Center
- ☐ Department of Pesticide Regulation
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- ☐ RWQCB 1
  Cathleen Hudson
  North Coast Region (1)
- ☐ RWQCB 2
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- ☐ RWQCB 3
  Central Coast Region (3)
- ☐ RWQCB 4
  Teresa Rodgers
  Los Angeles Region (4)
- ☐ RWQCB 5S
  Central Valley Region (5)
  - ☐ RWQCB 5F
    Central Valley Region (5)
    Fresno Branch Office
  - ☐ RWQCB 5R
    Central Valley Region (5)
    Redding Branch Office
- ☐ RWQCB 6
  Lahontan Region (6)
  - ☐ RWQCB 6V
    Lahontan Region (6)
    Victorville Branch Office
- ☐ RWQCB 7
  Colorado River Basin Region (7)
- ☐ RWQCB 8
  Santa Ana Region (8)
- ☐ RWQCB 9
  San Diego Region (9)

- ☐ Other _____
  _____
  _____
- ☐ _____
  Conservancy

Last Updated 7/19/2016

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
PLANNING (MS 725)
464 WEST 4th STREET, 6th FLOOR
SAN BERNARDINO, CA 92401-1400
PHONE (909) 388-7017
FAX (909) 383-5936
TTY 711
www.dot.ca.gov/dist8

Serious Drought.
Help save water!

October 5, 2016 **File: 08-SBd-10-PM 0.3-1.7**

Michael Diaz
City of Montclair
5111 Benito Street
Montclair, CA 91763

North Montclair Downtown Specific Plan Amendment – Notice of Preparation of a Draft Environmental Impact Report

Dear Mr. Diaz:

Thank you for providing the California Department of Transportation (Caltrans) the opportunity to review and comment on the Notice of Preparation of a Draft Environmental Impact Report (DEIR) for the City of Montclair North Montclair Downtown Specific Plan Amendment (NMDSP). The proposed amendment would alter the Montclair Downtown area that was defined in the NMDSP. Montclair's Downtown is an approximately 150-acre subset of the 640-acre NMDSP, bound by Huntington Drive on the north, Monte Vista Avenue on the west, Moreno Street on the south, and Central Avenue on the east. The amendment proposes approximately additional 2,688 dwelling units and 782,285 square feet of commercial development.

In General, Caltrans supports efforts to increase density of infill development and/or redevelopment. This will help meet our Goal of Sustainability, Livability and Economy, where long lasting, smart mobility decisions are made that improve the environment, support a vibrant economy, and build communities.

As the owner and operator of the State Highway System (SHS), it is our responsibility to coordinate and consult with local jurisdictions when proposed development may impact our facilities. As the responsible agency under the California Environmental Quality Act, it is also our responsibility to make recommendations to offset associated impacts with the proposed project. Although the project is under the jurisdiction of the City of Montclair, due to the project's potential impact to the State facilities, it is also subject to the policies and regulations that govern the SHS.

We recommend a scoping meeting in the preceding DEIR, prior to the preparation of the Traffic Impact Analysis (TIA), to discuss any potential issues, and accurately evaluate the extent of potential impacts of the project to the operational characteristics of the existing State facilities. Additionally, we recommend the TIA be submitted prior to the circulation of the DEIR to ensure

timely review of the submitted materials. (See *Caltrans Guide for the Preparation of Traffic Impact Studies* at http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf). We offer the following comments:

1. All State facilities within 5-mile radius of the Project should be analyzed in the TIA. Additionally, a Synchro analysis, an Intersection Control Evaluation, and a queuing analysis are required to be reviewed by Caltrans. The data used in the TIA should not be more than 2 years old, and shall be based on the Southern California Association of Governments 2016 Regional Transportation Plan Model. Use the Highway Capacity Manual (HCM) 2010 methodology for all traffic analyses. **Submit three hard copies of the TIA and appendices, three electronic files, and a Synchro analysis for review.**

Caltrans is committed to providing a safe transportation system for all users. We encourage the City to embark a safe, sustainable, integrated and efficient transportation system and complete street to enhance California's economy and livability. A pedestrian/bike-friendly environment served by multimodal transportation would reduce traffic congestion prevalent in the surrounding areas. (See *Complete Street Implementation Action Plan 2.0* at http://www.dot.ca.gov/hq/tpp/offices/ocp/docs/CSIAP2_rpt.pdf).

2. We recommend that the City take advantage of currently available incentive programs, technical, and financial assistance from South Coast Air Quality Management District to implement efficiency measures and other low emission technology. Consider using energy efficient products, new lighting technology, "super-compliant" coatings, tree planting and the use of lighter colored roofing and paving materials which reduce energy usage by lowering the ambient temperature in the design of the new developments.

3. Prepare Transportation Demand Management (TDM) ordinance to reduce the demand for roadway travel, particularly in single occupancy vehicles. The TDM strategies may consist of parking pricing, ridesharing, car sharing, and transit use. Provide preferential parking for vanpools and carpools, price the parking and/or reduce free parking for employees, as well as secure and convenient bicycle parking within the project area. The TDM may also include bike-share stations in Transit hubs, Transit Oriented Development, and high density areas.

4. Promote the use of alternative transportation systems by implementing the Class IV Protected Bikeways, particularly on the truck routes and high density employment/commercial areas. Consider using the roadway configurations and design standards found in the National Association of City Transportation Officials' Urban Street Design Guide and the Urban Bikeway Design Guide. Provide bike parking in compliance with the City's established standards. These standards can establish the required number and types of long-term and short term bicycle parking spaces in the commercial and

residential visitor-attracting land uses. For the commercial, office, and mixed use development, consider requiring shower facilities and bicycle storage. Within the commercial, retail, and transportation hubs, design the facilities to easy bicycle access through the sites.

5. Design the local streets to serve vehicular and pedestrian circulation equally, and for safe pedestrian friendly environment. Consider both Americans with Disability Act and California Highway Design Manual standards and requirements to provide transportation routes for all users and modes, including pedestrian and bicyclists. "A Policy on Geometric Design of Highways and Streets," issued by AASHTO, and the "Highway Capacity Manual", published by the Transportation Research Board contain pedestrian LOS criteria. These are means of measuring the ability of the existing pedestrian facilities to provide pedestrian mobility and to determine the need for improvements expansions.

6. Provide a continuous multi-modal circulation system throughout the City, specifically for pedestrians, allowing current/future residents, employees, and guests to access the attraction places. A pedestrian friendly environment might have urban street frontages, shaded pedestrian links, and open spaces/pocket parks with the high visibility crosswalks. Consider no car zone in downtown area, and installing traffic calming devices, such as signage, road bulbs, chicanes, raised crosswalks, and speed humps and reducing curb-to-curb road widths and employing roadway design features such as islands, pedestrian refuges, and pedestrian count-down signal as needed and appropriate to improve safety and to enhance walkability within downtown.

7. Relegate the parking spaces to the back of the buildings and locate preferential parking for vanpools and carpools, along with, secure, visible, and convenient bicycle parking/racks accessible to retail and office locations. Consider installing electric vehicle charging stations, and locate parking space for low-emitting, fuel-efficient, alternative-fueled vehicle visitor parking in commercial and office uses.

These recommendations are preliminary and summarize our review of materials provided for our evaluation. If you have any questions regarding this letter, please contact Adrineh Melkonian (909) 806-3928 or myself at (909) 383-4557.

Sincerely,

MARK ROBERTS
Office Chief
Intergovernmental Review, Community and Regional Planning

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Fax (916) 373-5471
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

Edmund G. Brown Jr., Governor

CITY OF MONTCLAIR
OCT 13 2016
COMMUNITY DEVELOPMENT DEPARTMENT

October 10, 2016

Michael Diaz
City of Montclair
5111 Beinot Street
Montclair, CA 91763

sent via e-mail:
mdiaz@cityofmontclair.org

RE: SCH# 2016101001; North Montclair Downtown Specific Plan Amendment Project, Notice of Preparation for Draft Environmental Impact Report, San Bernardino County, California

Dear Mr. Diaz:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a **separate category of cultural resources**, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends **lead agencies consult with all California Native American tribes** that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws**.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    - **a.** A brief description of the project.
    - **b.** The lead agency contact information.
    - **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).
    - **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A **lead agency** shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
    - **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
    - **a.** Alternatives to the project.
    - **b.** Recommended mitigation measures.
    - **c.** Significant effects. (Pub. Resources Code § 21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
    - **a.** Type of environmental review necessary.
    - **b.** Significance of the tribal cultural resources.
    - **c.** Significance of the project's impacts on tribal cultural resources.
    - **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
    - **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
    - **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    - **a.** The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    - **b.** A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    - **a.** Avoidance and preservation of the resources in place, including, but not limited to:
        - **i.** Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
   i. Protecting the cultural character and integrity of the resource.
   ii. Protecting the traditional use of the resource.
   iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
   a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
   b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
   c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

   This process should be documented in the Cultural Resources section of your environmental document.

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires **local governments** to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
   a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
   b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    - **a.** If part or all of the APE has been previously surveyed for cultural resources.
    - **b.** If any known cultural resources have been already been recorded on or adjacent to the APE.
    - **c.** If the probability is low, moderate, or high that cultural resources are located in the APE.
    - **d.** If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    - **a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    - **b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    - **a.** A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    - **b.** A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    - **a.** Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    - **b.** Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    - **c.** Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

cc: State Clearinghouse

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

October 14, 2016

mdiaz@cityofmontclair.org
Mr. Michael Diaz, City Planner
City of Montclair – Community Development Department
5111 Benito St.,
Montclair, CA 91763

Notice of Preparation of a CEQA Document for the
North Montclair Downtown Specific Plan Amendment Project

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. The SCAQMD staff's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the Draft EIR. Please send the SCAQMD a copy of the Draft EIR upon its completion. Note that copies of the Draft EIR that are submitted to the State Clearinghouse are not forwarded to the SCAQMD. Please forward a copy of the Draft EIR directly to SCAQMD at the address in our letterhead. **In addition, please send with the Draft EIR all appendices or technical documents related to the air quality and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files. These include original emission calculation spreadsheets and modeling files (not Adobe PDF files). Without all files and supporting air quality documentation, the SCAQMD will be unable to complete its review of the air quality analysis in a timely manner. Any delays in providing all supporting air quality documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. More recent guidance developed since this Handbook was published is also available on SCAQMD's website here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). SCAQMD staff also recommends that the Lead Agency use the CalEEMod land use emissions software. This software has recently been updated to incorporate up-to-date state and locally approved emission factors and methodologies for estimating pollutant emissions from typical land use development. CalEEMod is the only software model maintained by the California Air Pollution Control Officers Association (CAPCOA) and replaces the now outdated URBEMIS. This model is available free of charge at: www.caleemod.com.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the analysis.

The SCAQMD has also developed both regional and localized significance thresholds. The SCAQMD staff requests that the lead agency quantify criteria pollutant emissions and compare the results to the recommended regional significance thresholds found here: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. In addition to analyzing regional air quality impacts, the SCAQMD staff recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LSTs can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a Draft EIR document. Therefore, when preparing the air quality analysis for the proposed project, it is recommended that the lead agency perform a localized analysis by either using the LSTs developed by the SCAQMD or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

In the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the lead agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("*Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*") can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis. An analysis of all toxic air contaminant impacts due to the use of equipment potentially generating such air pollutants should also be included.

In addition, guidance on siting incompatible land uses (such as placing homes near freeways) can be found in the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Perspective*, which can be found at the following internet address: http://www.arb.ca.gov/ch/handbook.pdf. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process.

Finally, should the proposed project include equipment that generates or controls air contaminants, a permit may be required and the SCAQMD should be listed as a responsible agency and consulted. The assumptions in the submitted Draft EIR would also be the basis for permit conditions and limits. Permit questions can be directed to the SCAQMD Permit Services staff at (909) 396-3385, who can provide further assistance.

Project Specific Comments – Sensitive Receptors Near Service and Maintenance Rail Yards and Rail Lines

While the health science behind recommendations against placing sensitive receptors close to sources that emit carcinogenic diesel particulate matter (DPM) from diesel locomotive engines operating at major service and maintenance rail yards and/or on high volume rail lines is clear, SCAQMD staff recognizes the many factors Lead Agencies must consider when siting uses such as new housing. To mitigate significant impacts from these emission sources, the Lead Agency should consider the limitations of enhanced filtration (HVAC systems with enhanced Maximum Efficiency Reporting Value – MERV filters) for the project. For example, these filters have no ability to filter out any toxic gasses from vehicle exhaust; have higher long-term costs related to the required regular maintenance of the filters; and it is assumed that the HVAC units and the filters operate 100 percent of the time while residents are indoors. It is critical that any proposed mitigation must be carefully evaluated prior to determining if the health risks would be brought below CEQA significance thresholds. The presumed effectiveness and feasibility of proposed mitigation should therefore be evaluated and the Draft EIR document should also quantitatively demonstrate with substantial evidence the effectiveness of any proposed mitigation on any potentially significant impact.

Mitigation Measures

In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate these impacts. Pursuant to CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed. Mitigation Measure resources are available on the SCAQMD CEQA Air Quality Handbook website: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's webpage (http://www.aqmd.gov).

The SCAQMD staff is available to work with the lead agency to ensure that project emissions are accurately evaluated and mitigated where feasible. If you have any questions regarding this letter, please contact Jack Cheng, Air Quality Specialist by e-mail at jcheng@aqmd.gov or by phone at (909) 396-2448.

Sincerely,

Jillian Wong

Jillian Wong, Ph.D.
Planning and Rules Manager
Planning, Rule Development & Area Sources

JC:JW
LAC161004-08
Control Number

From: Michael Diaz <mdiaz@cityofmontclair.org>
Sent: Thursday, October 20, 2016 1:12 PM
To: Marilyn Staats; Edward C. Starr
Cc: Ruta Thomas; Marissa Pereyda
Subject: FW: North Montclair Downtown Specific Plan Amendment Project

Fyi

From: Tony Su [mailto:tony77su@gmail.com]
Sent: Thursday, October 20, 2016 12:57 PM
To: Michael Diaz
Subject: North Montclair Downtown Specific Plan Amendment Project

Hi Michael,

Thank you again for holding the public meeting yesterday
to discuss the status of the NMDSP.

As I mentioned, as a family with with personal and business roots in the region,
we are very supportive of the planning advances in Montclair.
I am a big fan of the Moule & Polyzoides guidelines and hope
they continue to be consulted on the additions.

It was reassuring to hear that existing businesses and buildings
won't just be claimed and split up :)
We've had discussions internally and externally about incorporating
residential uses on our Richton site in the past. So we are all
on the same page!

It's maintaining a level of flexibility in the zoning that will be also important
for the continued development of the site. I feel, when I go back again
to the 2006 illustrative plan, we're as close as any site
to the train station. There's always people walking to and from to bus
stations on Richton. So besides residential, it's also possible that
something with a mixed use of residential and commercial could support
the area. Not a regional mall center, but perhaps something skin to a mostly residential
block with retail/market on the ground floor serving locally. A commercial block
typology derived from adaptive reuse.

Anyways, if you have time say next Tuesday or Wednesday, it would
be great to discuss further.

Thank you for your time,

Tony

GABRIELENO BAND OF MISSION INDIANS – KIZH NATION
Historically known as The San Gabriel Band of Mission Indians
Recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Dear Adriane Dorrler,
Archaeologist

Subject: Site Name: North Montclair Downtown Specific Plan EIR Project, City of Montclair, San Bernardino County, California

"The project locale lies in an area where the Ancestral & traditional territories of the Kizh(Kitc) Gabrieleño villages such as ***TOIBINGNA****, adjoined and overlapped with each other, at least during the Late Prehistoric and Protohistoric Periods. The homeland of the Kizh (Kitc) Gabrieleños , probably the most influential Native American group in aboriginal southern California (Bean and Smith 1978a:538), was centered in the Los Angeles Basin, and reached as far east as the San Bernardino-Riverside area. The homeland of the Serranos was primarily the San Bernardino Mountains, including the slopes and lowlands on the north and south flanks. Whatever the linguistic affiliation, Native Americans in and around the project area exhibited similar organization and resource procurement strategies. Villages were based on clan or lineage groups. Their home/ base sites are marked by midden deposits, often with bedrock mortars. During their seasonal rounds to exploit plant resources, small groups would migrate within their traditional territory in search of specific plants and animals. Their gathering strategies often left behind signs of special use sites, usually grinding slicks on bedrock boulders, at the locations of the resources. Therefore in order to protect our resources we're requesting one of our experienced &* ***certified Native American monitors as well as a Arceo-monitor*** *to be on site during any & all ground disturbances (this includes but is not limited to pavement removal, pot-holing or auguring, boring, grading, excavation and trenching).*

In all cases, when the NAHC states there are "No" records of sacred sites" in the subject area; they always refer the contractors back to the Native American Tribes whose tribal territory the project area is in. This is due to the fact, that the NAHC is only aware of general information on each California NA Tribe they are "NOT " the "experts" on our Tribe. Our Elder Committee & Tribal Historians are the experts and is the reason why the NAHC will always refer contractors to the local tribes.

In addition, we are also often told that an area has been previously developed or disturbed and thus there are no concerns for cultural resources and thus minimal impacts would be expected. I have two major recent examples of how similar statements on other projects were proven very inadequate. An archaeological study claimed there would be no impacts to an area adjacent to the Plaza Church at Olvera Street, the original Spanish settlement of Los Angeles, now in downtown Los Angeles. In fact, this site was the Gabrieleno village of Yangna long before it became what it is now today. The new development wrongfully began their construction and they, in the process, dug up and desecrated 118 burials. The area that was dismissed as culturally sensitive was in fact the First Cemetery of Los Angeles where it had been well documented at the Huntington Library that 400 of our Tribe's ancestors were buried there along with the founding families of Los Angeles (Pico's, Sepulveda's, and Alvarado's to name a few). In addition, there was another inappropriate study for the development of a new sports complex at Fedde Middle School in the City of Hawaiian Gardens could commence. Again, a village and burial site were desecrated despite their mitigation measures. Thankfully, we were able to work alongside the school district to quickly and respectfully mitigate a mutually beneficial resolution.

Given all the above, the proper thing to do for your project would be for our Tribe to monitor ground disturbing construction work. Native American monitors and/or consultant can see that cultural resources are treated appropriately from the Native American point of view. Because we are the lineal descendants of the vast area of Los Angeles and Orange Counties, we hold sacred the ability to protect what little of our culture remains. We thank you for taking seriously your role and responsibility in assisting us in preserving our culture.

With respect,

Please contact our office regarding this project to coordinate a Native American Monitor to be present. Thank You

Andrew Salas, Chairman
Cell (626) 926-4131

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Christina Swindall Martinez, secretary
Albert Perez, treasurer I | Martha Gonzalez Lemos, treasurer II | Richard Gradias, Chairman of the council of Elders

PO Box 393 Covina, CA 91723 www.gabrielenoindians@yahoo.com gabrielenoindians@yahoo.com

Addendum: clarification regarding some confusions regarding consultation under AB52:

AB52 clearly states that consultation must occur with tribes that claim traditional and cultural affiliation with a project site. Unfortunately, this statement has been left open to interpretation so much that neighboring tribes are claiming affiliation with projects well outside their traditional tribal territory. The territories of our surrounding Native American tribes such as the Luiseno, Chumash, and Cahuilla tribal entities. Each of our tribal territories has been well defined by historians, ethnographers, archaeologists, and ethnographers – a list of resources we can provide upon request. Often, each Tribe as well educates the public on their very own website as to the definition of their tribal boundaries. You may have received a consultation request from another Tribe. However we are responding because your project site lies within our Ancestral tribal territory, which, again, has been well documented. What does Ancestrally or Ancestral mean? The people who were in your family in past times, Of, belonging to, inherited from, or denoting an ancestor or ancestors http://www.thefreedictionary.com/ancestral. . If you have questions regarding the validity of the "traditional and cultural affiliation" of another Tribe, we urge you to contact the Native American Heritage Commission directly. Section 5 section 21080.3.1 (c) states "…the Native American Heritage Commission shall assist the lead agency in identifying the California Native American tribes that are traditionally and culturally affiliated with the project area." In addition, ***please see the map below.***

CC: NAHC

APPENDIX 1: Map 1-2; Bean and Smith 1978 map.

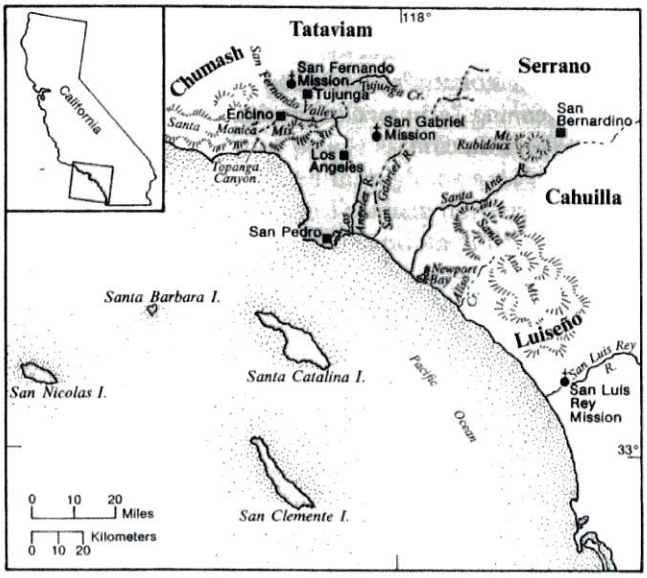


Fig. 1. Tribal territory.

The United States National Museum's Map of Gabrielino Territory:

Bean, Lowell John and Charles R. Smith
1978 Gabrielino IN *Handbook of North American Indians, California*, Vol. 8, edited by R.F. Heizer, Smithsonian Institution Press, Washington, D.C., pp. 538-549

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Christina Swindall Martinez, secretary

Albert Perez, treasurer I | Martha Gonzalez Lemos, treasurer II | Richard Gradias, Chairman of the council of Elders

PO Box 393 Covina, CA 91723 www.gabrielenoindians@yahoo.com gabrielenoindians@yahoo.com

From: Michael Diaz <mdiaz@cityofmontclair.org>
Sent: Tuesday, January 10, 2017 8:41 AM
To: Ruta Thomas; Alisha Winterswyk
Cc: Marilyn Staats
Subject: FW: North Montclair Downtown Specific Plan Amendment Project- Request for Consultation

Ruta

I received this email yesterday late afternoon.

Michael

From: Joan Schneider [mailto:JSchneider@sanmanuel-nsn.gov]
Sent: Monday, January 09, 2017 5:31 PM
To: Michael Diaz
Cc: Joan Schneider
Subject: North Montclair Downtown Specific Plan Amendment Project- Request for Consultation

January 9, 2017

Re: North Montclair Downtown Specific Plan Amendment Project

Dear Mr. Diaz:

Thank you for contacting the San Manuel Band of Mission Indians (SMBMI) regarding the above referenced project(s). SMBMI appreciates the opportunity to review the project documentation, which was received by our Cultural Resources Management Department on October 3, 2016. By this e-mail, SMBMI requests to consult with the City of Montclair pursuant to CEQA (as amended, 2015) and CA PRC 21080.3.1. The proposed project area exists at the edge of Serrano Ancestral Lands and, therefore, is of interest to the Tribe. The northern part of Montclair is within those Ancestral Lands that include the low foothill portions of the San Bernardino and San Gabriel Mountains and the southern alluvial slopes of the foothills. I am attaching a map of SMBMI Ancestral Lands, should you not already have one on hand.

First, SMBMI regrets not responding earlier to the scoping letter from the City of Montclair. Tribe was undergoing a reorganization of its Cultural Resource Management department in late summer and early fall and staff were not available to respond more quickly. Second, SMBMI calls to your attention that the Tribe was not on the list of tribes received from the Native American Heritage Commission; this was an error on the part of the NAHC.

Third, SMBMI has reviewed the Initial Study for the NMDSPA project (DUDEK 2016) and finds that the recommended mitigation measures MM CR-1, -2, and -4 are acceptable, in principle, to SMBMI with a few exceptions: (1) SMBMI requests that a SMBMI-approved Native American monitor(s) be included in any development project monitoring. (2) SMBMI notes that there is no mention of the Treatment and Disposition of Artifacts, Ecofacts,and Cultural Deposits within the Initial Study document. SMBMI would like to see this provision included, as well as a statement concerned with on-going consultation with SMBMI and other consulting tribes during the course of any development project and continuing until the project is completed. (3) For MM-CR2, SMBMI requests language be added to ensure that all consulting tribes be notified immediately should a discovery be made that is assessed as significant by the archaeologist and/or the Native American monitor so that a plan for further work, such as development of a treatment plan, testing, and/or data recovery can be developed in cooperation with consulting tribes. (4) For *(e)* MM-CR-4, SMBMI is concerned that there is insufficient direction presented for future development projects within the subject area.

Mitigation language developed by SMBMI is available for your use or I would be happy to discuss Tribe's concerns on the telephone. Should you wish to discuss our requests, please send me a few alternative times when you would be available and the phone numbers where you can be reached at those times.

Please understand that receipt of this letter does not constitute "meaningful" tribal consultation nor does it conclude the consultation process. This letter is merely intended to initiate consultation between the tribe and lead agency, which may be followed up with additional emails, phone calls or face-to-face consultation if deemed necessary. If you should have any further questions with regard to this matter, please do not hesitate to contact me at your convenience, as I will be your Point of Contact (POC) for SMBMI with respect to this project.

Once again, the San Manuel Band of Mission Indians appreciates the opportunity to comment on this project.

Respectfully,

Joan S. Schneider, PhD
San Manuel Band of Mission Indians
Cultural Resource Management Department
Consulting Archaeologist
jschneider@sanmanuel-nsn.gov
26569 Community Center Drive
Highland, CA 92346

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. If the reader of this message is not the intended recipient or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination or copying of this communication is strictly prohibited. If you have received this electronic transmission in error, please delete it from your system without copying it and notify the sender by reply e-mail so that the email address record can be corrected. Thank You

APPENDIX B

Air Quality/Greenhouse Gas Modeling Data

CalEEMod Version: CalEEMod.2016.3.1 Date: 11/29/2016 9:26 AM

2016 North Montclair Downtown Specific Plan - San Bernardino-South Coast County, Annual

2016 North Montclair Downtown Specific Plan

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,322.69	1000sqft	30.40	1,322,695.00	0
Other Asphalt Surfaces	21.00	Acre	21.00	914,760.00	0
Other Non-Asphalt Surfaces	14.90	Acre	14.90	649,044.00	0
Apartments Mid Rise	4,910.00	Dwelling Unit	32.00	4,910,000.00	8018
Condo/Townhouse High Rise	1,016.00	Dwelling Unit	24.00	1,016,000.00	1659
Regional Shopping Center	306.68	1000sqft	15.60	306,682.00	0
Regional Shopping Center	259.26	1000sqft	12.50	259,264.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2035
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	442.34	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2016 North Montclair Downtown Specific Plan. San Bernardino County (South Coast Air Basin). CO2 intensity factor updated for effect of 50% RPS.

Land Use - Project includes construction of 5,926 du of MFR, 1,322,695 sf of office uses, 306,682 sf of retail, and 259,264 of services.

Construction Phase - Default construction phases assumed based on a start date of 2017 and a projected buildout date of 2035.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Trips and VMT - Rounded trips.

Demolition - Demolition of existing single-family houses and industrial park.

Architectural Coating - Comply with SCAQMD Rule 1113.

Vehicle Trips - Adjusted trip rates based on traffic study.

Woodstoves - Comply with SCAQMD Rule 445.

Area Coating - Comply with SCAQMD Rule 1113.

Energy Use - Adjusted T24 electricity energy intensity and T24 natural gas energy intensity to meet 2016 Title 24 standards.

Construction Off-road Equipment Mitigation - Comply with SCAQMD Rule 403. Water 2 times daily. Use of Tier 3 construction equipment.

Mobile Land Use Mitigation - Improve pedestrian network.

Water Mitigation - Meet statewide water reduction goal of 25%.

Waste Mitigation - Comply with AB 341 goal of 75% waste diversion.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	220.00	250.00
tblConstructionPhase	NumDays	3,100.00	3,500.00
tblConstructionPhase	NumDays	220.00	250.00
tblEnergyUse	T24E	910.58	655.62
tblEnergyUse	T24E	910.58	655.62
tblEnergyUse	T24E	3.22	3.06
tblEnergyUse	T24E	4.80	4.56
tblEnergyUse	T24NG	12,646.59	9,105.54
tblEnergyUse	T24NG	12,646.59	9,105.54
tblEnergyUse	T24NG	3.49	3.75
tblEnergyUse	T24NG	1.93	1.83
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00

tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	4,173.50	4,296.25
tblFireplaces	NumberGas	863.60	889.00
tblFireplaces	NumberNoFireplace	491.00	613.75
tblFireplaces	NumberNoFireplace	101.60	127.00
tblFireplaces	NumberWood	245.50	0.00
tblFireplaces	NumberWood	50.80	0.00
tblFleetMix	FleetMixLandUseSubType	General Office Building	Apartments Mid Rise
tblFleetMix	FleetMixLandUseSubType	Other Asphalt Surfaces	Condo/Townhouse High Rise
tblFleetMix	FleetMixLandUseSubType	Other Non-Asphalt Surfaces	General Office Building
tblFleetMix	FleetMixLandUseSubType	Apartments Mid Rise	Other Asphalt Surfaces
tblFleetMix	FleetMixLandUseSubType	Condo/Townhouse High Rise	Other Non-Asphalt Surfaces
tblLandUse	BuildingSpaceSquareFeet	1,322,690.00	1,322,695.00
tblLandUse	BuildingSpaceSquareFeet	259,260.00	259,264.00
tblLandUse	BuildingSpaceSquareFeet	306,680.00	306,682.00
tblLandUse	LandUseSquareFeet	1,322,690.00	1,322,695.00
tblLandUse	LandUseSquareFeet	259,260.00	259,264.00
tblLandUse	LandUseSquareFeet	306,680.00	306,682.00
tblLandUse	LotAcreage	30.36	30.40
tblLandUse	LotAcreage	129.21	32.00
tblLandUse	LotAcreage	15.88	24.00
tblLandUse	LotAcreage	5.95	12.50
tblLandUse	LotAcreage	7.04	15.60
tblLandUse	Population	14,043.00	8,018.00
tblLandUse	Population	2,906.00	1,659.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	442.34
tblProjectCharacteristics	OperationalYear	2018	2035
tblTripsAndVMT	HaulingTripNumber	1,137.00	1,138.00

tblTripsAndVMT	VendorTripNumber	1,199.00	1,200.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	ST_TR	4.31	5.99
tblVehicleTrips	SU_TR	3.43	4.77
tblVehicleTrips	WD_TR	4.18	5.81
tblWoodstoves	NumberCatalytic	245.50	0.00
tblWoodstoves	NumberCatalytic	50.80	0.00
tblWoodstoves	NumberNoncatalytic	245.50	0.00
tblWoodstoves	NumberNoncatalytic	50.80	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.6021	6.5043	3.6144	6.4500e-003	1.5013	0.3126	1.8139	0.5852	0.2901	0.8752	0.0000	595.1939	595.1939	0.1538	0.0000	599.0376
2018	0.8724	8.5544	6.2724	0.0134	1.7468	0.3457	2.0924	0.6653	0.3184	0.9837	0.0000	1,223.0127	1,223.0127	0.2482	0.0000	1,229.2166
2019	4.7500	24.1940	37.2789	0.1231	8.8973	0.3360	9.2333	2.3858	0.3167	2.7025	0.0000	11,330.8313	11,330.8313	0.5956	0.0000	11,345.7213
2020	4.3429	22.1063	33.8033	0.1208	8.9314	0.2761	9.2075	2.3949	0.2599	2.6547	0.0000	11,122.8700	11,122.8700	0.5561	0.0000	11,136.7730
2021	3.9838	20.0201	30.9673	0.1177	8.8973	0.2029	9.1001	2.3857	0.1902	2.5759	0.0000	10,843.4103	10,843.4103	0.5246	0.0000	10,856.5256
2022	3.7001	18.6513	28.4686	0.1143	8.8632	0.1770	9.0402	2.3766	0.1659	2.5424	0.0000	10,534.0881	10,534.0881	0.4942	0.0000	10,546.4419
2023	3.3925	14.9755	26.1043	0.1105	8.8632	0.1503	9.0135	2.3766	0.1406	2.5172	0.0000	10,189.4401	10,189.4401	0.4260	0.0000	10,200.0889
2024	3.2323	14.8311	24.7000	0.1091	8.9313	0.1397	9.0710	2.3949	0.1306	2.5254	0.0000	10,065.2801	10,065.2801	0.4157	0.0000	10,075.6727
2025	3.0462	14.4039	22.9679	0.1058	8.8972	0.1268	9.0240	2.3857	0.1185	2.5042	0.0000	9,770.8368	9,770.8368	0.3997	0.0000	9,780.8297
2026	2.9063	14.1828	21.5763	0.1033	8.8972	0.1251	9.0223	2.3857	0.1169	2.5026	0.0000	9,544.5309	9,544.5309	0.3870	0.0000	9,554.2063
2027	2.7713	13.9813	20.3434	0.1011	8.8972	0.1225	9.0197	2.3857	0.1145	2.5002	0.0000	9,345.6319	9,345.6319	0.3753	0.0000	9,355.0146
2028	2.6229	13.7560	19.1959	0.0988	8.8631	0.1188	8.9819	2.3766	0.1111	2.4877	0.0000	9,136.3730	9,136.3730	0.3633	0.0000	9,145.4550
2029	2.4828	13.6462	18.2330	0.0975	8.8972	0.1163	9.0135	2.3857	0.1088	2.4945	0.0000	9,018.7367	9,018.7367	0.3545	0.0000	9,027.5994
2030	2.3287	12.9025	17.3168	0.0965	8.8972	0.0640	8.9612	2.3857	0.0608	2.4465	0.0000	8,924.9401	8,924.9401	0.2877	0.0000	8,932.1334
2031	2.1719	12.8145	16.5063	0.0954	8.8972	0.0617	8.9589	2.3857	0.0587	2.4444	0.0000	8,825.1151	8,825.1151	0.2794	0.0000	8,832.1009
2032	0.8901	5.3053	7.1713	0.0375	3.3211	0.0494	3.3705	0.8905	0.0484	0.9388	0.0000	3,450.1277	3,450.1277	0.1105	0.0000	3,452.8894
2033	19.5381	0.4885	2.3081	8.2700e-003	1.0686	0.0196	1.0882	0.2838	0.0193	0.3031	0.0000	742.2449	742.2449	0.0136	0.0000	742.5848
2034	8.3379	0.0759	0.6602	2.9700e-003	0.4548	2.2700e-003	0.4570	0.1208	2.1500e-003	0.1229	0.0000	268.2396	268.2396	3.4600e-003	0.0000	268.3261

Maximum	**19.5381**	**24.1940**	**37.2789**	**0.1231**	**8.9314**	**0.3457**	**9.2333**	**2.3949**	**0.3184**	**2.7025**	**0.0000**	**11,330.8313**	**11,330.8313**	**0.5956**	**0.0000**	**11,345.7213**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.1575	2.9220	3.7188	6.4500e-003	0.6943	0.1263	0.8206	0.2683	0.1263	0.3946	0.0000	595.1933	595.1933	0.1538	0.0000	599.0369
2018	0.4173	4.8110	6.4801	0.0134	1.0074	0.1757	1.1830	0.3587	0.1752	0.5339	0.0000	1,223.0119	1,223.0119	0.2482	0.0000	1,229.2157
2019	4.5663	23.2911	37.4120	0.1231	8.8973	0.2852	9.1825	2.3858	0.2760	2.6618	0.0000	11,330.8310	11,330.8310	0.5956	0.0000	11,345.7210
2020	4.1844	21.4410	33.9730	0.1208	8.9314	0.2461	9.1775	2.3949	0.2386	2.6335	0.0000	11,122.8697	11,122.8697	0.5561	0.0000	11,136.7726
2021	3.8494	19.5781	31.1657	0.1177	8.8973	0.1920	9.0893	2.3857	0.1868	2.5725	0.0000	10,843.4099	10,843.4099	0.5246	0.0000	10,856.5253
2022	3.5881	18.4411	28.6908	0.1143	8.8632	0.1843	9.0475	2.3766	0.1794	2.5560	0.0000	10,534.0878	10,534.0878	0.4942	0.0000	10,546.4415
2023	3.2949	14.9198	26.3398	0.1105	8.8632	0.1707	9.0338	2.3766	0.1664	2.5430	0.0000	10,189.4397	10,189.4397	0.4260	0.0000	10,200.0885
2024	3.1448	14.8930	24.9455	0.1091	8.9313	0.1705	9.1018	2.3949	0.1662	2.5610	0.0000	10,065.2797	10,065.2797	0.4157	0.0000	10,075.6723
2025	2.9706	14.5877	23.2216	0.1058	8.8972	0.1679	9.0651	2.3857	0.1636	2.5493	0.0000	9,770.8365	9,770.8365	0.3997	0.0000	9,780.8293
2026	2.8306	14.3665	21.8300	0.1033	8.8972	0.1662	9.0634	2.3857	0.1621	2.5478	0.0000	9,544.5306	9,544.5306	0.3870	0.0000	9,554.2060
2027	2.6956	14.1651	20.5971	0.1011	8.8972	0.1636	9.0608	2.3857	0.1597	2.5454	0.0000	9,345.6315	9,345.6315	0.3753	0.0000	9,355.0142
2028	2.5475	13.9391	19.4486	0.0988	8.8631	0.1597	9.0228	2.3766	0.1561	2.5327	0.0000	9,136.3726	9,136.3726	0.3633	0.0000	9,145.4546
2029	2.4072	13.8300	18.4867	0.0975	8.8972	0.1574	9.0545	2.3857	0.1539	2.5396	0.0000	9,018.7363	9,018.7363	0.3545	0.0000	9,027.5991
2030	2.2533	13.6589	17.5545	0.0965	8.8972	0.1514	9.0486	2.3857	0.1482	2.5339	0.0000	8,924.9397	8,924.9397	0.2877	0.0000	8,932.1330
2031	2.0966	13.5709	16.7440	0.0954	8.8972	0.1491	9.0463	2.3857	0.1461	2.5318	0.0000	8,825.1147	8,825.1147	0.2794	0.0000	8,832.1005
2032	0.7941	5.9308	7.3789	0.0375	3.3211	0.1049	3.4260	0.8905	0.1038	0.9943	0.0000	3,450.1273	3,450.1273	0.1105	0.0000	3,452.8890

2033	19.4969	0.7098	2.3726	8.2700e-003	1.0686	0.0380	1.1066	0.2838	0.0377	0.3215	0.0000	742.2448	742.2448	0.0136	0.0000	742.5846
2034	8.3352	0.0947	0.6615	2.9700e-003	0.4548	5.0800e-003	0.4598	0.1208	4.9600e-003	0.1257	0.0000	268.2396	268.2396	3.4600e-003	0.0000	268.3260
Maximum	**19.4969**	**23.2911**	**37.4120**	**0.1231**	**8.9314**	**0.2852**	**9.1825**	**2.3949**	**0.2760**	**2.6618**	**0.0000**	**11,330.8310**	**11,330.8310**	**0.5956**	**0.0000**	**11,345.7210**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**3.25**	**2.70**	**-1.05**	**0.00**	**1.25**	**-2.45**	**1.17**	**1.86**	**-6.99**	**1.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	32.9135	0.7028	60.9224	3.2300e-003		0.3390	0.3390		0.3390	0.3390	0.0000	99.8745	99.8745	0.0952	0.0000	102.2533
Energy	0.5169	4.4352	2.0126	0.0282		0.3571	0.3571		0.3571	0.3571	0.0000	14,723.6663	14,723.6663	0.7280	0.2241	14,808.6505
Mobile	15.1935	146.5676	174.5473	1.0705	84.6952	0.4454	85.1406	23.0492	0.4151	23.4643	0.0000	100,047.5517	100,047.5517	4.4638	0.0000	100,159.1471
Waste						0.0000	0.0000		0.0000	0.0000	923.6698	0.0000	923.6698	54.5873	0.0000	2,288.3528
Water						0.0000	0.0000		0.0000	0.0000	210.3742	2,653.4731	2,863.8473	21.7814	0.5462	3,571.1475
Total	**48.6239**	**151.7055**	**237.4823**	**1.1020**	**84.6952**	**1.1415**	**85.8367**	**23.0492**	**1.1112**	**24.1605**	**1,134.0440**	**117,524.5655**	**118,658.6095**	**81.6557**	**0.7703**	**120,929.5512**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	32.9135	0.7028	60.9224	3.2300e-003		0.3390	0.3390		0.3390	0.3390	0.0000	99.8745	99.8745	0.0952	0.0000	102.2533
Energy	0.5169	4.4352	2.0126	0.0282		0.3571	0.3571		0.3571	0.3571	0.0000	14,723.6663	14,723.6663	0.7280	0.2241	14,808.6505
Mobile	15.0700	145.8374	171.7794	1.0526	83.0013	0.4376	83.4389	22.5882	0.4079	22.9961	0.0000	98,373.5632	98,373.5632	4.4204	0.0000	98,484.0731
Waste						0.0000	0.0000		0.0000	0.0000	230.9174	0.0000	230.9174	13.6468	0.0000	572.0882
Water						0.0000	0.0000		0.0000	0.0000	157.7807	1,990.1048	2,147.8855	16.3361	0.4096	2,678.3606
Total	**48.5004**	**150.9754**	**234.7144**	**1.0840**	**83.0013**	**1.1337**	**84.1350**	**22.5882**	**1.1040**	**23.6922**	**388.6981**	**115,187.2088**	**115,575.9069**	**35.2264**	**0.6338**	**116,645.4257**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.25**	**0.48**	**1.17**	**1.63**	**2.00**	**0.68**	**1.98**	**2.00**	**0.65**	**1.94**	**65.72**	**1.99**	**2.60**	**56.86**	**17.73**	**3.54**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	10/6/2017	5	200	
2	Grading	Grading	10/7/2017	12/14/2018	5	310	
3	Building Construction	Building Construction	12/15/2018	5/14/2032	5	3500	
4	Paving	Paving	5/15/2032	4/29/2033	5	250	
5	Architectural Coating	Architectural Coating	4/30/2033	4/14/2034	5	250	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 775

Acres of Paving: 35.9

Residential Indoor: 12,000,150; Residential Outdoor: 4,000,050; Non-Residential Indoor: 2,832,962; Non-Residential Outdoor: 944,321;

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37

Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	16.00	0.00	1,138.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	5,528.00	1,200.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1,106.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1230	0.0000	0.1230	0.0186	0.0000	0.0186	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4103	4.2748	2.3012	3.8800e-003		0.2194	0.2194		0.2043	0.2043	0.0000	356.0050	356.0050	0.0973	0.0000	358.4384
Total	**0.4103**	**4.2748**	**2.3012**	**3.8800e-003**	**0.1230**	**0.2194**	**0.3424**	**0.0186**	**0.2043**	**0.2229**	**0.0000**	**356.0050**	**356.0050**	**0.0973**	**0.0000**	**358.4384**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.7400e-003	0.1788	0.0268	4.6000e-004	9.7900e-003	8.7000e-004	0.0107	2.6900e-003	8.3000e-004	3.5200e-003	0.0000	43.7819	43.7819	2.5800e-003	0.0000	43.8465
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0106	9.1600e-003	0.0894	1.8000e-004	0.0175	1.3000e-004	0.0177	4.6600e-003	1.2000e-004	4.7800e-003	0.0000	16.5291	16.5291	6.7000e-004	0.0000	16.5458
Total	**0.0154**	**0.1879**	**0.1162**	**6.4000e-004**	**0.0273**	**1.0000e-003**	**0.0283**	**7.3500e-003**	**9.5000e-004**	**8.3000e-003**	**0.0000**	**60.3110**	**60.3110**	**3.2500e-003**	**0.0000**	**60.3923**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0554	0.0000	0.0554	8.3800e-003	0.0000	8.3800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0925	1.8313	2.4674	3.8800e-003		0.0863	0.0863		0.0863	0.0863	0.0000	356.0046	356.0046	0.0973	0.0000	358.4380
Total	**0.0925**	**1.8313**	**2.4674**	**3.8800e-003**	**0.0554**	**0.0863**	**0.1416**	**8.3800e-003**	**0.0863**	**0.0947**	**0.0000**	**356.0046**	**356.0046**	**0.0973**	**0.0000**	**358.4380**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.7400e-003	0.1788	0.0268	4.6000e-004	9.7900e-003	8.7000e-004	0.0107	2.6900e-003	8.3000e-004	3.5200e-003	0.0000	43.7819	43.7819	2.5800e-003	0.0000	43.8465
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0106	9.1600e-003	0.0894	1.8000e-004	0.0175	1.3000e-004	0.0177	4.6600e-003	1.2000e-004	4.7800e-003	0.0000	16.5291	16.5291	6.7000e-004	0.0000	16.5458
Total	**0.0154**	**0.1879**	**0.1162**	**6.4000e-004**	**0.0273**	**1.0000e-003**	**0.0283**	**7.3500e-003**	**9.5000e-004**	**8.3000e-003**	**0.0000**	**60.3110**	**60.3110**	**3.2500e-003**	**0.0000**	**60.3923**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3444	0.0000	1.3444	0.5575	0.0000	0.5575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1725	2.0382	1.1635	1.8600e-003		0.0922	0.0922		0.0848	0.0848	0.0000	172.6795	172.6795	0.0529	0.0000	174.0022
Total	**0.1725**	**2.0382**	**1.1635**	**1.8600e-003**	**1.3444**	**0.0922**	**1.4366**	**0.5575**	**0.0848**	**0.6423**	**0.0000**	**172.6795**	**172.6795**	**0.0529**	**0.0000**	**174.0022**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9800e-003	3.4300e-003	0.0335	7.0000e-005	6.5800e-003	5.0000e-005	6.6300e-003	1.7500e-003	4.0000e-005	1.7900e-003	0.0000	6.1984	6.1984	2.5000e-004	0.0000	6.2047
Total	**3.9800e-003**	**3.4300e-003**	**0.0335**	**7.0000e-005**	**6.5800e-003**	**5.0000e-005**	**6.6300e-003**	**1.7500e-003**	**4.0000e-005**	**1.7900e-003**	**0.0000**	**6.1984**	**6.1984**	**2.5000e-004**	**0.0000**	**6.2047**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6050	0.0000	0.6050	0.2509	0.0000	0.2509	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0457	0.8994	1.1017	1.8600e-003		0.0390	0.0390		0.0390	0.0390	0.0000	172.6793	172.6793	0.0529	0.0000	174.0020
Total	**0.0457**	**0.8994**	**1.1017**	**1.8600e-003**	**0.6050**	**0.0390**	**0.6440**	**0.2509**	**0.0390**	**0.2898**	**0.0000**	**172.6793**	**172.6793**	**0.0529**	**0.0000**	**174.0020**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9800e-003	3.4300e-003	0.0335	7.0000e-005	6.5800e-003	5.0000e-005	6.6300e-003	1.7500e-003	4.0000e-005	1.7900e-003	0.0000	6.1984	6.1984	2.5000e-004	0.0000	6.2047
Total	**3.9800e-003**	**3.4300e-003**	**0.0335**	**7.0000e-005**	**6.5800e-003**	**5.0000e-005**	**6.6300e-003**	**1.7500e-003**	**4.0000e-005**	**1.7900e-003**	**0.0000**	**6.1984**	**6.1984**	**2.5000e-004**	**0.0000**	**6.2047**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3444	0.0000	1.3444	0.5575	0.0000	0.5575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6363	7.4402	4.3862	7.7500e-003		0.3292	0.3292		0.3029	0.3029	0.0000	708.1063	708.1063	0.2204	0.0000	713.6174
Total	**0.6363**	**7.4402**	**4.3862**	**7.7500e-003**	**1.3444**	**0.3292**	**1.6736**	**0.5575**	**0.3029**	**0.8603**	**0.0000**	**708.1063**	**708.1063**	**0.2204**	**0.0000**	**713.6174**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0148	0.0124	0.1218	2.8000e-004	0.0274	1.9000e-004	0.0276	7.2800e-003	1.8000e-004	7.4600e-003	0.0000	25.1056	25.1056	9.1000e-004	0.0000	25.1285
Total	**0.0148**	**0.0124**	**0.1218**	**2.8000e-004**	**0.0274**	**1.9000e-004**	**0.0276**	**7.2800e-003**	**1.8000e-004**	**7.4600e-003**	**0.0000**	**25.1056**	**25.1056**	**9.1000e-004**	**0.0000**	**25.1285**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6050	0.0000	0.6050	0.2509	0.0000	0.2509	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1904	3.7473	4.5903	7.7500e-003		0.1624	0.1624		0.1624	0.1624	0.0000	708.1054	708.1054	0.2204	0.0000	713.6165
Total	**0.1904**	**3.7473**	**4.5903**	**7.7500e-003**	**0.6050**	**0.1624**	**0.7674**	**0.2509**	**0.1624**	**0.4133**	**0.0000**	**708.1054**	**708.1054**	**0.2204**	**0.0000**	**713.6165**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0148	0.0124	0.1218	2.8000e-004	0.0274	1.9000e-004	0.0276	7.2800e-003	1.8000e-004	7.4600e-003	0.0000	25.1056	25.1056	9.1000e-004	0.0000	25.1285
Total	**0.0148**	**0.0124**	**0.1218**	**2.8000e-004**	**0.0274**	**1.9000e-004**	**0.0276**	**7.2800e-003**	**1.8000e-004**	**7.4600e-003**	**0.0000**	**25.1056**	**25.1056**	**9.1000e-004**	**0.0000**	**25.1285**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0147	0.1287	0.0967	1.5000e-004		8.2500e-003	8.2500e-003		7.7500e-003	7.7500e-003	0.0000	13.0772	13.0772	3.2000e-003	0.0000	13.1573
Total	**0.0147**	**0.1287**	**0.0967**	**1.5000e-004**		**8.2500e-003**	**8.2500e-003**		**7.7500e-003**	**7.7500e-003**	**0.0000**	**13.0772**	**13.0772**	**3.2000e-003**	**0.0000**	**13.1573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0271	0.8218	0.1867	1.7900e-003	0.0416	5.6500e-003	0.0473	0.0120	5.4000e-003	0.0174	0.0000	171.3990	171.3990	0.0125	0.0000	171.7114
Worker	0.1796	0.1513	1.4810	3.3800e-003	0.3334	2.3600e-003	0.3357	0.0885	2.1800e-003	0.0907	0.0000	305.3246	305.3246	0.0111	0.0000	305.6021
Total	**0.2066**	**0.9731**	**1.6677**	**5.1700e-003**	**0.3750**	**8.0100e-003**	**0.3830**	**0.1006**	**7.5800e-003**	**0.1081**	**0.0000**	**476.7236**	**476.7236**	**0.0236**	**0.0000**	**477.3135**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.5500e-003	0.0782	0.1003	1.5000e-004		5.0300e-003	5.0300e-003		5.0300e-003	5.0300e-003	0.0000	13.0772	13.0772	3.2000e-003	0.0000	13.1573
Total	**5.5500e-003**	**0.0782**	**0.1003**	**1.5000e-004**		**5.0300e-003**	**5.0300e-003**		**5.0300e-003**	**5.0300e-003**	**0.0000**	**13.0772**	**13.0772**	**3.2000e-003**	**0.0000**	**13.1573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0271	0.8218	0.1867	1.7900e-003	0.0416	5.6500e-003	0.0473	0.0120	5.4000e-003	0.0174	0.0000	171.3990	171.3990	0.0125	0.0000	171.7114
Worker	0.1796	0.1513	1.4810	3.3800e-003	0.3334	2.3600e-003	0.3357	0.0885	2.1800e-003	0.0907	0.0000	305.3246	305.3246	0.0111	0.0000	305.6021
Total	**0.2066**	**0.9731**	**1.6677**	**5.1700e-003**	**0.3750**	**8.0100e-003**	**0.3830**	**0.1006**	**7.5800e-003**	**0.1081**	**0.0000**	**476.7236**	**476.7236**	**0.0236**	**0.0000**	**477.3135**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3081	2.7508	2.2399	3.5100e-003		0.1683	0.1683		0.1583	0.1583	0.0000	306.8110	306.8110	0.0747	0.0000	308.6795
Total	**0.3081**	**2.7508**	**2.2399**	**3.5100e-003**		**0.1683**	**0.1683**		**0.1583**	**0.1583**	**0.0000**	**306.8110**	**306.8110**	**0.0747**	**0.0000**	**308.6795**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.5728	18.2887	3.9626	0.0421	0.9874	0.1134	1.1008	0.2850	0.1085	0.3935	0.0000	4,025.9317	4,025.9317	0.2897	0.0000	4,033.1752
Worker	3.8691	3.1546	31.0764	0.0775	7.9100	0.0542	7.9642	2.1008	0.0500	2.1507	0.0000	6,998.0887	6,998.0887	0.2311	0.0000	7,003.8666
Total	**4.4419**	**21.4433**	**35.0390**	**0.1196**	**8.8973**	**0.1676**	**9.0649**	**2.3858**	**0.1584**	**2.5442**	**0.0000**	**11,024.0204**	**11,024.0204**	**0.5209**	**0.0000**	**11,037.0418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1244	1.8479	2.3730	3.5100e-003		0.1176	0.1176		0.1176	0.1176	0.0000	306.8106	306.8106	0.0747	0.0000	308.6792
Total	**0.1244**	**1.8479**	**2.3730**	**3.5100e-003**		**0.1176**	**0.1176**		**0.1176**	**0.1176**	**0.0000**	**306.8106**	**306.8106**	**0.0747**	**0.0000**	**308.6792**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.5728	18.2887	3.9626	0.0421	0.9874	0.1134	1.1008	0.2850	0.1085	0.3935	0.0000	4,025.9317	4,025.9317	0.2897	0.0000	4,033.1752
Worker	3.8691	3.1546	31.0764	0.0775	7.9100	0.0542	7.9642	2.1008	0.0500	2.1507	0.0000	6,998.0887	6,998.0887	0.2311	0.0000	7,003.8666
Total	**4.4419**	**21.4433**	**35.0390**	**0.1196**	**8.8973**	**0.1676**	**9.0649**	**2.3858**	**0.1584**	**2.5442**	**0.0000**	**11,024.0204**	**11,024.0204**	**0.5209**	**0.0000**	**11,037.0418**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2777	2.5134	2.2072	3.5300e-003		0.1463	0.1463		0.1376	0.1376	0.0000	303.4091	303.4091	0.0740	0.0000	305.2596
Total	**0.2777**	**2.5134**	**2.2072**	**3.5300e-003**		**0.1463**	**0.1463**		**0.1376**	**0.1376**	**0.0000**	**303.4091**	**303.4091**	**0.0740**	**0.0000**	**305.2596**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.4877	16.7817	3.5095	0.0420	0.9911	0.0767	1.0679	0.2861	0.0734	0.3595	0.0000	4,013.5846	4,013.5846	0.2777	0.0000	4,020.5272
Worker	3.5775	2.8113	28.0866	0.0753	7.9403	0.0530	7.9933	2.1088	0.0489	2.1577	0.0000	6,805.8764	6,805.8764	0.2044	0.0000	6,810.9862
Total	**4.0652**	**19.5929**	**31.5961**	**0.1173**	**8.9314**	**0.1298**	**9.0612**	**2.3949**	**0.1223**	**2.5172**	**0.0000**	**10,819.4610**	**10,819.4610**	**0.4821**	**0.0000**	**10,831.5134**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1192	1.8480	2.3769	3.5300e-003		0.1164	0.1164		0.1164	0.1164	0.0000	303.4087	303.4087	0.0740	0.0000	305.2592
Total	**0.1192**	**1.8480**	**2.3769**	**3.5300e-003**		**0.1164**	**0.1164**		**0.1164**	**0.1164**	**0.0000**	**303.4087**	**303.4087**	**0.0740**	**0.0000**	**305.2592**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.4877	16.7817	3.5095	0.0420	0.9911	0.0767	1.0679	0.2861	0.0734	0.3595	0.0000	4,013.5846	4,013.5846	0.2777	0.0000	4,020.5272
Worker	3.5775	2.8113	28.0866	0.0753	7.9403	0.0530	7.9933	2.1088	0.0489	2.1577	0.0000	6,805.8764	6,805.8764	0.2044	0.0000	6,810.9862
Total	**4.0652**	**19.5929**	**31.5961**	**0.1173**	**8.9314**	**0.1298**	**9.0612**	**2.3949**	**0.1223**	**2.5172**	**0.0000**	**10,819.4610**	**10,819.4610**	**0.4821**	**0.0000**	**10,831.5134**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099
Total	**0.2481**	**2.2749**	**2.1631**	**3.5100e-003**		**0.1251**	**0.1251**		**0.1176**	**0.1176**	**0.0000**	**302.2867**	**302.2867**	**0.0729**	**0.0000**	**304.1099**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.4152	15.2351	3.0999	0.0416	0.9873	0.0262	1.0135	0.2850	0.0251	0.3100	0.0000	3,977.0652	3,977.0652	0.2680	0.0000	3,983.7641
Worker	3.3206	2.5101	25.7044	0.0726	7.9100	0.0516	7.9615	2.1008	0.0475	2.1483	0.0000	6,564.0584	6,564.0584	0.1837	0.0000	6,568.6517
Total	**3.7357**	**17.7452**	**28.8043**	**0.1142**	**8.8973**	**0.0778**	**8.9750**	**2.3857**	**0.0725**	**2.4583**	**0.0000**	**10,541.1236**	**10,541.1236**	**0.4517**	**0.0000**	**10,552.4158**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1136	1.8328	2.3615	3.5100e-003		0.1142	0.1142		0.1142	0.1142	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095
Total	**0.1136**	**1.8328**	**2.3615**	**3.5100e-003**		**0.1142**	**0.1142**		**0.1142**	**0.1142**	**0.0000**	**302.2863**	**302.2863**	**0.0729**	**0.0000**	**304.1095**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.4152	15.2351	3.0999	0.0416	0.9873	0.0262	1.0135	0.2850	0.0251	0.3100	0.0000	3,977.0652	3,977.0652	0.2680	0.0000	3,983.7641
Worker	3.3206	2.5101	25.7044	0.0726	7.9100	0.0516	7.9615	2.1008	0.0475	2.1483	0.0000	6,564.0584	6,564.0584	0.1837	0.0000	6,568.6517
Total	**3.7357**	**17.7452**	**28.8043**	**0.1142**	**8.8973**	**0.0778**	**8.9750**	**2.3857**	**0.0725**	**2.4583**	**0.0000**	**10,541.1236**	**10,541.1236**	**0.4517**	**0.0000**	**10,552.4158**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3855	14.3739	2.8591	0.0411	0.9835	0.0219	1.0055	0.2839	0.0210	0.3048	0.0000	3,929.5532	3,929.5532	0.2578	0.0000	3,935.9983
Worker	3.0927	2.2474	23.4822	0.0697	7.8796	0.0499	7.9295	2.0927	0.0459	2.1387	0.0000	6,303.2921	6,303.2921	0.1642	0.0000	6,307.3965
Total	**3.4782**	**16.6213**	**26.3413**	**0.1108**	**8.8632**	**0.0718**	**8.9350**	**2.3766**	**0.0669**	**2.4435**	**0.0000**	**10,232.8453**	**10,232.8453**	**0.4220**	**0.0000**	**10,243.3948**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1098	1.8198	2.3495	3.5000e-003		0.1125	0.1125		0.1125	0.1125	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.1098**	**1.8198**	**2.3495**	**3.5000e-003**		**0.1125**	**0.1125**		**0.1125**	**0.1125**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3855	14.3739	2.8591	0.0411	0.9835	0.0219	1.0055	0.2839	0.0210	0.3048	0.0000	3,929.5532	3,929.5532	0.2578	0.0000	3,935.9983
Worker	3.0927	2.2474	23.4822	0.0697	7.8796	0.0499	7.9295	2.0927	0.0459	2.1387	0.0000	6,303.2921	6,303.2921	0.1642	0.0000	6,307.3965
Total	**3.4782**	**16.6213**	**26.3413**	**0.1108**	**8.8632**	**0.0718**	**8.9350**	**2.3766**	**0.0669**	**2.4435**	**0.0000**	**10,232.8453**	**10,232.8453**	**0.4220**	**0.0000**	**10,243.3948**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2910	11.0825	2.4675	0.0399	0.9835	0.0108	0.9943	0.2839	0.0104	0.2942	0.0000	3,821.4820	3,821.4820	0.2072	0.0000	3,826.6631
Worker	2.8971	2.0229	21.5251	0.0671	7.8796	0.0485	7.9282	2.0927	0.0447	2.1374	0.0000	6,066.6119	6,066.6119	0.1470	0.0000	6,070.2875
Total	**3.1880**	**13.1055**	**23.9926**	**0.1070**	**8.8632**	**0.0594**	**8.9225**	**2.3766**	**0.0550**	**2.4316**	**0.0000**	**9,888.0939**	**9,888.0939**	**0.3543**	**0.0000**	**9,896.9506**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1069	1.8143	2.3471	3.5000e-003		0.1113	0.1113		0.1113	0.1113	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.1069**	**1.8143**	**2.3471**	**3.5000e-003**		**0.1113**	**0.1113**		**0.1113**	**0.1113**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2910	11.0825	2.4675	0.0399	0.9835	0.0108	0.9943	0.2839	0.0104	0.2942	0.0000	3,821.4820	3,821.4820	0.2072	0.0000	3,826.6631
Worker	2.8971	2.0229	21.5251	0.0671	7.8796	0.0485	7.9282	2.0927	0.0447	2.1374	0.0000	6,066.6119	6,066.6119	0.1470	0.0000	6,070.2875
Total	**3.1880**	**13.1055**	**23.9926**	**0.1070**	**8.8632**	**0.0594**	**8.9225**	**2.3766**	**0.0550**	**2.4316**	**0.0000**	**9,888.0939**	**9,888.0939**	**0.3543**	**0.0000**	**9,896.9506**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2890	11.2236	2.3916	0.0402	0.9911	0.0109	1.0019	0.2860	0.0104	0.2964	0.0000	3,846.5845	3,846.5845	0.2087	0.0000	3,851.8012
Worker	2.7505	1.8463	20.1906	0.0654	7.9403	0.0485	7.9887	2.1088	0.0446	2.1534	0.0000	5,914.9733	5,914.9733	0.1352	0.0000	5,918.3537
Total	**3.0395**	**13.0699**	**22.5822**	**0.1056**	**8.9313**	**0.0593**	**8.9906**	**2.3949**	**0.0550**	**2.4498**	**0.0000**	**9,761.5577**	**9,761.5577**	**0.3439**	**0.0000**	**9,770.1548**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1053	1.8231	2.3633	3.5300e-003		0.1112	0.1112		0.1112	0.1112	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.1053**	**1.8231**	**2.3633**	**3.5300e-003**		**0.1112**	**0.1112**		**0.1112**	**0.1112**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2890	11.2236	2.3916	0.0402	0.9911	0.0109	1.0019	0.2860	0.0104	0.2964	0.0000	3,846.5845	3,846.5845	0.2087	0.0000	3,851.8012
Worker	2.7505	1.8463	20.1906	0.0654	7.9403	0.0485	7.9887	2.1088	0.0446	2.1534	0.0000	5,914.9733	5,914.9733	0.1352	0.0000	5,918.3537
Total	**3.0395**	**13.0699**	**22.5822**	**0.1056**	**8.9313**	**0.0593**	**8.9906**	**2.3949**	**0.0550**	**2.4498**	**0.0000**	**9,761.5577**	**9,761.5577**	**0.3439**	**0.0000**	**9,770.1548**

3.4 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2804	11.1056	2.2881	0.0398	0.9873	0.0107	0.9979	0.2849	0.0102	0.2951	0.0000	3,809.7701	3,809.7701	0.2068	0.0000	3,814.9401
Worker	2.5874	1.6711	18.5808	0.0626	7.9100	0.0473	7.9572	2.1008	0.0435	2.1443	0.0000	5,658.4118	5,658.4118	0.1218	0.0000	5,661.4560
Total	**2.8678**	**12.7767**	**20.8689**	**0.1023**	**8.8972**	**0.0579**	**8.9552**	**2.3857**	**0.0537**	**2.4394**	**0.0000**	**9,468.1819**	**9,468.1819**	**0.3286**	**0.0000**	**9,476.3962**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1028	1.8111	2.3527	3.5200e-003		0.1099	0.1099		0.1099	0.1099	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1028**	**1.8111**	**2.3527**	**3.5200e-003**		**0.1099**	**0.1099**		**0.1099**	**0.1099**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2804	11.1056	2.2881	0.0398	0.9873	0.0107	0.9979	0.2849	0.0102	0.2951	0.0000	3,809.7701	3,809.7701	0.2068	0.0000	3,814.9401
Worker	2.5874	1.6711	18.5808	0.0626	7.9100	0.0473	7.9572	2.1008	0.0435	2.1443	0.0000	5,658.4118	5,658.4118	0.1218	0.0000	5,661.4560
Total	**2.8678**	**12.7767**	**20.8689**	**0.1023**	**8.8972**	**0.0579**	**8.9552**	**2.3857**	**0.0537**	**2.4394**	**0.0000**	**9,468.1819**	**9,468.1819**	**0.3286**	**0.0000**	**9,476.3962**

3.4 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2740	11.0272	2.2158	0.0395	0.9873	0.0105	0.9978	0.2849	0.0101	0.2950	0.0000	3,788.6674	3,788.6674	0.2052	0.0000	3,793.7979
Worker	2.4538	1.5283	17.2615	0.0603	7.9100	0.0458	7.9557	2.1008	0.0421	2.1429	0.0000	5,453.2086	5,453.2086	0.1107	0.0000	5,455.9750
Total	**2.7278**	**12.5555**	**19.4773**	**0.0998**	**8.8972**	**0.0563**	**8.9535**	**2.3857**	**0.0522**	**2.4379**	**0.0000**	**9,241.8761**	**9,241.8761**	**0.3159**	**0.0000**	**9,249.7728**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1028	1.8111	2.3527	3.5200e-003		0.1099	0.1099		0.1099	0.1099	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1028**	**1.8111**	**2.3527**	**3.5200e-003**		**0.1099**	**0.1099**		**0.1099**	**0.1099**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2740	11.0272	2.2158	0.0395	0.9873	0.0105	0.9978	0.2849	0.0101	0.2950	0.0000	3,788.6674	3,788.6674	0.2052	0.0000	3,793.7979
Worker	2.4538	1.5283	17.2615	0.0603	7.9100	0.0458	7.9557	2.1008	0.0421	2.1429	0.0000	5,453.2086	5,453.2086	0.1107	0.0000	5,455.9750
Total	**2.7278**	**12.5555**	**19.4773**	**0.0998**	**8.8972**	**0.0563**	**8.9535**	**2.3857**	**0.0522**	**2.4379**	**0.0000**	**9,241.8761**	**9,241.8761**	**0.3159**	**0.0000**	**9,249.7728**

3.4 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2687	10.9537	2.1557	0.0393	0.9873	0.0104	0.9976	0.2849	9.9000e-003	0.2948	0.0000	3,770.8636	3,770.8636	0.2034	0.0000	3,775.9490
Worker	2.3241	1.4003	16.0887	0.0583	7.9100	0.0433	7.9533	2.1008	0.0399	2.1406	0.0000	5,272.1134	5,272.1134	0.1008	0.0000	5,274.6321
Total	**2.5928**	**12.3541**	**18.2444**	**0.0976**	**8.8972**	**0.0537**	**8.9509**	**2.3857**	**0.0498**	**2.4355**	**0.0000**	**9,042.9770**	**9,042.9770**	**0.3042**	**0.0000**	**9,050.5811**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1028	1.8111	2.3527	3.5200e-003		0.1099	0.1099		0.1099	0.1099	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1028**	**1.8111**	**2.3527**	**3.5200e-003**		**0.1099**	**0.1099**		**0.1099**	**0.1099**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2687	10.9537	2.1557	0.0393	0.9873	0.0104	0.9976	0.2849	9.9000e-003	0.2948	0.0000	3,770.8636	3,770.8636	0.2034	0.0000	3,775.9490
Worker	2.3241	1.4003	16.0887	0.0583	7.9100	0.0433	7.9533	2.1008	0.0399	2.1406	0.0000	5,272.1134	5,272.1134	0.1008	0.0000	5,274.6321
Total	**2.5928**	**12.3541**	**18.2444**	**0.0976**	**8.8972**	**0.0537**	**8.9509**	**2.3857**	**0.0498**	**2.4355**	**0.0000**	**9,042.9770**	**9,042.9770**	**0.3042**	**0.0000**	**9,050.5811**

3.4 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1778	1.6211	2.0910	3.5000e-003		0.0686	0.0686		0.0645	0.0645	0.0000	301.4953	301.4953	0.0709	0.0000	303.2671
Total	**0.1778**	**1.6211**	**2.0910**	**3.5000e-003**		**0.0686**	**0.0686**		**0.0645**	**0.0645**	**0.0000**	**301.4953**	**301.4953**	**0.0709**	**0.0000**	**303.2671**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2633	10.8543	2.1008	0.0390	0.9835	0.0102	0.9937	0.2838	9.7600e-003	0.2936	0.0000	3,741.3360	3,741.3360	0.2006	0.0000	3,746.3497
Worker	2.1818	1.2807	15.0041	0.0563	7.8796	0.0400	7.9197	2.0927	0.0368	2.1296	0.0000	5,093.5417	5,093.5417	0.0919	0.0000	5,095.8382
Total	**2.4451**	**12.1350**	**17.1049**	**0.0953**	**8.8631**	**0.0503**	**8.9134**	**2.3766**	**0.0466**	**2.4232**	**0.0000**	**8,834.8777**	**8,834.8777**	**0.2924**	**0.0000**	**8,842.1879**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1024	1.8041	2.3437	3.5000e-003		0.1095	0.1095		0.1095	0.1095	0.0000	301.4949	301.4949	0.0709	0.0000	303.2667
Total	**0.1024**	**1.8041**	**2.3437**	**3.5000e-003**		**0.1095**	**0.1095**		**0.1095**	**0.1095**	**0.0000**	**301.4949**	**301.4949**	**0.0709**	**0.0000**	**303.2667**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2633	10.8543	2.1008	0.0390	0.9835	0.0102	0.9937	0.2838	9.7600e-003	0.2936	0.0000	3,741.3360	3,741.3360	0.2006	0.0000	3,746.3497
Worker	2.1818	1.2807	15.0041	0.0563	7.8796	0.0400	7.9197	2.0927	0.0368	2.1296	0.0000	5,093.5417	5,093.5417	0.0919	0.0000	5,095.8382
Total	**2.4451**	**12.1350**	**17.1049**	**0.0953**	**8.8631**	**0.0503**	**8.9134**	**2.3766**	**0.0466**	**2.4232**	**0.0000**	**8,834.8777**	**8,834.8777**	**0.2924**	**0.0000**	**8,842.1879**

3.4 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2605	10.8422	2.0663	0.0390	0.9872	0.0101	0.9974	0.2849	9.6900e-003	0.2946	0.0000	3,743.0015	3,743.0015	0.1994	0.0000	3,747.9865
Worker	2.0439	1.1768	14.0677	0.0549	7.9100	0.0373	7.9472	2.1008	0.0343	2.1351	0.0000	4,973.0803	4,973.0803	0.0840	0.0000	4,975.1794
Total	**2.3044**	**12.0189**	**16.1340**	**0.0940**	**8.8972**	**0.0474**	**8.9446**	**2.3857**	**0.0440**	**2.4297**	**0.0000**	**8,716.0818**	**8,716.0818**	**0.2834**	**0.0000**	**8,723.1659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1028	1.8111	2.3527	3.5200e-003		0.1099	0.1099		0.1099	0.1099	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1028**	**1.8111**	**2.3527**	**3.5200e-003**		**0.1099**	**0.1099**		**0.1099**	**0.1099**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2605	10.8422	2.0663	0.0390	0.9872	0.0101	0.9974	0.2849	9.6900e-003	0.2946	0.0000	3,743.0015	3,743.0015	0.1994	0.0000	3,747.9865
Worker	2.0439	1.1768	14.0677	0.0549	7.9100	0.0373	7.9472	2.1008	0.0343	2.1351	0.0000	4,973.0803	4,973.0803	0.0840	0.0000	4,975.1794
Total	**2.3044**	**12.0189**	**16.1340**	**0.0940**	**8.8972**	**0.0474**	**8.9446**	**2.3857**	**0.0440**	**2.4297**	**0.0000**	**8,716.0818**	**8,716.0818**	**0.2834**	**0.0000**	**8,723.1659**

3.4 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1708	1.0355	2.1085	4.0400e-003		0.0193	0.0193		0.0193	0.0193	0.0000	343.0336	343.0336	0.0138	0.0000	343.3777
Total	**0.1708**	**1.0355**	**2.1085**	**4.0400e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**343.0336**	**343.0336**	**0.0138**	**0.0000**	**343.3777**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2574	10.7906	2.0358	0.0389	0.9872	0.0100	0.9973	0.2849	9.5800e-003	0.2945	0.0000	3,732.1480	3,732.1480	0.1974	0.0000	3,737.0825
Worker	1.9004	1.0765	13.1725	0.0536	7.9100	0.0347	7.9446	2.1008	0.0319	2.1327	0.0000	4,849.7585	4,849.7585	0.0766	0.0000	4,851.6732
Total	**2.1578**	**11.8671**	**15.2083**	**0.0925**	**8.8972**	**0.0447**	**8.9419**	**2.3857**	**0.0415**	**2.4272**	**0.0000**	**8,581.9064**	**8,581.9064**	**0.2740**	**0.0000**	**8,588.7557**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0955	1.7919	2.3462	4.0400e-003		0.1067	0.1067		0.1067	0.1067	0.0000	343.0332	343.0332	0.0138	0.0000	343.3773
Total	**0.0955**	**1.7919**	**2.3462**	**4.0400e-003**		**0.1067**	**0.1067**		**0.1067**	**0.1067**	**0.0000**	**343.0332**	**343.0332**	**0.0138**	**0.0000**	**343.3773**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2574	10.7906	2.0358	0.0389	0.9872	0.0100	0.9973	0.2849	9.5800e-003	0.2945	0.0000	3,732.1480	3,732.1480	0.1974	0.0000	3,737.0825
Worker	1.9004	1.0765	13.1725	0.0536	7.9100	0.0347	7.9446	2.1008	0.0319	2.1327	0.0000	4,849.7585	4,849.7585	0.0766	0.0000	4,851.6732
Total	**2.1578**	**11.8671**	**15.2083**	**0.0925**	**8.8972**	**0.0447**	**8.9419**	**2.3857**	**0.0415**	**2.4272**	**0.0000**	**8,581.9064**	**8,581.9064**	**0.2740**	**0.0000**	**8,588.7557**

3.4 Building Construction - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1708	1.0355	2.1085	4.0400e-003		0.0193	0.0193		0.0193	0.0193	0.0000	343.0336	343.0336	0.0138	0.0000	343.3777
Total	**0.1708**	**1.0355**	**2.1085**	**4.0400e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**343.0336**	**343.0336**	**0.0138**	**0.0000**	**343.3777**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2574	10.8007	2.0278	0.0389	0.9872	9.9700e-003	0.9972	0.2849	9.5300e-003	0.2945	0.0000	3,733.6219	3,733.6219	0.1958	0.0000	3,738.5156
Worker	1.7436	0.9783	12.3700	0.0524	7.9100	0.0324	7.9424	2.1008	0.0298	2.1306	0.0000	4,748.4595	4,748.4595	0.0699	0.0000	4,750.2076
Total	**2.0010**	**11.7790**	**14.3978**	**0.0914**	**8.8972**	**0.0424**	**8.9396**	**2.3857**	**0.0394**	**2.4251**	**0.0000**	**8,482.0815**	**8,482.0815**	**0.2657**	**0.0000**	**8,488.7233**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0955	1.7919	2.3462	4.0400e-003		0.1067	0.1067		0.1067	0.1067	0.0000	343.0332	343.0332	0.0138	0.0000	343.3773
Total	**0.0955**	**1.7919**	**2.3462**	**4.0400e-003**		**0.1067**	**0.1067**		**0.1067**	**0.1067**	**0.0000**	**343.0332**	**343.0332**	**0.0138**	**0.0000**	**343.3773**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2574	10.8007	2.0278	0.0389	0.9872	9.9700e-003	0.9972	0.2849	9.5300e-003	0.2945	0.0000	3,733.6219	3,733.6219	0.1958	0.0000	3,738.5156
Worker	1.7436	0.9783	12.3700	0.0524	7.9100	0.0324	7.9424	2.1008	0.0298	2.1306	0.0000	4,748.4595	4,748.4595	0.0699	0.0000	4,750.2076
Total	**2.0010**	**11.7790**	**14.3978**	**0.0914**	**8.8972**	**0.0424**	**8.9396**	**2.3857**	**0.0394**	**2.4251**	**0.0000**	**8,482.0815**	**8,482.0815**	**0.2657**	**0.0000**	**8,488.7233**

3.4 Building Construction - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0635	0.3848	0.7836	1.5000e-003		7.1800e-003	7.1800e-003		7.1800e-003	7.1800e-003	0.0000	127.4876	127.4876	5.1100e-003	0.0000	127.6155
Total	**0.0635**	**0.3848**	**0.7836**	**1.5000e-003**		**7.1800e-003**	**7.1800e-003**		**7.1800e-003**	**7.1800e-003**	**0.0000**	**127.4876**	**127.4876**	**5.1100e-003**	**0.0000**	**127.6155**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0951	3.9993	0.7481	0.0144	0.3669	3.6800e-003	0.3706	0.1059	3.5100e-003	0.1094	0.0000	1,385.8666	1,385.8666	0.0722	0.0000	1,387.6725
Worker	0.5962	0.3321	4.3108	0.0191	2.9397	0.0112	2.9509	0.7808	0.0103	0.7911	0.0000	1,729.4378	1,729.4378	0.0237	0.0000	1,730.0298
Total	**0.6912**	**4.3314**	**5.0589**	**0.0335**	**3.3066**	**0.0149**	**3.3215**	**0.8866**	**0.0138**	**0.9005**	**0.0000**	**3,115.3044**	**3,115.3044**	**0.0959**	**0.0000**	**3,117.7024**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0355	0.6659	0.8720	1.5000e-003		0.0397	0.0397		0.0397	0.0397	0.0000	127.4874	127.4874	5.1100e-003	0.0000	127.6153
Total	**0.0355**	**0.6659**	**0.8720**	**1.5000e-003**		**0.0397**	**0.0397**		**0.0397**	**0.0397**	**0.0000**	**127.4874**	**127.4874**	**5.1100e-003**	**0.0000**	**127.6153**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0951	3.9993	0.7481	0.0144	0.3669	3.6800e-003	0.3706	0.1059	3.5100e-003	0.1094	0.0000	1,385.8666	1,385.8666	0.0722	0.0000	1,387.6725
Worker	0.5962	0.3321	4.3108	0.0191	2.9397	0.0112	2.9509	0.7808	0.0103	0.7911	0.0000	1,729.4378	1,729.4378	0.0237	0.0000	1,730.0298
Total	**0.6912**	**4.3314**	**5.0589**	**0.0335**	**3.3066**	**0.0149**	**3.3215**	**0.8866**	**0.0138**	**0.9005**	**0.0000**	**3,115.3044**	**3,115.3044**	**0.0959**	**0.0000**	**3,117.7024**

3.5 Paving - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1142	0.5874	1.3076	2.3100e-003		0.0273	0.0273		0.0273	0.0273	0.0000	198.8210	198.8210	9.3200e-003	0.0000	199.0540
Paving	0.0182					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1324**	**0.5874**	**1.3076**	**2.3100e-003**		**0.0273**	**0.0273**		**0.0273**	**0.0273**	**0.0000**	**198.8210**	**198.8210**	**9.3200e-003**	**0.0000**	**199.0540**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9400e-003	1.6400e-003	0.0212	9.0000e-005	0.0145	6.0000e-005	0.0145	3.8400e-003	5.0000e-005	3.8900e-003	0.0000	8.5147	8.5147	1.2000e-004	0.0000	8.5176
Total	**2.9400e-003**	**1.6400e-003**	**0.0212**	**9.0000e-005**	**0.0145**	**6.0000e-005**	**0.0145**	**3.8400e-003**	**5.0000e-005**	**3.8900e-003**	**0.0000**	**8.5147**	**8.5147**	**1.2000e-004**	**0.0000**	**8.5176**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0463	0.9319	1.4269	2.3100e-003		0.0503	0.0503		0.0503	0.0503	0.0000	198.8208	198.8208	9.3200e-003	0.0000	199.0538
Paving	0.0182					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0644**	**0.9319**	**1.4269**	**2.3100e-003**		**0.0503**	**0.0503**		**0.0503**	**0.0503**	**0.0000**	**198.8208**	**198.8208**	**9.3200e-003**	**0.0000**	**199.0538**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9400e-003	1.6400e-003	0.0212	9.0000e-005	0.0145	6.0000e-005	0.0145	3.8400e-003	5.0000e-005	3.8900e-003	0.0000	8.5147	8.5147	1.2000e-004	0.0000	8.5176
Total	**2.9400e-003**	**1.6400e-003**	**0.0212**	**9.0000e-005**	**0.0145**	**6.0000e-005**	**0.0145**	**3.8400e-003**	**5.0000e-005**	**3.8900e-003**	**0.0000**	**8.5147**	**8.5147**	**1.2000e-004**	**0.0000**	**8.5176**

3.5 Paving - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0588	0.3026	0.6736	1.1900e-003		0.0141	0.0141		0.0141	0.0141	0.0000	102.4229	102.4229	4.8000e-003	0.0000	102.5430
Paving	9.3500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0682**	**0.3026**	**0.6736**	**1.1900e-003**		**0.0141**	**0.0141**		**0.0141**	**0.0141**	**0.0000**	**102.4229**	**102.4229**	**4.8000e-003**	**0.0000**	**102.5430**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	7.7000e-004	0.0103	5.0000e-005	7.4600e-003	3.0000e-005	7.4800e-003	1.9800e-003	2.0000e-005	2.0000e-003	0.0000	4.3085	4.3085	6.0000e-005	0.0000	4.3099
Total	**1.4000e-003**	**7.7000e-004**	**0.0103**	**5.0000e-005**	**7.4600e-003**	**3.0000e-005**	**7.4800e-003**	**1.9800e-003**	**2.0000e-005**	**2.0000e-003**	**0.0000**	**4.3085**	**4.3085**	**6.0000e-005**	**0.0000**	**4.3099**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0238	0.4801	0.7351	1.1900e-003		0.0259	0.0259		0.0259	0.0259	0.0000	102.4228	102.4228	4.8000e-003	0.0000	102.5429
Paving	9.3500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0332**	**0.4801**	**0.7351**	**1.1900e-003**		**0.0259**	**0.0259**		**0.0259**	**0.0259**	**0.0000**	**102.4228**	**102.4228**	**4.8000e-003**	**0.0000**	**102.5429**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	7.7000e-004	0.0103	5.0000e-005	7.4600e-003	3.0000e-005	7.4800e-003	1.9800e-003	2.0000e-005	2.0000e-003	0.0000	4.3085	4.3085	6.0000e-005	0.0000	4.3099
Total	**1.4000e-003**	**7.7000e-004**	**0.0103**	**5.0000e-005**	**7.4600e-003**	**3.0000e-005**	**7.4800e-003**	**1.9800e-003**	**2.0000e-005**	**2.0000e-003**	**0.0000**	**4.3085**	**4.3085**	**6.0000e-005**	**0.0000**	**4.3099**

3.6 Architectural Coating - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	19.2581					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.0749	0.1573	2.6000e-004		1.7800e-003	1.7800e-003		1.7800e-003	1.7800e-003	0.0000	22.3410	22.3410	9.0000e-004	0.0000	22.3636
Total	**19.2695**	**0.0749**	**0.1573**	**2.6000e-004**		**1.7800e-003**	**1.7800e-003**		**1.7800e-003**	**1.7800e-003**	**0.0000**	**22.3410**	**22.3410**	**9.0000e-004**	**0.0000**	**22.3636**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1990	0.1102	1.4669	6.7700e-003	1.0611	3.7800e-003	1.0649	0.2818	3.4800e-003	0.2853	0.0000	613.1725	613.1725	7.8300e-003	0.0000	613.3683
Total	**0.1990**	**0.1102**	**1.4669**	**6.7700e-003**	**1.0611**	**3.7800e-003**	**1.0649**	**0.2818**	**3.4800e-003**	**0.2853**	**0.0000**	**613.1725**	**613.1725**	**7.8300e-003**	**0.0000**	**613.3683**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	19.2581					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2000e-003	0.1187	0.1603	2.6000e-004		8.3200e-003	8.3200e-003		8.3200e-003	8.3200e-003	0.0000	22.3409	22.3409	9.0000e-004	0.0000	22.3636
Total	**19.2633**	**0.1187**	**0.1603**	**2.6000e-004**		**8.3200e-003**	**8.3200e-003**		**8.3200e-003**	**8.3200e-003**	**0.0000**	**22.3409**	**22.3409**	**9.0000e-004**	**0.0000**	**22.3636**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1990	0.1102	1.4669	6.7700e-003	1.0611	3.7800e-003	1.0649	0.2818	3.4800e-003	0.2853	0.0000	613.1725	613.1725	7.8300e-003	0.0000	613.3683
Total	**0.1990**	**0.1102**	**1.4669**	**6.7700e-003**	**1.0611**	**3.7800e-003**	**1.0649**	**0.2818**	**3.4800e-003**	**0.2853**	**0.0000**	**613.1725**	**613.1725**	**7.8300e-003**	**0.0000**	**613.3683**

3.6 Architectural Coating - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.2535					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9000e-003	0.0321	0.0674	1.1000e-004		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	9.5747	9.5747	3.9000e-004	0.0000	9.5844
Total	**8.2584**	**0.0321**	**0.0674**	**1.1000e-004**		**7.6000e-004**	**7.6000e-004**		**7.6000e-004**	**7.6000e-004**	**0.0000**	**9.5747**	**9.5747**	**3.9000e-004**	**0.0000**	**9.5844**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0795	0.0438	0.5928	2.8600e-003	0.4548	1.5100e-003	0.4563	0.1208	1.3900e-003	0.1222	0.0000	258.6649	258.6649	3.0700e-003	0.0000	258.7417
Total	**0.0795**	**0.0438**	**0.5928**	**2.8600e-003**	**0.4548**	**1.5100e-003**	**0.4563**	**0.1208**	**1.3900e-003**	**0.1222**	**0.0000**	**258.6649**	**258.6649**	**3.0700e-003**	**0.0000**	**258.7417**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.2535					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2300e-003	0.0509	0.0687	1.1000e-004		3.5700e-003	3.5700e-003		3.5700e-003	3.5700e-003	0.0000	9.5747	9.5747	3.9000e-004	0.0000	9.5844
Total	**8.2557**	**0.0509**	**0.0687**	**1.1000e-004**		**3.5700e-003**	**3.5700e-003**		**3.5700e-003**	**3.5700e-003**	**0.0000**	**9.5747**	**9.5747**	**3.9000e-004**	**0.0000**	**9.5844**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0795	0.0438	0.5928	2.8600e-003	0.4548	1.5100e-003	0.4563	0.1208	1.3900e-003	0.1222	0.0000	258.6649	258.6649	3.0700e-003	0.0000	258.7417
Total	**0.0795**	**0.0438**	**0.5928**	**2.8600e-003**	**0.4548**	**1.5100e-003**	**0.4563**	**0.1208**	**1.3900e-003**	**0.1222**	**0.0000**	**258.6649**	**258.6649**	**3.0700e-003**	**0.0000**	**258.7417**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	15.0700	145.8374	171.7794	1.0526	83.0013	0.4376	83.4389	22.5882	0.4079	22.9961	0.0000	98,373.5632	98,373.5632	4.4204	0.0000	98,484.0731
Unmitigated	15.1935	146.5676	174.5473	1.0705	84.6952	0.4454	85.1406	23.0492	0.4151	23.4643	0.0000	100,047.5517	100,047.5517	4.4638	0.0000	100,159.1471

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	32,651.50	31,374.90	28772.60	109,058,404	106,877,235
Condo/Townhouse High Rise	5,902.96	6,085.84	4846.32	19,744,772	19,349,877
General Office Building	14,589.27	3,253.82	1388.82	35,707,131	34,992,989
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	13,095.24	15,324.80	7740.60	27,357,375	26,810,228
Regional Shopping Center	11,070.40	12,955.22	6543.72	23,127,276	22,664,731
Total	77,309.37	68,994.58	49,292.07	214,994,959	210,695,060

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse High Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Condo/Townhouse High Rise	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
General Office Building	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Other Asphalt Surfaces	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Other Non-Asphalt Surfaces	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Regional Shopping Center	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Regional Shopping Center	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	9,608.2766	9,608.2766	0.6299	0.1303	9,662.8627
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	9,608.2766	9,608.2766	0.6299	0.1303	9,662.8627
NaturalGas Mitigated	0.5169	4.4352	2.0126	0.0282		0.3571	0.3571		0.3571	0.3571	0.0000	5,115.3896	5,115.3896	0.0980	0.0938	5,145.7878
NaturalGas Unmitigated	0.5169	4.4352	2.0126	0.0282		0.3571	0.3571		0.3571	0.3571	0.0000	5,115.3896	5,115.3896	0.0980	0.0938	5,145.7878

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	7.43155e+007	0.4007	3.4243	1.4572	0.0219		0.2769	0.2769		0.2769	0.2769	0.0000	3,965.7582	3,965.7582	0.0760	0.0727	3,989.3247
Condo/Townhouse High Rise	1.53777e+007	0.0829	0.7086	0.3015	4.5200e-003		0.0573	0.0573		0.0573	0.0573	0.0000	820.6131	820.6131	0.0157	0.0150	825.4896
General Office Building	4.96011e+006	0.0268	0.2431	0.2042	1.4600e-003		0.0185	0.0185		0.0185	0.0185	0.0000	264.6902	264.6902	5.0700e-003	4.8500e-003	266.2631
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	552232	2.9800e-003	0.0271	0.0227	1.6000e-004		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	29.4692	29.4692	5.6000e-004	5.4000e-004	29.6443
Regional Shopping Center	653233	3.5200e-003	0.0320	0.0269	1.9000e-004		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	34.8590	34.8590	6.7000e-004	6.4000e-004	35.0661
Total		**0.5169**	**4.4352**	**2.0126**	**0.0282**		**0.3571**	**0.3571**		**0.3571**	**0.3571**	**0.0000**	**5,115.3896**	**5,115.3896**	**0.0980**	**0.0938**	**5,145.7878**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	7.43155e+007	0.4007	3.4243	1.4572	0.0219		0.2769	0.2769		0.2769	0.2769	0.0000	3,965.7582	3,965.7582	0.0760	0.0727	3,989.3247
Condo/Townhouse High Rise	1.53777e+007	0.0829	0.7086	0.3015	4.5200e-003		0.0573	0.0573		0.0573	0.0573	0.0000	820.6131	820.6131	0.0157	0.0150	825.4896
General Office Building	4.96011e+006	0.0268	0.2431	0.2042	1.4600e-003		0.0185	0.0185		0.0185	0.0185	0.0000	264.6902	264.6902	5.0700e-003	4.8500e-003	266.2631
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	552232	2.9800e-003	0.0271	0.0227	1.6000e-004		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	29.4692	29.4692	5.6000e-004	5.4000e-004	29.6443
Regional Shopping Center	653233	3.5200e-003	0.0320	0.0269	1.9000e-004		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	34.8590	34.8590	6.7000e-004	6.4000e-004	35.0661
Total		**0.5169**	**4.4352**	**2.0126**	**0.0282**		**0.3571**	**0.3571**		**0.3571**	**0.3571**	**0.0000**	**5,115.3896**	**5,115.3896**	**0.0980**	**0.0938**	**5,145.7878**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.29499e+007	4,604.7208	0.3019	0.0625	4,630.8809
Condo/Townhouse High Rise	5.01272e+006	1,005.7625	0.0659	0.0136	1,011.4764
General Office Building	1.26979e+007	2,547.7271	0.1670	0.0346	2,562.2011
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	3.3108e+006	664.2860	0.0436	9.0100e-003	668.0599
Regional Shopping Center	3.91633e+006	785.7803	0.0515	0.0107	790.2444
Total		**9,608.2766**	**0.6299**	**0.1303**	**9,662.8627**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.29499e+007	4,604.7208	0.3019	0.0625	4,630.8809
Condo/Townhouse High Rise	5.01272e+006	1,005.7625	0.0659	0.0136	1,011.4764
General Office Building	1.26979e+007	2,547.7271	0.1670	0.0346	2,562.2011
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	3.3108e+006	664.2860	0.0436	9.0100e-003	668.0599
Regional Shopping Center	3.91633e+006	785.7803	0.0515	0.0107	790.2444
Total		**9,608.2766**	**0.6299**	**0.1303**	**9,662.8627**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	32.9135	0.7028	60.9224	3.2300e-003		0.3390	0.3390		0.3390	0.3390	0.0000	99.8745	99.8745	0.0952	0.0000	102.2533
Unmitigated	32.9135	0.7028	60.9224	3.2300e-003		0.3390	0.3390		0.3390	0.3390	0.0000	99.8745	99.8745	0.0952	0.0000	102.2533

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.7512					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	28.3393					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8231	0.7028	60.9224	3.2300e-003		0.3390	0.3390		0.3390	0.3390	0.0000	99.8745	99.8745	0.0952	0.0000	102.2533
Total	**32.9135**	**0.7028**	**60.9224**	**3.2300e-003**		**0.3390**	**0.3390**		**0.3390**	**0.3390**	**0.0000**	**99.8745**	**99.8745**	**0.0952**	**0.0000**	**102.2533**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.7512					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	28.3393					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8231	0.7028	60.9224	3.2300e-003		0.3390	0.3390		0.3390	0.3390	0.0000	99.8745	99.8745	0.0952	0.0000	102.2533
Total	**32.9135**	**0.7028**	**60.9224**	**3.2300e-003**		**0.3390**	**0.3390**		**0.3390**	**0.3390**	**0.0000**	**99.8745**	**99.8745**	**0.0952**	**0.0000**	**102.2533**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2,147.8855	16.3361	0.4096	2,678.3606
Unmitigated	2,863.8473	21.7814	0.5462	3,571.1475

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	319.906 / 201.68	1,386.8375	10.5084	0.2636	1,728.0923
Condo/Townhouse High Rise	66.1965 / 41.7326	286.9709	2.1745	0.0545	357.5849
General Office Building	235.087 / 144.085	1,009.9456	7.7216	0.1936	1,260.6683
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	41.9206 / 25.6933	180.0933	1.3769	0.0345	224.8021
Total		**2,863.8473**	**21.7814**	**0.5462**	**3,571.1475**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	239.93 / 151.26	1,040.1281	7.8813	0.1977	1,296.0692
Condo/Townhouse High Rise	49.6474 / 31.2994	215.2281	1.6308	0.0409	268.1887
General Office Building	176.315 / 108.064	757.4592	5.7912	0.1452	945.5012
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	31.4405 / 19.27	135.0700	1.0327	0.0259	168.6016
Total		**2,147.8855**	**16.3361**	**0.4096**	**2,678.3606**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	230.9174	13.6468	0.0000	572.0882
Unmitigated	923.6698	54.5873	0.0000	2,288.3528

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	2258.6	458.4754	27.0951	0.0000	1,135.8534
Condo/Townhouse High Rise	467.36	94.8699	5.6067	0.0000	235.0361
General Office Building	1230.1	249.6992	14.7568	0.0000	618.6192
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	594.24	120.6254	7.1288	0.0000	298.8442
Total		**923.6698**	**54.5873**	**0.0000**	**2,288.3528**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	564.65	114.6189	6.7738	0.0000	283.9633
Condo/Townhouse High Rise	116.84	23.7175	1.4017	0.0000	58.7590
General Office Building	307.525	62.4248	3.6892	0.0000	154.6548
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	148.56	30.1563	1.7822	0.0000	74.7111
Total		**230.9175**	**13.6468**	**0.0000**	**572.0882**

CalEEMod Version: CalEEMod.2016.3.1 Date: 11/29/2016 9:39 AM

2016 North Montclair Downtown Specific Plan - San Bernardino-South Coast County, Summer

2016 North Montclair Downtown Specific Plan

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,322.69	1000sqft	30.40	1,322,695.00	0
Other Asphalt Surfaces	21.00	Acre	21.00	914,760.00	0
Other Non-Asphalt Surfaces	14.90	Acre	14.90	649,044.00	0
Apartments Mid Rise	4,910.00	Dwelling Unit	32.00	4,910,000.00	8018
Condo/Townhouse High Rise	1,016.00	Dwelling Unit	24.00	1,016,000.00	1659
Regional Shopping Center	306.68	1000sqft	15.60	306,682.00	0
Regional Shopping Center	259.26	1000sqft	12.50	259,264.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2035
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	442.34	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2016 North Montclair Downtown Specific Plan. San Bernardino County (South Coast Air Basin). CO2 intensity factor updated for effect of 50% RPS.

Land Use - Project includes construction of 5,926 du of MFR, 1,322,695 sf of office uses, 306,682 sf of retail, and 259,264 of services.

Construction Phase - Default construction phases assumed based on a start date of 2017 and a projected buildout date of 2035.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Trips and VMT - Rounded trips.

Demolition - Demolition of existing single-family houses and industrial park.

Architectural Coating - Comply with SCAQMD Rule 1113.

Vehicle Trips - Adjusted trip rates based on traffic study.

Woodstoves - Comply with SCAQMD Rule 445.

Area Coating - Comply with SCAQMD Rule 1113.

Energy Use - Adjusted T24 electricity energy intensity and T24 natural gas energy intensity to meet 2016 Title 24 standards.

Construction Off-road Equipment Mitigation - Comply with SCAQMD Rule 403. Water 2 times daily. Use of Tier 3 construction equipment.

Mobile Land Use Mitigation - Improve pedestrian network.

Water Mitigation - Meet statewide water reduction goal of 25%.

Waste Mitigation - Comply with AB 341 goal of 75% waste diversion.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	220.00	250.00
tblConstructionPhase	NumDays	3,100.00	3,500.00
tblConstructionPhase	NumDays	220.00	250.00
tblEnergyUse	T24E	910.58	655.62
tblEnergyUse	T24E	910.58	655.62
tblEnergyUse	T24E	3.22	3.06
tblEnergyUse	T24E	4.80	4.56
tblEnergyUse	T24NG	12,646.59	9,105.54
tblEnergyUse	T24NG	12,646.59	9,105.54
tblEnergyUse	T24NG	3.49	3.75
tblEnergyUse	T24NG	1.93	1.83
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00

tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	4,173.50	4,296.25
tblFireplaces	NumberGas	863.60	889.00
tblFireplaces	NumberNoFireplace	491.00	613.75
tblFireplaces	NumberNoFireplace	101.60	127.00
tblFireplaces	NumberWood	245.50	0.00
tblFireplaces	NumberWood	50.80	0.00
tblFleetMix	FleetMixLandUseSubType	General Office Building	Apartments Mid Rise
tblFleetMix	FleetMixLandUseSubType	Other Asphalt Surfaces	Condo/Townhouse High Rise
tblFleetMix	FleetMixLandUseSubType	Other Non-Asphalt Surfaces	General Office Building
tblFleetMix	FleetMixLandUseSubType	Apartments Mid Rise	Other Asphalt Surfaces
tblFleetMix	FleetMixLandUseSubType	Condo/Townhouse High Rise	Other Non-Asphalt Surfaces
tblLandUse	BuildingSpaceSquareFeet	1,322,690.00	1,322,695.00
tblLandUse	BuildingSpaceSquareFeet	259,260.00	259,264.00
tblLandUse	BuildingSpaceSquareFeet	306,680.00	306,682.00
tblLandUse	LandUseSquareFeet	1,322,690.00	1,322,695.00
tblLandUse	LandUseSquareFeet	259,260.00	259,264.00
tblLandUse	LandUseSquareFeet	306,680.00	306,682.00
tblLandUse	LotAcreage	30.36	30.40
tblLandUse	LotAcreage	129.21	32.00
tblLandUse	LotAcreage	15.88	24.00
tblLandUse	LotAcreage	5.95	12.50
tblLandUse	LotAcreage	7.04	15.60
tblLandUse	Population	14,043.00	8,018.00
tblLandUse	Population	2,906.00	1,659.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	442.34
tblProjectCharacteristics	OperationalYear	2018	2035
tblTripsAndVMT	HaulingTripNumber	1,137.00	1,138.00
tblTripsAndVMT	VendorTripNumber	1,199.00	1,200.00

tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	ST_TR	4.31	5.99
tblVehicleTrips	SU_TR	3.43	4.77
tblVehicleTrips	WD_TR	4.18	5.81
tblWoodstoves	NumberCatalytic	245.50	0.00
tblWoodstoves	NumberCatalytic	50.80	0.00
tblWoodstoves	NumberNoncatalytic	245.50	0.00
tblWoodstoves	NumberNoncatalytic	50.80	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.8945	68.0427	40.0671	0.0645	8.8969	3.0743	11.9712	3.6558	2.8284	6.4842	0.0000	6,593.2622	6,593.2622	1.9542	0.0000	6,642.1172
2018	43.5800	195.2689	359.9930	1.0297	69.4761	2.9504	72.4265	18.6001	2.7826	21.3827	0.0000	104,278.7037	104,278.7037	5.4948	0.0000	104,416.0729
2019	39.4403	181.0555	320.8215	1.0030	69.4759	2.5696	72.0455	18.6001	2.4222	21.0223	0.0000	101,636.7770	101,636.7770	5.1306	0.0000	101,765.0432
2020	35.9336	165.1841	290.1369	0.9801	69.4758	2.1047	71.5805	18.6000	1.9807	20.5807	0.0000	99,356.2797	99,356.2797	4.7599	0.0000	99,475.2779
2021	33.0937	150.5184	267.2009	0.9580	69.4757	1.5523	71.0279	18.6000	1.4550	20.0550	0.0000	97,184.8519	97,184.8519	4.4955	0.0000	97,297.2404
2022	30.8290	140.9798	246.7289	0.9332	69.4755	1.3593	70.8349	18.5999	1.2738	19.8737	0.0000	94,729.6653	94,729.6653	4.2394	0.0000	94,835.6506
2023	28.2967	113.4257	226.8290	0.9020	69.4754	1.1550	70.6305	18.5999	1.0805	19.6803	0.0000	91,597.9936	91,597.9936	3.6683	0.0000	91,689.7003
2024	26.7137	111.5610	213.0597	0.8831	69.4753	1.0649	70.5403	18.5999	0.9955	19.5953	0.0000	89,736.9155	89,736.9155	3.5428	0.0000	89,825.4851
2025	25.2433	108.8738	198.7558	0.8595	69.4752	0.9706	70.4458	18.5998	0.9068	19.5066	0.0000	87,386.4255	87,386.4255	3.4096	0.0000	87,471.6657
2026	24.0446	107.3094	186.5914	0.8386	69.4752	0.9578	70.4330	18.5998	0.8950	19.4948	0.0000	85,310.9762	85,310.9762	3.2929	0.0000	85,393.2998
2027	22.8922	105.8863	175.8108	0.8202	69.4751	0.9380	70.4131	18.5998	0.8767	19.4765	0.0000	83,488.9348	83,488.9348	3.1860	0.0000	83,568.5842
2028	21.7239	104.6659	166.4191	0.8041	69.4751	0.9134	70.3884	18.5998	0.8540	19.4537	0.0000	81,894.4472	81,894.4472	3.0897	0.0000	81,971.6897
2029	20.4591	103.5161	157.3646	0.7901	69.4750	0.8903	70.3654	18.5997	0.8327	19.4325	0.0000	80,496.8159	80,496.8159	2.9975	0.0000	80,571.7525
2030	19.1664	97.9081	149.3526	0.7817	69.4750	0.4899	69.9649	18.5997	0.4653	19.0650	0.0000	79,611.4746	79,611.4746	2.4280	0.0000	79,672.1753
2031	17.8499	97.2988	142.3295	0.7724	69.4749	0.4725	69.9475	18.5997	0.4492	19.0489	0.0000	78,695.7141	78,695.7141	2.3533	0.0000	78,754.5463
2032	16.6627	96.4230	135.4592	0.7632	69.4749	0.4548	69.9297	18.5997	0.4329	19.0326	0.0000	77,784.9526	77,784.9526	2.2847	0.0000	77,842.0689
2033	222.7085	7.1368	21.6556	0.0874	12.3625	0.3313	12.4260	3.2786	0.3312	3.3386	0.0000	8,711.0073	8,711.0073	0.1261	0.0000	8,714.0444

2034	222.5355	1.9183	20.5572	0.0861	12.3625	0.0607	12.4231	3.2786	0.0574	3.3360	0.0000	8,579.4199	8,579.4199	0.1123	0.0000	8,582.2269
Maximum	**222.7085**	**195.2689**	**359.9930**	**1.0297**	**69.4761**	**3.0743**	**72.4265**	**18.6001**	**2.8284**	**21.3827**	**0.0000**	**104,278.7037**	**104,278.7037**	**5.4948**	**0.0000**	**104,416.0729**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	1.6692	30.0813	38.0071	0.0645	4.1266	1.3010	5.4276	1.6777	1.3009	2.9786	0.0000	6,593.2622	6,593.2622	1.9542	0.0000	6,642.1172
2018	41.9103	186.0966	360.6485	1.0297	69.4761	2.3654	71.8415	18.6001	2.2875	20.8876	0.0000	104,278.7037	104,278.7037	5.4948	0.0000	104,416.0729
2019	38.0323	174.1367	321.8418	1.0030	69.4759	2.1807	71.6566	18.6001	2.1105	20.7105	0.0000	101,636.7770	101,636.7770	5.1306	0.0000	101,765.0432
2020	34.7238	160.1051	291.4323	0.9801	69.4758	1.8758	71.3516	18.6000	1.8186	20.4186	0.0000	99,356.2797	99,356.2797	4.7599	0.0000	99,475.2779
2021	32.0635	147.1309	268.7214	0.9580	69.4757	1.4691	70.9448	18.6000	1.4291	20.0291	0.0000	97,184.8519	97,184.8519	4.4955	0.0000	97,297.2404
2022	29.9675	139.3627	248.4383	0.9332	69.4755	1.4155	70.8911	18.5999	1.3778	19.9778	0.0000	94,729.6653	94,729.6653	4.2394	0.0000	94,835.6506
2023	27.5464	112.9971	228.6398	0.9020	69.4754	1.3118	70.7872	18.5999	1.2785	19.8784	0.0000	91,597.9936	91,597.9936	3.6683	0.0000	91,689.7003
2024	26.0460	112.0337	214.9335	0.8831	69.4753	1.3004	70.7757	18.5999	1.2674	19.8672	0.0000	89,736.9155	89,736.9155	3.5428	0.0000	89,825.4851
2025	24.6637	110.2818	200.6997	0.8595	69.4752	1.2852	70.7604	18.5998	1.2528	19.8526	0.0000	87,386.4255	87,386.4255	3.4096	0.0000	87,471.6657
2026	23.4650	108.7175	188.5353	0.8386	69.4752	1.2725	70.7476	18.5998	1.2410	19.8407	0.0000	85,310.9762	85,310.9762	3.2929	0.0000	85,393.2998
2027	22.3126	107.2944	177.7548	0.8202	69.4751	1.2527	70.7278	18.5998	1.2227	19.8224	0.0000	83,488.9348	83,488.9348	3.1860	0.0000	83,568.5842
2028	21.1443	106.0740	168.3630	0.8041	69.4751	1.2280	70.7031	18.5998	1.1999	19.7997	0.0000	81,894.4472	81,894.4472	3.0897	0.0000	81,971.6897
2029	19.8795	104.9242	159.3085	0.7901	69.4750	1.2050	70.6800	18.5997	1.1787	19.7784	0.0000	80,496.8159	80,496.8159	2.9975	0.0000	80,571.7525
2030	18.5892	103.7041	151.1742	0.7817	69.4750	1.1595	70.6345	18.5997	1.1349	19.7346	0.0000	79,611.4746	79,611.4746	2.4280	0.0000	79,672.1753
2031	17.2727	103.0948	144.1510	0.7724	69.4749	1.1421	70.6171	18.5997	1.1188	19.7186	0.0000	78,695.7141	78,695.7141	2.3533	0.0000	78,754.5463

2032	16.0855	102.2190	137.2808	0.7632	69.4749	1.1244	70.5993	18.5997	1.1025	19.7022	0.0000	77,784.9526	77,784.9526	2.2847	0.0000	77,842.0689
2033	222.6372	11.3118	21.6903	0.0874	12.3625	0.6100	12.5008	3.2786	0.6099	3.4134	0.0000	8,711.0073	8,711.0073	0.1261	0.0000	8,714.0443
2034	222.4642	2.4190	20.5919	0.0861	12.3625	0.1354	12.4979	3.2786	0.1322	3.4108	0.0000	8,579.4199	8,579.4199	0.1123	0.0000	8,582.2269
Maximum	**222.6372**	**186.0966**	**360.6485**	**1.0297**	**69.4761**	**2.3654**	**71.8415**	**18.6001**	**2.2875**	**20.8876**	**0.0000**	**104,278.7037**	**104,278.7037**	**5.4948**	**0.0000**	**104,416.0729**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.94**	**1.79**	**-0.70**	**0.00**	**0.44**	**-5.94**	**0.33**	**0.68**	**-10.25**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	195.0086	91.6366	523.9812	0.5749		9.6663	9.6663		9.6663	9.6663	0.0000	110,686.0362	110,686.0362	2.9437	2.0131	111,359.5317
Energy	2.8323	24.3022	11.0278	0.1545		1.9568	1.9568		1.9568	1.9568		30,897.2704	30,897.2704	0.5922	0.5665	31,080.8774
Mobile	113.0112	917.7046	1,197.3773	7.0801	531.6877	2.7826	534.4703	144.6194	2.5935	147.2129		728,622.8992	728,622.8992	30.4184		729,383.3582
Total	**310.8521**	**1,033.6435**	**1,732.3863**	**7.8094**	**531.6877**	**14.4057**	**546.0934**	**144.6194**	**14.2166**	**158.8360**	**0.0000**	**870,206.2058**	**870,206.2058**	**33.9543**	**2.5796**	**871,823.7672**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	195.0086	91.6366	523.9812	0.5749		9.6663	9.6663		9.6663	9.6663	0.0000	110,686.0362	110,686.0362	2.9437	2.0131	111,359.5317
Energy	2.8323	24.3022	11.0278	0.1545		1.9568	1.9568		1.9568	1.9568		30,897.2704	30,897.2704	0.5922	0.5665	31,080.8774
Mobile	112.2235	913.4619	1,177.2937	6.9613	521.0540	2.7341	523.7881	141.7270	2.5482	144.2753		716,455.7485	716,455.7485	30.1108		717,208.5183
Total	**310.0644**	**1,029.4007**	**1,712.3027**	**7.6906**	**521.0540**	**14.3572**	**535.4112**	**141.7270**	**14.1713**	**155.8984**	**0.0000**	**858,039.0551**	**858,039.0551**	**33.6467**	**2.5796**	**859,648.9273**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.25**	**0.41**	**1.16**	**1.52**	**2.00**	**0.34**	**1.96**	**2.00**	**0.32**	**1.85**	**0.00**	**1.40**	**1.40**	**0.91**	**0.00**	**1.40**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	10/6/2017	5	200	
2	Grading	Grading	10/7/2017	12/14/2018	5	310	
3	Building Construction	Building Construction	12/15/2018	5/14/2032	5	3500	
4	Paving	Paving	5/15/2032	4/29/2033	5	250	
5	Architectural Coating	Architectural Coating	4/30/2033	4/14/2034	5	250	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 775

Acres of Paving: 35.9

Residential Indoor: 12,000,150; Residential Outdoor: 4,000,050; Non-Residential Indoor: 2,832,962; Non-Residential Outdoor: 944,321;

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	16.00	0.00	1,138.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	5,528.00	1,200.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1,106.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2304	0.0000	1.2304	0.1863	0.0000	0.1863			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425		3,924.2833	3,924.2833	1.0730		3,951.1070
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**1.2304**	**2.1935**	**3.4239**	**0.1863**	**2.0425**	**2.2288**		**3,924.2833**	**3,924.2833**	**1.0730**		**3,951.1070**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0466	1.7364	0.2531	4.6000e-003	0.0996	8.6100e-003	0.1082	0.0273	8.2400e-003	0.0356		487.6808	487.6808	0.0275		488.3676
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1169	0.0825	1.0276	2.0000e-003	0.1788	1.2900e-003	0.1801	0.0474	1.1900e-003	0.0486		198.7007	198.7007	8.1100e-003		198.9035
Total	**0.1635**	**1.8189**	**1.2807**	**6.6000e-003**	**0.2784**	**9.9000e-003**	**0.2883**	**0.0747**	**9.4300e-003**	**0.0842**		**686.3815**	**686.3815**	**0.0356**		**687.2711**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5537	0.0000	0.5537	0.0838	0.0000	0.0838			0.0000			0.0000
Off-Road	0.9246	18.3130	24.6739	0.0388		0.8627	0.8627		0.8627	0.8627	0.0000	3,924.2833	3,924.2833	1.0730		3,951.1070
Total	**0.9246**	**18.3130**	**24.6739**	**0.0388**	**0.5537**	**0.8627**	**1.4164**	**0.0838**	**0.8627**	**0.9466**	**0.0000**	**3,924.2833**	**3,924.2833**	**1.0730**		**3,951.1070**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0466	1.7364	0.2531	4.6000e-003	0.0996	8.6100e-003	0.1082	0.0273	8.2400e-003	0.0356		487.6808	487.6808	0.0275		488.3676
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1169	0.0825	1.0276	2.0000e-003	0.1788	1.2900e-003	0.1801	0.0474	1.1900e-003	0.0486		198.7007	198.7007	8.1100e-003		198.9035
Total	**0.1635**	**1.8189**	**1.2807**	**6.6000e-003**	**0.2784**	**9.9000e-003**	**0.2883**	**0.0747**	**9.4300e-003**	**0.0842**		**686.3815**	**686.3815**	**0.0356**		**687.2711**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.7483	67.9396	38.7826	0.0620		3.0727	3.0727		2.8269	2.8269		6,344.8863	6,344.8863	1.9441		6,393.4879
Total	**5.7483**	**67.9396**	**38.7826**	**0.0620**	**8.6733**	**3.0727**	**11.7460**	**3.5965**	**2.8269**	**6.4234**		**6,344.8863**	**6,344.8863**	**1.9441**		**6,393.4879**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1461	0.1031	1.2845	2.5000e-003	0.2236	1.6100e-003	0.2252	0.0593	1.4900e-003	0.0608		248.3759	248.3759	0.0101		248.6293
Total	**0.1461**	**0.1031**	**1.2845**	**2.5000e-003**	**0.2236**	**1.6100e-003**	**0.2252**	**0.0593**	**1.4900e-003**	**0.0608**		**248.3759**	**248.3759**	**0.0101**		**248.6293**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		1.2994	1.2994		1.2994	1.2994	0.0000	6,344.8863	6,344.8863	1.9441		6,393.4878
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.9030**	**1.2994**	**5.2024**	**1.6184**	**1.2994**	**2.9179**	**0.0000**	**6,344.8863**	**6,344.8863**	**1.9441**		**6,393.4878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1461	0.1031	1.2845	2.5000e-003	0.2236	1.6100e-003	0.2252	0.0593	1.4900e-003	0.0608		248.3759	248.3759	0.0101		248.6293
Total	**0.1461**	**0.1031**	**1.2845**	**2.5000e-003**	**0.2236**	**1.6100e-003**	**0.2252**	**0.0593**	**1.4900e-003**	**0.0608**		**248.3759**	**248.3759**	**0.0101**		**248.6293**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1305	0.0897	1.1246	2.4300e-003	0.2236	1.5500e-003	0.2251	0.0593	1.4300e-003	0.0607		241.4857	241.4857	8.9000e-003		241.7082
Total	**0.1305**	**0.0897**	**1.1246**	**2.4300e-003**	**0.2236**	**1.5500e-003**	**0.2251**	**0.0593**	**1.4300e-003**	**0.0607**		**241.4857**	**241.4857**	**8.9000e-003**		**241.7082**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		1.2994	1.2994		1.2994	1.2994	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.9030**	**1.2994**	**5.2024**	**1.6184**	**1.2994**	**2.9179**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1305	0.0897	1.1246	2.4300e-003	0.2236	1.5500e-003	0.2251	0.0593	1.4300e-003	0.0607		241.4857	241.4857	8.9000e-003		241.7082
Total	**0.1305**	**0.0897**	**1.1246**	**2.4300e-003**	**0.2236**	**1.5500e-003**	**0.2251**	**0.0593**	**1.4300e-003**	**0.0607**		**241.4857**	**241.4857**	**8.9000e-003**		**241.7082**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.8356	147.0811	31.5766	0.3314	7.6861	1.0214	8.7074	2.2131	0.9771	3.1902		34,911.1128	34,911.1128	2.3933		34,970.9449
Worker	36.0649	24.7978	310.8359	0.6713	61.7900	0.4292	62.2192	16.3870	0.3955	16.7826		66,746.6558	66,746.6558	2.4594		66,808.1398
Total	**40.9005**	**171.8789**	**342.4125**	**1.0027**	**69.4761**	**1.4505**	**70.9266**	**18.6001**	**1.3726**	**19.9728**		**101,657.7686**	**101,657.7686**	**4.8526**		**101,779.0847**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0098	14.2177	18.2359	0.0269		0.9149	0.9149		0.9149	0.9149	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**1.0098**	**14.2177**	**18.2359**	**0.0269**		**0.9149**	**0.9149**		**0.9149**	**0.9149**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.8356	147.0811	31.5766	0.3314	7.6861	1.0214	8.7074	2.2131	0.9771	3.1902		34,911.1128	34,911.1128	2.3933		34,970.9449
Worker	36.0649	24.7978	310.8359	0.6713	61.7900	0.4292	62.2192	16.3870	0.3955	16.7826		66,746.6558	66,746.6558	2.4594		66,808.1398
Total	**40.9005**	**171.8789**	**342.4125**	**1.0027**	**69.4761**	**1.4505**	**70.9266**	**18.6001**	**1.3726**	**19.9728**		**101,657.7686**	**101,657.7686**	**4.8526**		**101,779.0847**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.3041	138.1767	28.0978	0.3279	7.6859	0.8642	8.5501	2.2131	0.8267	3.0398		34,565.7253	34,565.7253	2.3373		34,624.1569
Worker	32.7750	21.8000	275.5599	0.6481	61.7900	0.4155	62.2055	16.3870	0.3827	16.7697		64,479.4715	64,479.4715	2.1621		64,533.5228
Total	**37.0791**	**159.9767**	**303.6577**	**0.9760**	**69.4759**	**1.2797**	**70.7556**	**18.6001**	**1.2095**	**19.8095**		**99,045.1968**	**99,045.1968**	**4.4993**		**99,157.6797**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9532	14.1600	18.1841	0.0269		0.9010	0.9010		0.9010	0.9010	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**0.9532**	**14.1600**	**18.1841**	**0.0269**		**0.9010**	**0.9010**		**0.9010**	**0.9010**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.3041	138.1767	28.0978	0.3279	7.6859	0.8642	8.5501	2.2131	0.8267	3.0398		34,565.7253	34,565.7253	2.3373		34,624.1569
Worker	32.7750	21.8000	275.5599	0.6481	61.7900	0.4155	62.2055	16.3870	0.3827	16.7697		64,479.4715	64,479.4715	2.1621		64,533.5228
Total	**37.0791**	**159.9767**	**303.6577**	**0.9760**	**69.4759**	**1.2797**	**70.7556**	**18.6001**	**1.2095**	**19.8095**		**99,045.1968**	**99,045.1968**	**4.4993**		**99,157.6797**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.6428	126.6345	24.6795	0.3256	7.6858	0.5827	8.2685	2.2130	0.5574	2.7705		34,332.1663	34,332.1663	2.2300		34,387.9157
Worker	30.1709	19.3636	248.6089	0.6276	61.7900	0.4049	62.1949	16.3870	0.3729	16.7599		62,471.0504	62,471.0504	1.9071		62,518.7277
Total	**33.8137**	**145.9980**	**273.2884**	**0.9532**	**69.4758**	**0.9876**	**70.4634**	**18.6000**	**0.9303**	**19.5304**		**96,803.2167**	**96,803.2167**	**4.1371**		**96,906.6435**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9101	14.1070	18.1439	0.0269		0.8882	0.8882		0.8882	0.8882	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.9101**	**14.1070**	**18.1439**	**0.0269**		**0.8882**	**0.8882**		**0.8882**	**0.8882**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.6428	126.6345	24.6795	0.3256	7.6858	0.5827	8.2685	2.2130	0.5574	2.7705		34,332.1663	34,332.1663	2.2300		34,387.9157
Worker	30.1709	19.3636	248.6089	0.6276	61.7900	0.4049	62.1949	16.3870	0.3729	16.7599		62,471.0504	62,471.0504	1.9071		62,518.7277
Total	**33.8137**	**145.9980**	**273.2884**	**0.9532**	**69.4758**	**0.9876**	**70.4634**	**18.6000**	**0.9303**	**19.5304**		**96,803.2167**	**96,803.2167**	**4.1371**		**96,906.6435**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.1054	115.7249	21.7757	0.3237	7.6857	0.1984	7.8841	2.2130	0.1898	2.4027		34,150.7169	34,150.7169	2.1582		34,204.6711
Worker	28.0875	17.3613	228.8500	0.6074	61.7900	0.3952	62.1852	16.3870	0.3639	16.7510		60,480.7711	60,480.7711	1.7214		60,523.8050
Total	**31.1928**	**133.0863**	**250.6257**	**0.9311**	**69.4757**	**0.5937**	**70.0693**	**18.6000**	**0.5537**	**19.1537**		**94,631.4880**	**94,631.4880**	**3.8795**		**94,728.4761**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8707	14.0446	18.0957	0.0269		0.8754	0.8754		0.8754	0.8754	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.8707**	**14.0446**	**18.0957**	**0.0269**		**0.8754**	**0.8754**		**0.8754**	**0.8754**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.1054	115.7249	21.7757	0.3237	7.6857	0.1984	7.8841	2.2130	0.1898	2.4027		34,150.7169	34,150.7169	2.1582		34,204.6711
Worker	28.0875	17.3613	228.8500	0.6074	61.7900	0.3952	62.1852	16.3870	0.3639	16.7510		60,480.7711	60,480.7711	1.7214		60,523.8050
Total	**31.1928**	**133.0863**	**250.6257**	**0.9311**	**69.4757**	**0.5937**	**70.0693**	**18.6000**	**0.5537**	**19.1537**		**94,631.4880**	**94,631.4880**	**3.8795**		**94,728.4761**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.8928	109.7544	20.1330	0.3210	7.6855	0.1667	7.8522	2.2129	0.1594	2.3723		33,876.9099	33,876.9099	2.0835		33,928.9965
Worker	26.2299	15.6098	210.2325	0.5853	61.7900	0.3837	62.1737	16.3870	0.3533	16.7403		58,298.4219	58,298.4219	1.5440		58,337.0219
Total	**29.1227**	**125.3641**	**230.3655**	**0.9063**	**69.4755**	**0.5503**	**70.0259**	**18.5999**	**0.5126**	**19.1126**		**92,175.3317**	**92,175.3317**	**3.6275**		**92,266.0184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8448	13.9986	18.0727	0.0269		0.8652	0.8652		0.8652	0.8652	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.8448**	**13.9986**	**18.0727**	**0.0269**		**0.8652**	**0.8652**		**0.8652**	**0.8652**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.8928	109.7544	20.1330	0.3210	7.6855	0.1667	7.8522	2.2129	0.1594	2.3723		33,876.9099	33,876.9099	2.0835		33,928.9965
Worker	26.2299	15.6098	210.2325	0.5853	61.7900	0.3837	62.1737	16.3870	0.3533	16.7403		58,298.4219	58,298.4219	1.5440		58,337.0219
Total	**29.1227**	**125.3641**	**230.3655**	**0.9063**	**69.4755**	**0.5503**	**70.0259**	**18.5999**	**0.5126**	**19.1126**		**92,175.3317**	**92,175.3317**	**3.6275**		**92,266.0184**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1849	84.9837	17.5442	0.3119	7.6854	0.0820	7.7674	2.2129	0.0784	2.2913		32,936.3379	32,936.3379	1.6781		32,978.2898
Worker	24.5390	14.0571	193.0408	0.5631	61.7900	0.3733	62.1633	16.3870	0.3436	16.7307		56,106.4458	56,106.4458	1.3823		56,141.0044
Total	**26.7239**	**99.0408**	**210.5850**	**0.8751**	**69.4754**	**0.4553**	**69.9307**	**18.5999**	**0.4220**	**19.0219**		**89,042.7837**	**89,042.7837**	**3.0604**		**89,119.2942**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8225	13.9563	18.0549	0.0269		0.8565	0.8565		0.8565	0.8565	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.8225**	**13.9563**	**18.0549**	**0.0269**		**0.8565**	**0.8565**		**0.8565**	**0.8565**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1849	84.9837	17.5442	0.3119	7.6854	0.0820	7.7674	2.2129	0.0784	2.2913		32,936.3379	32,936.3379	1.6781		32,978.2898
Worker	24.5390	14.0571	193.0408	0.5631	61.7900	0.3733	62.1633	16.3870	0.3436	16.7307		56,106.4458	56,106.4458	1.3823		56,141.0044
Total	**26.7239**	**99.0408**	**210.5850**	**0.8751**	**69.4754**	**0.4553**	**69.9307**	**18.5999**	**0.4220**	**19.0219**		**89,042.7837**	**89,042.7837**	**3.0604**		**89,119.2942**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1537	85.3788	16.8749	0.3114	7.6853	0.0818	7.7671	2.2128	0.0782	2.2910		32,894.2768	32,894.2768	1.6767		32,936.1940
Worker	23.0884	12.7384	180.0179	0.5447	61.7900	0.3698	62.1598	16.3870	0.3404	16.7274		54,286.9397	54,286.9397	1.2618		54,318.4835
Total	**25.2422**	**98.1172**	**196.8928**	**0.8562**	**69.4753**	**0.4516**	**69.9269**	**18.5999**	**0.4186**	**19.0184**		**87,181.2166**	**87,181.2166**	**2.9384**		**87,254.6774**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8039	13.9165	18.0406	0.0270		0.8488	0.8488		0.8488	0.8488	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.8039**	**13.9165**	**18.0406**	**0.0270**		**0.8488**	**0.8488**		**0.8488**	**0.8488**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1537	85.3788	16.8749	0.3114	7.6853	0.0818	7.7671	2.2128	0.0782	2.2910		32,894.2768	32,894.2768	1.6767		32,936.1940
Worker	23.0884	12.7384	180.0179	0.5447	61.7900	0.3698	62.1598	16.3870	0.3404	16.7274		54,286.9397	54,286.9397	1.2618		54,318.4835
Total	**25.2422**	**98.1172**	**196.8928**	**0.8562**	**69.4753**	**0.4516**	**69.9269**	**18.5999**	**0.4186**	**19.0184**		**87,181.2166**	**87,181.2166**	**2.9384**		**87,254.6774**

3.4 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0969	84.8260	16.1938	0.3095	7.6852	0.0808	7.7660	2.2128	0.0772	2.2900		32,701.6037	32,701.6037	1.6681		32,743.3049
Worker	21.7790	11.5781	166.4773	0.5230	61.7900	0.3623	62.1523	16.3870	0.3334	16.7204		52,128.3474	52,128.3474	1.1406		52,156.8627
Total	**23.8759**	**96.4041**	**182.6711**	**0.8325**	**69.4752**	**0.4430**	**69.9182**	**18.5998**	**0.4106**	**19.0104**		**84,829.9511**	**84,829.9511**	**2.8087**		**84,900.1677**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0969	84.8260	16.1938	0.3095	7.6852	0.0808	7.7660	2.2128	0.0772	2.2900		32,701.6037	32,701.6037	1.6681		32,743.3049
Worker	21.7790	11.5781	166.4773	0.5230	61.7900	0.3623	62.1523	16.3870	0.3334	16.7204		52,128.3474	52,128.3474	1.1406		52,156.8627
Total	**23.8759**	**96.4041**	**182.6711**	**0.8325**	**69.4752**	**0.4430**	**69.9182**	**18.5998**	**0.4106**	**19.0104**		**84,829.9511**	**84,829.9511**	**2.8087**		**84,900.1677**

3.4 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0489	84.2478	15.6733	0.3077	7.6851	0.0797	7.7648	2.2128	0.0762	2.2890		32,517.6520	32,517.6520	1.6553		32,559.0356
Worker	20.6283	10.5919	154.8335	0.5039	61.7900	0.3506	62.1406	16.3870	0.3226	16.7096		50,236.8498	50,236.8498	1.0367		50,262.7661
Total	**22.6772**	**94.8397**	**170.5067**	**0.8116**	**69.4752**	**0.4303**	**69.9054**	**18.5998**	**0.3988**	**18.9985**		**82,754.5018**	**82,754.5018**	**2.6920**		**82,821.8017**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0489	84.2478	15.6733	0.3077	7.6851	0.0797	7.7648	2.2128	0.0762	2.2890		32,517.6520	32,517.6520	1.6553		32,559.0356
Worker	20.6283	10.5919	154.8335	0.5039	61.7900	0.3506	62.1406	16.3870	0.3226	16.7096		50,236.8498	50,236.8498	1.0367		50,262.7661
Total	**22.6772**	**94.8397**	**170.5067**	**0.8116**	**69.4752**	**0.4303**	**69.9054**	**18.5998**	**0.3988**	**18.9985**		**82,754.5018**	**82,754.5018**	**2.6920**		**82,821.8017**

3.4 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0085	83.7085	15.2398	0.3062	7.6851	0.0785	7.7636	2.2128	0.0751	2.2878		32,362.9289	32,362.9289	1.6409		32,403.9516
Worker	19.5163	9.7081	144.4864	0.4871	61.7900	0.3320	62.1220	16.3870	0.3054	16.6924		48,569.5315	48,569.5315	0.9441		48,593.1346
Total	**21.5248**	**93.4166**	**159.7262**	**0.7932**	**69.4751**	**0.4105**	**69.8856**	**18.5998**	**0.3805**	**18.9802**		**80,932.4604**	**80,932.4604**	**2.5850**		**80,997.0861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0085	83.7085	15.2398	0.3062	7.6851	0.0785	7.7636	2.2128	0.0751	2.2878		32,362.9289	32,362.9289	1.6409		32,403.9516
Worker	19.5163	9.7081	144.4864	0.4871	61.7900	0.3320	62.1220	16.3870	0.3054	16.6924		48,569.5315	48,569.5315	0.9441		48,593.1346
Total	**21.5248**	**93.4166**	**159.7262**	**0.7932**	**69.4751**	**0.4105**	**69.8856**	**18.5998**	**0.3805**	**18.9802**		**80,932.4604**	**80,932.4604**	**2.5850**		**80,997.0861**

3.4 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9751	83.2798	14.9024	0.3049	7.6850	0.0778	7.7628	2.2127	0.0744	2.2871		32,230.8846	32,230.8846	1.6242		32,271.4884
Worker	18.3814	8.9164	135.4320	0.4723	61.7900	0.3080	62.0980	16.3870	0.2834	16.6704		47,107.0883	47,107.0883	0.8646		47,128.7033
Total	**20.3565**	**92.1962**	**150.3344**	**0.7772**	**69.4751**	**0.3858**	**69.8609**	**18.5998**	**0.3577**	**18.9575**		**79,337.9729**	**79,337.9729**	**2.4888**		**79,400.1917**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9751	83.2798	14.9024	0.3049	7.6850	0.0778	7.7628	2.2127	0.0744	2.2871		32,230.8846	32,230.8846	1.6242		32,271.4884
Worker	18.3814	8.9164	135.4320	0.4723	61.7900	0.3080	62.0980	16.3870	0.2834	16.6704		47,107.0883	47,107.0883	0.8646		47,128.7033
Total	**20.3565**	**92.1962**	**150.3344**	**0.7772**	**69.4751**	**0.3858**	**69.8609**	**18.5998**	**0.3577**	**18.9575**		**79,337.9729**	**79,337.9729**	**2.4888**		**79,400.1917**

3.4 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9460	82.8806	14.5955	0.3038	7.6850	0.0770	7.7620	2.2127	0.0736	2.2863		32,120.1069	32,120.1069	1.6088		32,160.3266
Worker	17.1457	8.1659	126.6845	0.4593	61.7900	0.2858	62.0758	16.3870	0.2629	16.6499		45,820.2347	45,820.2347	0.7877		45,839.9278
Total	**19.0917**	**91.0465**	**141.2799**	**0.7631**	**69.4750**	**0.3628**	**69.8378**	**18.5997**	**0.3365**	**18.9362**		**77,940.3415**	**77,940.3415**	**2.3965**		**78,000.2544**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9460	82.8806	14.5955	0.3038	7.6850	0.0770	7.7620	2.2127	0.0736	2.2863		32,120.1069	32,120.1069	1.6088		32,160.3266
Worker	17.1457	8.1659	126.6845	0.4593	61.7900	0.2858	62.0758	16.3870	0.2629	16.6499		45,820.2347	45,820.2347	0.7877		45,839.9278
Total	**19.0917**	**91.0465**	**141.2799**	**0.7631**	**69.4750**	**0.3628**	**69.8378**	**18.5997**	**0.3365**	**18.9362**		**77,940.3415**	**77,940.3415**	**2.3965**		**78,000.2544**

3.4 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9226	82.4984	14.3762	0.3028	7.6850	0.0762	7.7611	2.2127	0.0728	2.2855		32,025.8752	32,025.8752	1.5927		32,065.6918
Worker	15.9347	7.4751	118.8194	0.4479	61.7900	0.2656	62.0556	16.3870	0.2443	16.6313		44,688.0527	44,688.0527	0.7191		44,706.0306
Total	**17.8573**	**89.9735**	**133.1956**	**0.7507**	**69.4750**	**0.3418**	**69.8167**	**18.5997**	**0.3171**	**18.9168**		**76,713.9278**	**76,713.9278**	**2.3118**		**76,771.7224**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	13.7306	17.9786	0.0310		0.8178	0.8178		0.8178	0.8178	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**0.7320**	**13.7306**	**17.9786**	**0.0310**		**0.8178**	**0.8178**		**0.8178**	**0.8178**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9226	82.4984	14.3762	0.3028	7.6850	0.0762	7.7611	2.2127	0.0728	2.2855		32,025.8752	32,025.8752	1.5927		32,065.6918
Worker	15.9347	7.4751	118.8194	0.4479	61.7900	0.2656	62.0556	16.3870	0.2443	16.6313		44,688.0527	44,688.0527	0.7191		44,706.0306
Total	**17.8573**	**89.9735**	**133.1956**	**0.7507**	**69.4750**	**0.3418**	**69.8167**	**18.5997**	**0.3171**	**18.9168**		**76,713.9278**	**76,713.9278**	**2.3118**		**76,771.7224**

3.4 Building Construction - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9228	82.5638	14.3240	0.3029	7.6849	0.0758	7.7607	2.2127	0.0724	2.2851		32,037.0850	32,037.0850	1.5797		32,076.5767
Worker	14.6180	6.8004	111.8485	0.4385	61.7900	0.2486	62.0386	16.3870	0.2287	16.6157		43,761.0824	43,761.0824	0.6574		43,777.5168
Total	**16.5408**	**89.3642**	**126.1725**	**0.7414**	**69.4749**	**0.3244**	**69.7993**	**18.5997**	**0.3011**	**18.9008**		**75,798.1673**	**75,798.1673**	**2.2371**		**75,854.0935**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	13.7306	17.9786	0.0310		0.8178	0.8178		0.8178	0.8178	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**0.7320**	**13.7306**	**17.9786**	**0.0310**		**0.8178**	**0.8178**		**0.8178**	**0.8178**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9228	82.5638	14.3240	0.3029	7.6849	0.0758	7.7607	2.2127	0.0724	2.2851		32,037.0850	32,037.0850	1.5797		32,076.5767
Worker	14.6180	6.8004	111.8485	0.4385	61.7900	0.2486	62.0386	16.3870	0.2287	16.6157		43,761.0824	43,761.0824	0.6574		43,777.5168
Total	**16.5408**	**89.3642**	**126.1725**	**0.7414**	**69.4749**	**0.3244**	**69.7993**	**18.5997**	**0.3011**	**18.9008**		**75,798.1673**	**75,798.1673**	**2.2371**		**75,854.0935**

3.4 Building Construction - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9100	82.2710	14.2155	0.3025	7.6849	0.0752	7.7601	2.2127	0.0719	2.2846		31,997.6595	31,997.6595	1.5687		32,036.8768
Worker	13.4435	6.2173	105.0867	0.4297	61.7900	0.2314	62.0215	16.3870	0.2129	16.5999		42,889.7463	42,889.7463	0.5997		42,904.7393
Total	**15.3536**	**88.4883**	**119.3023**	**0.7322**	**69.4749**	**0.3067**	**69.7816**	**18.5997**	**0.2848**	**18.8845**		**74,887.4058**	**74,887.4058**	**2.1684**		**74,941.6161**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	13.7306	17.9786	0.0310		0.8178	0.8178		0.8178	0.8178	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**0.7320**	**13.7306**	**17.9786**	**0.0310**		**0.8178**	**0.8178**		**0.8178**	**0.8178**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9100	82.2710	14.2155	0.3025	7.6849	0.0752	7.7601	2.2127	0.0719	2.2846		31,997.6595	31,997.6595	1.5687		32,036.8768
Worker	13.4435	6.2173	105.0867	0.4297	61.7900	0.2314	62.0215	16.3870	0.2129	16.5999		42,889.7463	42,889.7463	0.5997		42,904.7393
Total	**15.3536**	**88.4883**	**119.3023**	**0.7322**	**69.4749**	**0.3067**	**69.7816**	**18.5997**	**0.2848**	**18.8845**		**74,887.4058**	**74,887.4058**	**2.1684**		**74,941.6161**

3.5 Paving - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.2201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6046**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0389	0.0180	0.3042	1.2400e-003	0.1788	6.7000e-004	0.1795	0.0474	6.2000e-004	0.0481		124.1382	124.1382	1.7400e-003		124.1816
Total	**0.0389**	**0.0180**	**0.3042**	**1.2400e-003**	**0.1788**	**6.7000e-004**	**0.1795**	**0.0474**	**6.2000e-004**	**0.0481**		**124.1382**	**124.1382**	**1.7400e-003**		**124.1816**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0281		0.6093	0.6093		0.6093	0.6093	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.2201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7810**	**11.2952**	**17.2957**	**0.0281**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0389	0.0180	0.3042	1.2400e-003	0.1788	6.7000e-004	0.1795	0.0474	6.2000e-004	0.0481		124.1382	124.1382	1.7400e-003		124.1816
Total	**0.0389**	**0.0180**	**0.3042**	**1.2400e-003**	**0.1788**	**6.7000e-004**	**0.1795**	**0.0474**	**6.2000e-004**	**0.0481**		**124.1382**	**124.1382**	**1.7400e-003**		**124.1816**

3.5 Paving - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.2201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6046**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0360	0.0166	0.2873	1.2200e-003	0.1788	6.3000e-004	0.1795	0.0474	5.7000e-004	0.0480		121.9466	121.9466	1.5900e-003		121.9864
Total	**0.0360**	**0.0166**	**0.2873**	**1.2200e-003**	**0.1788**	**6.3000e-004**	**0.1795**	**0.0474**	**5.7000e-004**	**0.0480**		**121.9466**	**121.9466**	**1.5900e-003**		**121.9864**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0281		0.6093	0.6093		0.6093	0.6093	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.2201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7810**	**11.2952**	**17.2957**	**0.0281**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0360	0.0166	0.2873	1.2200e-003	0.1788	6.3000e-004	0.1795	0.0474	5.7000e-004	0.0480		121.9466	121.9466	1.5900e-003		121.9864
Total	**0.0360**	**0.0166**	**0.2873**	**1.2200e-003**	**0.1788**	**6.3000e-004**	**0.1795**	**0.0474**	**5.7000e-004**	**0.0480**		**121.9466**	**121.9466**	**1.5900e-003**		**121.9864**

3.6 Architectural Coating - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	220.0923					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203		281.4481	281.4481	0.0114		281.7328
Total	**220.2230**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**281.4481**	**281.4481**	**0.0114**		**281.7328**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.4855	1.1443	19.8579	0.0845	12.3625	0.0432	12.4057	3.2786	0.0397	3.3183		8,429.5592	8,429.5592	0.1101		8,432.3115
Total	**2.4855**	**1.1443**	**19.8579**	**0.0845**	**12.3625**	**0.0432**	**12.4057**	**3.2786**	**0.0397**	**3.3183**		**8,429.5592**	**8,429.5592**	**0.1101**		**8,432.3115**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	220.0923					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0114		281.7328
Total	**220.1517**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0114**		**281.7328**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.4855	1.1443	19.8579	0.0845	12.3625	0.0432	12.4057	3.2786	0.0397	3.3183		8,429.5592	8,429.5592	0.1101		8,432.3115
Total	**2.4855**	**1.1443**	**19.8579**	**0.0845**	**12.3625**	**0.0432**	**12.4057**	**3.2786**	**0.0397**	**3.3183**		**8,429.5592**	**8,429.5592**	**0.1101**		**8,432.3115**

3.6 Architectural Coating - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	220.0923					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203		281.4481	281.4481	0.0114		281.7328
Total	**220.2230**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**281.4481**	**281.4481**	**0.0114**		**281.7328**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.3125	1.0621	18.7595	0.0831	12.3625	0.0403	12.4028	3.2786	0.0371	3.3157		8,297.9718	8,297.9718	0.1009		8,300.4941
Total	**2.3125**	**1.0621**	**18.7595**	**0.0831**	**12.3625**	**0.0403**	**12.4028**	**3.2786**	**0.0371**	**3.3157**		**8,297.9718**	**8,297.9718**	**0.1009**		**8,300.4941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	220.0923					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0114		281.7328
Total	**220.1517**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0114**		**281.7328**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.3125	1.0621	18.7595	0.0831	12.3625	0.0403	12.4028	3.2786	0.0371	3.3157		8,297.9718	8,297.9718	0.1009		8,300.4941
Total	**2.3125**	**1.0621**	**18.7595**	**0.0831**	**12.3625**	**0.0403**	**12.4028**	**3.2786**	**0.0371**	**3.3157**		**8,297.9718**	**8,297.9718**	**0.1009**		**8,300.4941**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	112.2235	913.4619	1,177.2937	6.9613	521.0540	2.7341	523.7881	141.7270	2.5482	144.2753		716,455.7485	716,455.7485	30.1108		717,208.5183
Unmitigated	113.0112	917.7046	1,197.3773	7.0801	531.6877	2.7826	534.4703	144.6194	2.5935	147.2129		728,622.8992	728,622.8992	30.4184		729,383.3582

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	32,651.50	31,374.90	28772.60	109,058,404	106,877,235
Condo/Townhouse High Rise	5,902.96	6,085.84	4846.32	19,744,772	19,349,877
General Office Building	14,589.27	3,253.82	1388.82	35,707,131	34,992,989
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	13,095.24	15,324.80	7740.60	27,357,375	26,810,228
Regional Shopping Center	11,070.40	12,955.22	6543.72	23,127,276	22,664,731
Total	77,309.37	68,994.58	49,292.07	214,994,959	210,695,060

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse High Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Condo/Townhouse High Rise	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
General Office Building	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Other Asphalt Surfaces	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Other Non-Asphalt Surfaces	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Regional Shopping Center	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Regional Shopping Center	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.8323	24.3022	11.0278	0.1545		1.9568	1.9568		1.9568	1.9568		30,897.2704	30,897.2704	0.5922	0.5665	31,080.8774
NaturalGas Unmitigated	2.8323	24.3022	11.0278	0.1545		1.9568	1.9568		1.9568	1.9568		30,897.2704	30,897.2704	0.5922	0.5665	31,080.8774

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	203604	2.1957	18.7635	7.9845	0.1198		1.5171	1.5171		1.5171	1.5171		23,953.4251	23,953.4251	0.4591	0.4392	24,095.7683
Condo/Townhouse High Rise	42130.7	0.4544	3.8826	1.6522	0.0248		0.3139	0.3139		0.3139	0.3139		4,956.5540	4,956.5540	0.0950	0.0909	4,986.0083
General Office Building	13589.3	0.1466	1.3323	1.1191	7.9900e-003		0.1013	0.1013		0.1013	0.1013		1,598.7450	1,598.7450	0.0306	0.0293	1,608.2455
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1512.97	0.0163	0.1483	0.1246	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.9959	177.9959	3.4100e-003	3.2600e-003	179.0537
Regional Shopping Center	1789.68	0.0193	0.1755	0.1474	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.5504	210.5504	4.0400e-003	3.8600e-003	211.8016
Total		**2.8323**	**24.3022**	**11.0278**	**0.1545**		**1.9568**	**1.9568**		**1.9568**	**1.9568**		**30,897.2703**	**30,897.2703**	**0.5922**	**0.5665**	**31,080.8774**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	203.604	2.1957	18.7635	7.9845	0.1198		1.5171	1.5171		1.5171	1.5171		23,953.4251	23,953.4251	0.4591	0.4392	24,095.7683
Condo/Townhouse High Rise	42.1307	0.4544	3.8826	1.6522	0.0248		0.3139	0.3139		0.3139	0.3139		4,956.5540	4,956.5540	0.0950	0.0909	4,986.0083
General Office Building	13.5893	0.1466	1.3323	1.1191	7.9900e-003		0.1013	0.1013		0.1013	0.1013		1,598.7450	1,598.7450	0.0306	0.0293	1,608.2455
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.51297	0.0163	0.1483	0.1246	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.9959	177.9959	3.4100e-003	3.2600e-003	179.0537
Regional Shopping Center	1.78968	0.0193	0.1755	0.1474	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.5504	210.5504	4.0400e-003	3.8600e-003	211.8016
Total		**2.8323**	**24.3022**	**11.0278**	**0.1545**		**1.9568**	**1.9568**		**1.9568**	**1.9568**		**30,897.2703**	**30,897.2703**	**0.5922**	**0.5665**	**31,080.8774**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	195.0086	91.6366	523.9812	0.5749		9.6663	9.6663		9.6663	9.6663	0.0000	110,686.0362	110,686.0362	2.9437	2.0131	111,359.5317
Unmitigated	195.0086	91.6366	523.9812	0.5749		9.6663	9.6663		9.6663	9.6663	0.0000	110,686.0362	110,686.0362	2.9437	2.0131	111,359.5317

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	15.0748					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	155.2838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.0655	86.0142	36.6018	0.5490		6.9543	6.9543		6.9543	6.9543	0.0000	109,805.2941	109,805.2941	2.1046	2.0131	110,457.8121
Landscaping	14.5845	5.6225	487.3794	0.0258		2.7119	2.7119		2.7119	2.7119		880.7421	880.7421	0.8391		901.7196
Total	**195.0086**	**91.6366**	**523.9812**	**0.5749**		**9.6663**	**9.6663**		**9.6663**	**9.6663**	**0.0000**	**110,686.0362**	**110,686.0362**	**2.9437**	**2.0131**	**111,359.5317**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	15.0748					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	155.2838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.0655	86.0142	36.6018	0.5490		6.9543	6.9543		6.9543	6.9543	0.0000	109,805.2941	109,805.2941	2.1046	2.0131	110,457.8121
Landscaping	14.5845	5.6225	487.3794	0.0258		2.7119	2.7119		2.7119	2.7119		880.7421	880.7421	0.8391		901.7196
Total	**195.0086**	**91.6366**	**523.9812**	**0.5749**		**9.6663**	**9.6663**		**9.6663**	**9.6663**	**0.0000**	**110,686.0362**	**110,686.0362**	**2.9437**	**2.0131**	**111,359.5317**

CalEEMod Version: CalEEMod.2016.3.1 Date: 11/29/2016 8:55 AM

2016 North Montclair Downtown Specific Plan - San Bernardino-South Coast County, Winter

2016 North Montclair Downtown Specific Plan

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,322.69	1000sqft	30.40	1,322,695.00	0
Other Asphalt Surfaces	21.00	Acre	21.00	914,760.00	0
Other Non-Asphalt Surfaces	14.90	Acre	14.90	649,044.00	0
Apartments Mid Rise	4,910.00	Dwelling Unit	32.00	4,910,000.00	8018
Condo/Townhouse High Rise	1,016.00	Dwelling Unit	24.00	1,016,000.00	1659
Regional Shopping Center	306.68	1000sqft	15.60	306,682.00	0
Regional Shopping Center	259.26	1000sqft	12.50	259,264.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2035
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	442.34	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2016 North Montclair Downtown Specific Plan. San Bernardino County (South Coast Air Basin). CO2 intensity factor updated for effect of 50% RPS.

Land Use - Project includes construction of 5,926 du of MFR, 1,322,695 sf of office uses, 306,682 sf of retail, and 259,264 of services.

Construction Phase - Default construction phases assumed based on a start date of 2017 and a projected buildout date of 2035.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Off-road Equipment - Default construction equipment assumed.

Trips and VMT - Rounded trips.

Demolition - Demolition of existing single-family houses and industrial park.

Architectural Coating - Comply with SCAQMD Rule 1113.

Vehicle Trips - Adjusted trip rates based on traffic study.

Woodstoves - Comply with SCAQMD Rule 445.

Area Coating - Comply with SCAQMD Rule 1113.

Energy Use - Adjusted T24 electricity energy intensity and T24 natural gas energy intensity to meet 2016 Title 24 standards.

Construction Off-road Equipment Mitigation - Comply with SCAQMD Rule 403. Water 3 times daily. Use of Tier 3 construction equipment.

Mobile Land Use Mitigation - Improve pedestrian network.

Water Mitigation - Meet statewide water reduction goal of 25%.

Waste Mitigation - Comply with AB 341 goal of 75% waste diversion.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	220.00	250.00
tblConstructionPhase	NumDays	3,100.00	3,500.00
tblConstructionPhase	NumDays	220.00	250.00
tblEnergyUse	T24E	910.58	655.62
tblEnergyUse	T24E	910.58	655.62
tblEnergyUse	T24E	3.22	3.06
tblEnergyUse	T24E	4.80	4.56
tblEnergyUse	T24NG	12,646.59	9,105.54
tblEnergyUse	T24NG	12,646.59	9,105.54
tblEnergyUse	T24NG	3.49	3.75
tblEnergyUse	T24NG	1.93	1.83
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00

tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	4,173.50	4,296.25
tblFireplaces	NumberGas	863.60	889.00
tblFireplaces	NumberNoFireplace	491.00	613.75
tblFireplaces	NumberNoFireplace	101.60	127.00
tblFireplaces	NumberWood	245.50	0.00
tblFireplaces	NumberWood	50.80	0.00
tblFleetMix	FleetMixLandUseSubType	General Office Building	Apartments Mid Rise
tblFleetMix	FleetMixLandUseSubType	Other Asphalt Surfaces	Condo/Townhouse High Rise
tblFleetMix	FleetMixLandUseSubType	Other Non-Asphalt Surfaces	General Office Building
tblFleetMix	FleetMixLandUseSubType	Apartments Mid Rise	Other Asphalt Surfaces
tblFleetMix	FleetMixLandUseSubType	Condo/Townhouse High Rise	Other Non-Asphalt Surfaces
tblLandUse	BuildingSpaceSquareFeet	1,322,690.00	1,322,695.00
tblLandUse	BuildingSpaceSquareFeet	259,260.00	259,264.00
tblLandUse	BuildingSpaceSquareFeet	306,680.00	306,682.00
tblLandUse	LandUseSquareFeet	1,322,690.00	1,322,695.00
tblLandUse	LandUseSquareFeet	259,260.00	259,264.00
tblLandUse	LandUseSquareFeet	306,680.00	306,682.00
tblLandUse	LotAcreage	30.36	30.40
tblLandUse	LotAcreage	129.21	32.00
tblLandUse	LotAcreage	15.88	24.00
tblLandUse	LotAcreage	5.95	12.50
tblLandUse	LotAcreage	7.04	15.60
tblLandUse	Population	14,043.00	8,018.00
tblLandUse	Population	2,906.00	1,659.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	442.34
tblProjectCharacteristics	OperationalYear	2018	2035
tblTripsAndVMT	HaulingTripNumber	1,137.00	1,138.00

tblTripsAndVMT	VendorTripNumber	1,199.00	1,200.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	ST_TR	4.31	5.99
tblVehicleTrips	SU_TR	3.43	4.77
tblVehicleTrips	WD_TR	4.18	5.81
tblWoodstoves	NumberCatalytic	245.50	0.00
tblWoodstoves	NumberCatalytic	50.80	0.00
tblWoodstoves	NumberNoncatalytic	245.50	0.00
tblWoodstoves	NumberNoncatalytic	50.80	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.8940	68.0483	39.8459	0.0643	8.8969	3.0743	11.9712	3.6558	2.8284	6.4842	0.0000	6,567.7649	6,567.7649	1.9530	0.0000	6,616.5901
2018	43.7001	195.9679	309.9965	0.9477	69.4761	2.9634	72.4395	18.6001	2.7950	21.3952	0.0000	96,081.3690	96,081.3690	5.4380	0.0000	96,217.3190
2019	39.6038	181.4154	276.3753	0.9234	69.4759	2.5810	72.0569	18.6001	2.4331	21.0332	0.0000	93,669.3827	93,669.3827	5.1072	0.0000	93,797.0632
2020	36.1489	165.1684	249.7802	0.9026	69.4758	2.1121	71.5878	18.6000	1.9877	20.5877	0.0000	91,593.1646	91,593.1646	4.7613	0.0000	91,712.1980
2021	33.3446	150.1857	229.7544	0.8827	69.4757	1.5578	71.0335	18.6000	1.4603	20.0603	0.0000	89,634.7709	89,634.7709	4.5184	0.0000	89,747.7304
2022	31.1337	140.4905	212.1622	0.8603	69.4755	1.3643	70.8398	18.5999	1.2785	19.8784	0.0000	87,408.0340	87,408.0340	4.2803	0.0000	87,515.0405
2023	28.6183	112.9856	194.1860	0.8319	69.4754	1.1580	70.6334	18.5999	1.0833	19.6832	0.0000	84,562.8271	84,562.8271	3.6758	0.0000	84,654.7222
2024	27.0874	111.0820	182.4736	0.8151	69.4753	1.0676	70.5429	18.5999	0.9980	19.5979	0.0000	82,903.4646	82,903.4646	3.5668	0.0000	82,992.6349
2025	25.6581	108.3279	170.4699	0.7938	69.4752	0.9730	70.4482	18.5998	0.9092	19.5090	0.0000	80,791.7514	80,791.7514	3.4488	0.0000	80,877.9710
2026	24.5003	106.7077	160.2646	0.7751	69.4752	0.9600	70.4352	18.5998	0.8971	19.4969	0.0000	78,925.3755	78,925.3755	3.3438	0.0000	79,008.9714
2027	23.3769	105.2302	151.2218	0.7585	69.4751	0.9401	70.4152	18.5998	0.8787	19.4784	0.0000	77,283.7663	77,283.7663	3.2467	0.0000	77,364.9325
2028	22.2157	103.9669	143.3414	0.7441	69.4751	0.9152	70.3903	18.5998	0.8558	19.4555	0.0000	75,846.9833	75,846.9833	3.1578	0.0000	75,925.9278
2029	20.9485	102.7737	135.7347	0.7314	69.4750	0.8921	70.3671	18.5997	0.8344	19.4341	0.0000	74,585.5624	74,585.5624	3.0729	0.0000	74,662.3847
2030	19.6482	97.1238	129.0119	0.7242	69.4750	0.4915	69.9665	18.5997	0.4668	19.0665	0.0000	73,818.1524	73,818.1524	2.5093	0.0000	73,880.8849
2031	18.3104	96.4864	123.0596	0.7158	69.4749	0.4740	69.9489	18.5997	0.4506	19.0504	0.0000	72,993.2048	72,993.2048	2.4396	0.0000	73,054.1935
2032	17.1076	95.5704	117.2961	0.7075	69.4749	0.4562	69.9311	18.5997	0.4343	19.0339	0.0000	72,167.8740	72,167.8740	2.3760	0.0000	72,227.2728
2033	222.7715	7.1375	17.7505	0.0787	12.3625	0.3313	12.4260	3.2786	0.3312	3.3386	0.0000	7,839.9358	7,839.9358	0.1259	0.0000	7,842.6279

2034	222.5998	1.9633	16.8362	0.0775	12.3625	0.0607	12.4231	3.2786	0.0574	3.3360	0.0000	7,721.1786	7,721.1786	0.0995	0.0000	7,723.6662
Maximum	**222.7715**	**195.9679**	**309.9965**	**0.9477**	**69.4761**	**3.0743**	**72.4395**	**18.6001**	**2.8284**	**21.3952**	**0.0000**	**96,081.3690**	**96,081.3690**	**5.4380**	**0.0000**	**96,217.3190**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	1.6688	30.0869	37.7859	0.0643	4.1266	1.3010	5.4276	1.6777	1.3009	2.9786	0.0000	6,567.7649	6,567.7649	1.9530	0.0000	6,616.5901
2018	42.0304	186.7956	310.6520	0.9477	69.4761	2.3784	71.8545	18.6001	2.3000	20.9001	0.0000	96,081.3690	96,081.3690	5.4380	0.0000	96,217.3190
2019	38.1958	174.4966	277.3956	0.9234	69.4759	2.1921	71.6680	18.6001	2.1214	20.7215	0.0000	93,669.3827	93,669.3827	5.1072	0.0000	93,797.0632
2020	34.9392	160.0894	251.0756	0.9026	69.4758	1.8832	71.3590	18.6000	1.8256	20.4256	0.0000	91,593.1646	91,593.1646	4.7613	0.0000	91,712.1980
2021	32.3144	146.7982	231.2750	0.8827	69.4757	1.4746	70.9503	18.6000	1.4344	20.0344	0.0000	89,634.7709	89,634.7709	4.5184	0.0000	89,747.7304
2022	30.2722	138.8735	213.8715	0.8603	69.4755	1.4205	70.8960	18.5999	1.3826	19.9825	0.0000	87,408.0340	87,408.0340	4.2803	0.0000	87,515.0405
2023	27.8680	112.5569	195.9968	0.8319	69.4754	1.3147	70.7902	18.5999	1.2813	19.8812	0.0000	84,562.8271	84,562.8271	3.6758	0.0000	84,654.7221
2024	26.4197	111.5547	184.3474	0.8151	69.4753	1.3031	70.7784	18.5999	1.2699	19.8698	0.0000	82,903.4646	82,903.4646	3.5668	0.0000	82,992.6349
2025	25.0785	109.7360	172.4138	0.7938	69.4752	1.2877	70.7629	18.5998	1.2551	19.8549	0.0000	80,791.7514	80,791.7514	3.4488	0.0000	80,877.9710
2026	23.9208	108.1158	162.2085	0.7751	69.4752	1.2747	70.7498	18.5998	1.2431	19.8429	0.0000	78,925.3755	78,925.3755	3.3438	0.0000	79,008.9714
2027	22.7973	106.6383	153.1658	0.7585	69.4751	1.2547	70.7298	18.5998	1.2246	19.8244	0.0000	77,283.7663	77,283.7663	3.2467	0.0000	77,364.9325
2028	21.6361	105.3750	145.2853	0.7441	69.4751	1.2299	70.7049	18.5998	1.2017	19.8015	0.0000	75,846.9833	75,846.9833	3.1578	0.0000	75,925.9278
2029	20.3689	104.1818	137.6786	0.7314	69.4750	1.2067	70.6817	18.5997	1.1804	19.7801	0.0000	74,585.5624	74,585.5624	3.0729	0.0000	74,662.3847
2030	19.0711	102.9198	130.8334	0.7242	69.4750	1.1611	70.6361	18.5997	1.1364	19.7361	0.0000	73,818.1524	73,818.1524	2.5093	0.0000	73,880.8849
2031	17.7332	102.2824	124.8812	0.7158	69.4749	1.1436	70.6185	18.5997	1.1203	19.7200	0.0000	72,993.2048	72,993.2048	2.4396	0.0000	73,054.1935

2032	16.5304	101.3664	119.1177	0.7075	69.4749	1.1258	70.6007	18.5997	1.1039	19.7036	0.0000	72,167.8740	72,167.8740	2.3760	0.0000	72,227.2728
2033	222.7001	11.3125	17.7852	0.0787	12.3625	0.6100	12.5008	3.2786	0.6099	3.4134	0.0000	7,839.9358	7,839.9358	0.1259	0.0000	7,842.6279
2034	222.5285	2.4640	16.8708	0.0775	12.3625	0.1354	12.4979	3.2786	0.1322	3.4108	0.0000	7,721.1786	7,721.1786	0.0995	0.0000	7,723.6662
Maximum	**222.7001**	**186.7956**	**310.6520**	**0.9477**	**69.4761**	**2.3784**	**71.8545**	**18.6001**	**2.3000**	**20.9001**	**0.0000**	**96,081.3690**	**96,081.3690**	**5.4380**	**0.0000**	**96,217.3190**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.92**	**1.79**	**-0.81**	**0.00**	**0.44**	**-5.92**	**0.33**	**0.68**	**-10.22**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	195.0086	91.6366	523.9812	0.5749		9.6663	9.6663		9.6663	9.6663	0.0000	110,686.0362	110,686.0362	2.9437	2.0131	111,359.5317
Energy	2.8323	24.3022	11.0278	0.1545		1.9568	1.9568		1.9568	1.9568		30,897.2704	30,897.2704	0.5922	0.5665	31,080.8774
Mobile	97.9792	906.3470	1,066.4425	6.5510	531.6877	2.7973	534.4850	144.6194	2.6076	147.2270		674,974.0625	674,974.0625	31.9296		675,772.3018
Total	**295.8200**	**1,022.2858**	**1,601.4515**	**7.2804**	**531.6877**	**14.4204**	**546.1081**	**144.6194**	**14.2307**	**158.8501**	**0.0000**	**816,557.3691**	**816,557.3691**	**35.4655**	**2.5796**	**818,212.7109**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	195.0086	91.6366	523.9812	0.5749		9.6663	9.6663		9.6663	9.6663	0.0000	110,686.0362	110,686.0362	2.9437	2.0131	111,359.5317
Energy	2.8323	24.3022	11.0278	0.1545		1.9568	1.9568		1.9568	1.9568		30,897.2704	30,897.2704	0.5922	0.5665	31,080.8774
Mobile	97.2184	901.8949	1,049.9096	6.4401	521.0540	2.7488	523.8028	141.7270	2.5623	144.2893		663,586.9469	663,586.9469	31.6332		664,377.7768
Total	**295.0592**	**1,017.8338**	**1,584.9185**	**7.1694**	**521.0540**	**14.3719**	**535.4258**	**141.7270**	**14.1854**	**155.9124**	**0.0000**	**805,170.2535**	**805,170.2535**	**35.1691**	**2.5796**	**806,818.1859**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.26**	**0.44**	**1.03**	**1.52**	**2.00**	**0.34**	**1.96**	**2.00**	**0.32**	**1.85**	**0.00**	**1.39**	**1.39**	**0.84**	**0.00**	**1.39**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	10/6/2017	5	200	
2	Grading	Grading	10/7/2017	12/14/2018	5	310	
3	Building Construction	Building Construction	12/15/2018	5/14/2032	5	3500	
4	Paving	Paving	5/15/2032	4/29/2033	5	250	
5	Architectural Coating	Architectural Coating	4/30/2033	4/14/2034	5	250	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 775

Acres of Paving: 35.9

Residential Indoor: 12,000,150; Residential Outdoor: 4,000,050; Non-Residential Indoor: 2,832,962; Non-Residential Outdoor: 944,321;

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	16.00	0.00	1,138.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	5,528.00	1,200.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1,106.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2304	0.0000	1.2304	0.1863	0.0000	0.1863			0.0000			0.0000
Off-Road	4.1031	42.7475	23.0122	0.0388		2.1935	2.1935		2.0425	2.0425		3,924.2833	3,924.2833	1.0730		3,951.1070
Total	**4.1031**	**42.7475**	**23.0122**	**0.0388**	**1.2304**	**2.1935**	**3.4239**	**0.1863**	**2.0425**	**2.2288**		**3,924.2833**	**3,924.2833**	**1.0730**		**3,951.1070**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0485	1.7526	0.2876	4.4900e-003	0.0996	8.7400e-003	0.1083	0.0273	8.3600e-003	0.0357		475.6144	475.6144	0.0297		476.3560
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1165	0.0870	0.8507	1.7900e-003	0.1788	1.2900e-003	0.1801	0.0474	1.1900e-003	0.0486		178.3029	178.3029	7.1600e-003		178.4818
Total	**0.1651**	**1.8396**	**1.1383**	**6.2800e-003**	**0.2784**	**0.0100**	**0.2885**	**0.0747**	**9.5500e-003**	**0.0843**		**653.9173**	**653.9173**	**0.0368**		**654.8377**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5537	0.0000	0.5537	0.0838	0.0000	0.0838			0.0000			0.0000
Off-Road	0.9246	18.3130	24.6739	0.0388		0.8627	0.8627		0.8627	0.8627	0.0000	3,924.2833	3,924.2833	1.0730		3,951.1070
Total	**0.9246**	**18.3130**	**24.6739**	**0.0388**	**0.5537**	**0.8627**	**1.4164**	**0.0838**	**0.8627**	**0.9466**	**0.0000**	**3,924.2833**	**3,924.2833**	**1.0730**		**3,951.1070**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0485	1.7526	0.2876	4.4900e-003	0.0996	8.7400e-003	0.1083	0.0273	8.3600e-003	0.0357		475.6144	475.6144	0.0297		476.3560
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1165	0.0870	0.8507	1.7900e-003	0.1788	1.2900e-003	0.1801	0.0474	1.1900e-003	0.0486		178.3029	178.3029	7.1600e-003		178.4818
Total	**0.1651**	**1.8396**	**1.1383**	**6.2800e-003**	**0.2784**	**0.0100**	**0.2885**	**0.0747**	**9.5500e-003**	**0.0843**		**653.9173**	**653.9173**	**0.0368**		**654.8377**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.7483	67.9396	38.7826	0.0620		3.0727	3.0727		2.8269	2.8269		6,344.8863	6,344.8863	1.9441		6,393.4879
Total	**5.7483**	**67.9396**	**38.7826**	**0.0620**	**8.6733**	**3.0727**	**11.7460**	**3.5965**	**2.8269**	**6.4234**		**6,344.8863**	**6,344.8863**	**1.9441**		**6,393.4879**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1457	0.1087	1.0633	2.2400e-003	0.2236	1.6100e-003	0.2252	0.0593	1.4900e-003	0.0608		222.8786	222.8786	8.9500e-003		223.1022
Total	**0.1457**	**0.1087**	**1.0633**	**2.2400e-003**	**0.2236**	**1.6100e-003**	**0.2252**	**0.0593**	**1.4900e-003**	**0.0608**		**222.8786**	**222.8786**	**8.9500e-003**		**223.1022**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		1.2994	1.2994		1.2994	1.2994	0.0000	6,344.8863	6,344.8863	1.9441		6,393.4878
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.9030**	**1.2994**	**5.2024**	**1.6184**	**1.2994**	**2.9179**	**0.0000**	**6,344.8863**	**6,344.8863**	**1.9441**		**6,393.4878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1457	0.1087	1.0633	2.2400e-003	0.2236	1.6100e-003	0.2252	0.0593	1.4900e-003	0.0608		222.8786	222.8786	8.9500e-003		223.1022
Total	**0.1457**	**0.1087**	**1.0633**	**2.2400e-003**	**0.2236**	**1.6100e-003**	**0.2252**	**0.0593**	**1.4900e-003**	**0.0608**		**222.8786**	**222.8786**	**8.9500e-003**		**223.1022**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1301	0.0945	0.9279	2.1800e-003	0.2236	1.5500e-003	0.2251	0.0593	1.4300e-003	0.0607		216.6460	216.6460	7.8300e-003		216.8416
Total	**0.1301**	**0.0945**	**0.9279**	**2.1800e-003**	**0.2236**	**1.5500e-003**	**0.2251**	**0.0593**	**1.4300e-003**	**0.0607**		**216.6460**	**216.6460**	**7.8300e-003**		**216.8416**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		1.2994	1.2994		1.2994	1.2994	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.9030**	**1.2994**	**5.2024**	**1.6184**	**1.2994**	**2.9179**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1301	0.0945	0.9279	2.1800e-003	0.2236	1.5500e-003	0.2251	0.0593	1.4300e-003	0.0607		216.6460	216.6460	7.8300e-003		216.8416
Total	**0.1301**	**0.0945**	**0.9279**	**2.1800e-003**	**0.2236**	**1.5500e-003**	**0.2251**	**0.0593**	**1.4300e-003**	**0.0607**		**216.6460**	**216.6460**	**7.8300e-003**		**216.8416**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.0628	146.4505	35.9443	0.3188	7.6861	1.0344	8.7205	2.2131	0.9896	3.2027		33,579.4843	33,579.4843	2.6330		33,645.3088
Worker	35.9578	26.1274	256.4717	0.6019	61.7900	0.4292	62.2192	16.3870	0.3955	16.7826		59,880.9496	59,880.9496	2.1629		59,935.0219
Total	**41.0206**	**172.5779**	**292.4160**	**0.9208**	**69.4761**	**1.4636**	**70.9396**	**18.6001**	**1.3851**	**19.9852**		**93,460.4339**	**93,460.4339**	**4.7959**		**93,580.3307**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0098	14.2177	18.2359	0.0269		0.9149	0.9149		0.9149	0.9149	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**1.0098**	**14.2177**	**18.2359**	**0.0269**		**0.9149**	**0.9149**		**0.9149**	**0.9149**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.0628	146.4505	35.9443	0.3188	7.6861	1.0344	8.7205	2.2131	0.9896	3.2027		33,579.4843	33,579.4843	2.6330		33,645.3088
Worker	35.9578	26.1274	256.4717	0.6019	61.7900	0.4292	62.2192	16.3870	0.3955	16.7826		59,880.9496	59,880.9496	2.1629		59,935.0219
Total	**41.0206**	**172.5779**	**292.4160**	**0.9208**	**69.4761**	**1.4636**	**70.9396**	**18.6001**	**1.3851**	**19.9852**		**93,460.4339**	**93,460.4339**	**4.7959**		**93,580.3307**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.5194	137.3831	32.3087	0.3154	7.6859	0.8756	8.5616	2.2131	0.8377	3.0507		33,233.8851	33,233.8851	2.5782		33,298.3408
Worker	32.7232	22.9536	226.9028	0.5811	61.7900	0.4155	62.2055	16.3870	0.3827	16.7697		57,843.9174	57,843.9174	1.8977		57,891.3589
Total	**37.2426**	**160.3366**	**259.2115**	**0.8965**	**69.4759**	**1.2911**	**70.7671**	**18.6001**	**1.2204**	**19.8205**		**91,077.8025**	**91,077.8025**	**4.4759**		**91,189.6997**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9532	14.1600	18.1841	0.0269		0.9010	0.9010		0.9010	0.9010	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**0.9532**	**14.1600**	**18.1841**	**0.0269**		**0.9010**	**0.9010**		**0.9010**	**0.9010**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.5194	137.3831	32.3087	0.3154	7.6859	0.8756	8.5616	2.2131	0.8377	3.0507		33,233.8851	33,233.8851	2.5782		33,298.3408
Worker	32.7232	22.9536	226.9028	0.5811	61.7900	0.4155	62.2055	16.3870	0.3827	16.7697		57,843.9174	57,843.9174	1.8977		57,891.3589
Total	**37.2426**	**160.3366**	**259.2115**	**0.8965**	**69.4759**	**1.2911**	**70.7671**	**18.6001**	**1.2204**	**19.8205**		**91,077.8025**	**91,077.8025**	**4.4759**		**91,189.6997**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.8420	125.6074	28.6038	0.3130	7.6858	0.5901	8.2759	2.2130	0.5645	2.7775		33,000.0130	33,000.0130	2.4655		33,061.6516
Worker	30.1871	20.3749	204.3278	0.5627	61.7900	0.4049	62.1949	16.3870	0.3729	16.7599		56,040.0885	56,040.0885	1.6729		56,081.9119
Total	**34.0291**	**145.9823**	**232.9317**	**0.8757**	**69.4758**	**0.9950**	**70.4708**	**18.6000**	**0.9374**	**19.5374**		**89,040.1016**	**89,040.1016**	**4.1385**		**89,143.5635**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9101	14.1070	18.1439	0.0269		0.8882	0.8882		0.8882	0.8882	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.9101**	**14.1070**	**18.1439**	**0.0269**		**0.8882**	**0.8882**		**0.8882**	**0.8882**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.8420	125.6074	28.6038	0.3130	7.6858	0.5901	8.2759	2.2130	0.5645	2.7775		33,000.0130	33,000.0130	2.4655		33,061.6516
Worker	30.1871	20.3749	204.3278	0.5627	61.7900	0.4049	62.1949	16.3870	0.3729	16.7599		56,040.0885	56,040.0885	1.6729		56,081.9119
Total	**34.0291**	**145.9823**	**232.9317**	**0.8757**	**69.4758**	**0.9950**	**70.4708**	**18.6000**	**0.9374**	**19.5374**		**89,040.1016**	**89,040.1016**	**4.1385**		**89,143.5635**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.2939	114.4929	25.4715	0.3112	7.6857	0.2040	7.8896	2.2130	0.1951	2.4080		32,824.2156	32,824.2156	2.3921		32,884.0182
Worker	28.1498	18.2606	187.7077	0.5446	61.7900	0.3952	62.1852	16.3870	0.3639	16.7510		54,257.1914	54,257.1914	1.5103		54,294.9480
Total	**31.4437**	**132.7536**	**213.1792**	**0.8558**	**69.4757**	**0.5992**	**70.0749**	**18.6000**	**0.5590**	**19.1590**		**87,081.4070**	**87,081.4070**	**3.9024**		**87,178.9661**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8707	14.0446	18.0957	0.0269		0.8754	0.8754		0.8754	0.8754	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.8707**	**14.0446**	**18.0957**	**0.0269**		**0.8754**	**0.8754**		**0.8754**	**0.8754**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.2939	114.4929	25.4715	0.3112	7.6857	0.2040	7.8896	2.2130	0.1951	2.4080		32,824.2156	32,824.2156	2.3921		32,884.0182
Worker	28.1498	18.2606	187.7077	0.5446	61.7900	0.3952	62.1852	16.3870	0.3639	16.7510		54,257.1914	54,257.1914	1.5103		54,294.9480
Total	**31.4437**	**132.7536**	**213.1792**	**0.8558**	**69.4757**	**0.5992**	**70.0749**	**18.6000**	**0.5590**	**19.1590**		**87,081.4070**	**87,081.4070**	**3.9024**		**87,178.9661**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.0725	108.4638	23.6465	0.3085	7.6855	0.1716	7.8571	2.2129	0.1641	2.3770		32,550.7503	32,550.7503	2.3128		32,608.5710
Worker	26.3550	16.4111	172.1523	0.5248	61.7900	0.3837	62.1737	16.3870	0.3533	16.7403		52,302.9502	52,302.9502	1.3555		52,336.8373
Total	**29.4275**	**124.8749**	**195.7988**	**0.8333**	**69.4755**	**0.5553**	**70.0308**	**18.5999**	**0.5173**	**19.1173**		**84,853.7004**	**84,853.7004**	**3.6683**		**84,945.4083**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8448	13.9986	18.0727	0.0269		0.8652	0.8652		0.8652	0.8652	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.8448**	**13.9986**	**18.0727**	**0.0269**		**0.8652**	**0.8652**		**0.8652**	**0.8652**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.0725	108.4638	23.6465	0.3085	7.6855	0.1716	7.8571	2.2129	0.1641	2.3770		32,550.7503	32,550.7503	2.3128		32,608.5710
Worker	26.3550	16.4111	172.1523	0.5248	61.7900	0.3837	62.1737	16.3870	0.3533	16.7403		52,302.9502	52,302.9502	1.3555		52,336.8373
Total	**29.4275**	**124.8749**	**195.7988**	**0.8333**	**69.4755**	**0.5553**	**70.0308**	**18.5999**	**0.5173**	**19.1173**		**84,853.7004**	**84,853.7004**	**3.6683**		**84,945.4083**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.3170	83.8305	20.1145	0.3000	7.6854	0.0850	7.7704	2.2129	0.0812	2.2941		31,667.8017	31,667.8017	1.8531		31,714.1295
Worker	24.7285	14.7701	157.8275	0.5050	61.7900	0.3733	62.1633	16.3870	0.3436	16.7307		50,339.8155	50,339.8155	1.2148		50,370.1866
Total	**27.0456**	**98.6007**	**177.9420**	**0.8050**	**69.4754**	**0.4583**	**69.9337**	**18.5999**	**0.4249**	**19.0248**		**82,007.6172**	**82,007.6172**	**3.0680**		**82,084.3161**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8225	13.9563	18.0549	0.0269		0.8565	0.8565		0.8565	0.8565	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.8225**	**13.9563**	**18.0549**	**0.0269**		**0.8565**	**0.8565**		**0.8565**	**0.8565**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.3170	83.8305	20.1145	0.3000	7.6854	0.0850	7.7704	2.2129	0.0812	2.2941		31,667.8017	31,667.8017	1.8531		31,714.1295
Worker	24.7285	14.7701	157.8275	0.5050	61.7900	0.3733	62.1633	16.3870	0.3436	16.7307		50,339.8155	50,339.8155	1.2148		50,370.1866
Total	**27.0456**	**98.6007**	**177.9420**	**0.8050**	**69.4754**	**0.4583**	**69.9337**	**18.5999**	**0.4249**	**19.0248**		**82,007.6172**	**82,007.6172**	**3.0680**		**82,084.3161**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.2832	84.2623	19.3892	0.2996	7.6853	0.0845	7.7698	2.2128	0.0808	2.2936		31,639.8676	31,639.8676	1.8529		31,686.1899
Worker	23.3326	13.3760	146.9176	0.4885	61.7900	0.3698	62.1598	16.3870	0.3404	16.7274		48,707.8981	48,707.8981	1.1096		48,735.6373
Total	**25.6158**	**97.6382**	**166.3068**	**0.7881**	**69.4753**	**0.4543**	**69.9296**	**18.5999**	**0.4211**	**19.0210**		**80,347.7657**	**80,347.7657**	**2.9625**		**80,421.8273**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8039	13.9165	18.0406	0.0270		0.8488	0.8488		0.8488	0.8488	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.8039**	**13.9165**	**18.0406**	**0.0270**		**0.8488**	**0.8488**		**0.8488**	**0.8488**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.2832	84.2623	19.3892	0.2996	7.6853	0.0845	7.7698	2.2128	0.0808	2.2936		31,639.8676	31,639.8676	1.8529		31,686.1899
Worker	23.3326	13.3760	146.9176	0.4885	61.7900	0.3698	62.1598	16.3870	0.3404	16.7274		48,707.8981	48,707.8981	1.1096		48,735.6373
Total	**25.6158**	**97.6382**	**166.3068**	**0.7881**	**69.4753**	**0.4543**	**69.9296**	**18.5999**	**0.4211**	**19.0210**		**80,347.7657**	**80,347.7657**	**2.9625**		**80,421.8273**

3.4 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.2241	83.7066	18.6619	0.2978	7.6852	0.0832	7.7684	2.2128	0.0795	2.2923		31,460.8178	31,460.8178	1.8443		31,506.9256
Worker	22.0666	12.1516	135.7233	0.4690	61.7900	0.3623	62.1523	16.3870	0.3334	16.7204		46,774.4593	46,774.4593	1.0035		46,799.5474
Total	**24.2907**	**95.8582**	**154.3852**	**0.7669**	**69.4752**	**0.4454**	**69.9207**	**18.5998**	**0.4129**	**19.0127**		**78,235.2771**	**78,235.2771**	**2.8478**		**78,306.4729**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.2241	83.7066	18.6619	0.2978	7.6852	0.0832	7.7684	2.2128	0.0795	2.2923		31,460.8178	31,460.8178	1.8443		31,506.9256
Worker	22.0666	12.1516	135.7233	0.4690	61.7900	0.3623	62.1523	16.3870	0.3334	16.7204		46,774.4593	46,774.4593	1.0035		46,799.5474
Total	**24.2907**	**95.8582**	**154.3852**	**0.7669**	**69.4752**	**0.4454**	**69.9207**	**18.5998**	**0.4129**	**19.0127**		**78,235.2771**	**78,235.2771**	**2.8478**		**78,306.4729**

3.4 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1741	83.1262	18.1023	0.2961	7.6851	0.0819	7.7671	2.2128	0.0783	2.2911		31,290.4394	31,290.4394	1.8307		31,336.2065
Worker	20.9589	11.1118	126.0777	0.4520	61.7900	0.3506	62.1406	16.3870	0.3226	16.7096		45,078.4618	45,078.4618	0.9122		45,101.2668
Total	**23.1329**	**94.2380**	**144.1799**	**0.7481**	**69.4752**	**0.4325**	**69.9076**	**18.5998**	**0.4009**	**19.0007**		**76,368.9012**	**76,368.9012**	**2.7429**		**76,437.4734**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1741	83.1262	18.1023	0.2961	7.6851	0.0819	7.7671	2.2128	0.0783	2.2911		31,290.4394	31,290.4394	1.8307		31,336.2065
Worker	20.9589	11.1118	126.0777	0.4520	61.7900	0.3506	62.1406	16.3870	0.3226	16.7096		45,078.4618	45,078.4618	0.9122		45,101.2668
Total	**23.1329**	**94.2380**	**144.1799**	**0.7481**	**69.4752**	**0.4325**	**69.9076**	**18.5998**	**0.4009**	**19.0007**		**76,368.9012**	**76,368.9012**	**2.7429**		**76,437.4734**

3.4 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1321	82.5807	17.6376	0.2947	7.6851	0.0806	7.7656	2.2128	0.0770	2.2898		31,146.0434	31,146.0434	1.8150		31,191.4176
Worker	19.8774	10.1799	117.4996	0.4369	61.7900	0.3320	62.1220	16.3870	0.3054	16.6924		43,581.2485	43,581.2485	0.8307		43,602.0169
Total	**22.0095**	**92.7606**	**135.1372**	**0.7316**	**69.4751**	**0.4125**	**69.8876**	**18.5998**	**0.3824**	**18.9822**		**74,727.2919**	**74,727.2919**	**2.6457**		**74,793.4345**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1321	82.5807	17.6376	0.2947	7.6851	0.0806	7.7656	2.2128	0.0770	2.2898		31,146.0434	31,146.0434	1.8150		31,191.4176
Worker	19.8774	10.1799	117.4996	0.4369	61.7900	0.3320	62.1220	16.3870	0.3054	16.6924		43,581.2485	43,581.2485	0.8307		43,602.0169
Total	**22.0095**	**92.7606**	**135.1372**	**0.7316**	**69.4751**	**0.4125**	**69.8876**	**18.5998**	**0.3824**	**18.9822**		**74,727.2919**	**74,727.2919**	**2.6457**		**74,793.4345**

3.4 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0973	82.1525	17.2742	0.2935	7.6850	0.0797	7.7647	2.2127	0.0762	2.2889		31,023.9448	31,023.9448	1.7965		31,068.8565
Worker	18.7509	9.3448	109.9825	0.4236	61.7900	0.3080	62.0980	16.3870	0.2834	16.6704		42,266.5641	42,266.5641	0.7604		42,285.5732
Total	**20.8483**	**91.4973**	**127.2567**	**0.7171**	**69.4751**	**0.3877**	**69.8627**	**18.5998**	**0.3595**	**18.9592**		**73,290.5089**	**73,290.5089**	**2.5568**		**73,354.4297**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0973	82.1525	17.2742	0.2935	7.6850	0.0797	7.7647	2.2127	0.0762	2.2889		31,023.9448	31,023.9448	1.7965		31,068.8565
Worker	18.7509	9.3448	109.9825	0.4236	61.7900	0.3080	62.0980	16.3870	0.2834	16.6704		42,266.5641	42,266.5641	0.7604		42,285.5732
Total	**20.8483**	**91.4973**	**127.2567**	**0.7171**	**69.4751**	**0.3877**	**69.8627**	**18.5998**	**0.3595**	**18.9592**		**73,290.5089**	**73,290.5089**	**2.5568**		**73,354.4297**

3.4 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0670	81.7521	16.9450	0.2925	7.6850	0.0787	7.7637	2.2127	0.0752	2.2880		30,921.0212	30,921.0212	1.7795		30,965.5075
Worker	17.5141	8.5520	102.7050	0.4119	61.7900	0.2858	62.0758	16.3870	0.2629	16.6499		41,108.0669	41,108.0669	0.6925		41,125.3791
Total	**19.5811**	**90.3040**	**119.6500**	**0.7044**	**69.4750**	**0.3645**	**69.8395**	**18.5997**	**0.3381**	**18.9379**		**72,029.0880**	**72,029.0880**	**2.4719**		**72,090.8866**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7878	13.8778	18.0286	0.0270		0.8422	0.8422		0.8422	0.8422	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.7878**	**13.8778**	**18.0286**	**0.0270**		**0.8422**	**0.8422**		**0.8422**	**0.8422**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0670	81.7521	16.9450	0.2925	7.6850	0.0787	7.7637	2.2127	0.0752	2.2880		30,921.0212	30,921.0212	1.7795		30,965.5075
Worker	17.5141	8.5520	102.7050	0.4119	61.7900	0.2858	62.0758	16.3870	0.2629	16.6499		41,108.0669	41,108.0669	0.6925		41,125.3791
Total	**19.5811**	**90.3040**	**119.6500**	**0.7044**	**69.4750**	**0.3645**	**69.8395**	**18.5997**	**0.3381**	**18.9379**		**72,029.0880**	**72,029.0880**	**2.4719**		**72,090.8866**

3.4 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0427	81.3673	16.7094	0.2916	7.6850	0.0778	7.7627	2.2127	0.0743	2.2870		30,832.8697	30,832.8697	1.7614		30,876.9051
Worker	16.2964	7.8219	96.1455	0.4016	61.7900	0.2656	62.0556	16.3870	0.2443	16.6313		40,087.7360	40,087.7360	0.6316		40,103.5269
Total	**18.3391**	**89.1892**	**112.8549**	**0.6932**	**69.4750**	**0.3434**	**69.8183**	**18.5997**	**0.3186**	**18.9184**		**70,920.6057**	**70,920.6057**	**2.3931**		**70,980.4320**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	13.7306	17.9786	0.0310		0.8178	0.8178		0.8178	0.8178	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**0.7320**	**13.7306**	**17.9786**	**0.0310**		**0.8178**	**0.8178**		**0.8178**	**0.8178**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0427	81.3673	16.7094	0.2916	7.6850	0.0778	7.7627	2.2127	0.0743	2.2870		30,832.8697	30,832.8697	1.7614		30,876.9051
Worker	16.2964	7.8219	96.1455	0.4016	61.7900	0.2656	62.0556	16.3870	0.2443	16.6313		40,087.7360	40,087.7360	0.6316		40,103.5269
Total	**18.3391**	**89.1892**	**112.8549**	**0.6932**	**69.4750**	**0.3434**	**69.8183**	**18.5997**	**0.3186**	**18.9184**		**70,920.6057**	**70,920.6057**	**2.3931**		**70,980.4320**

3.4 Building Construction - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0424	81.4451	16.6472	0.2917	7.6849	0.0773	7.7622	2.2127	0.0739	2.2866		30,847.0331	30,847.0331	1.7467		30,890.7007
Worker	14.9589	7.1067	90.2555	0.3932	61.7900	0.2486	62.0386	16.3870	0.2287	16.6157		39,248.6250	39,248.6250	0.5766		39,263.0399
Total	**17.0013**	**88.5518**	**106.9027**	**0.6849**	**69.4749**	**0.3259**	**69.8008**	**18.5997**	**0.3025**	**18.9022**		**70,095.6580**	**70,095.6580**	**2.3233**		**70,153.7406**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	13.7306	17.9786	0.0310		0.8178	0.8178		0.8178	0.8178	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**0.7320**	**13.7306**	**17.9786**	**0.0310**		**0.8178**	**0.8178**		**0.8178**	**0.8178**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0424	81.4451	16.6472	0.2917	7.6849	0.0773	7.7622	2.2127	0.0739	2.2866		30,847.0331	30,847.0331	1.7467		30,890.7007
Worker	14.9589	7.1067	90.2555	0.3932	61.7900	0.2486	62.0386	16.3870	0.2287	16.6157		39,248.6250	39,248.6250	0.5766		39,263.0399
Total	**17.0013**	**88.5518**	**106.9027**	**0.6849**	**69.4749**	**0.3259**	**69.8008**	**18.5997**	**0.3025**	**18.9022**		**70,095.6580**	**70,095.6580**	**2.3233**		**70,153.7406**

3.4 Building Construction - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0294	81.1453	16.5350	0.2913	7.6849	0.0766	7.7615	2.2127	0.0732	2.2859		30,808.1461	30,808.1461	1.7344		30,851.5057
Worker	13.7691	6.4905	84.6041	0.3852	61.7900	0.2314	62.0215	16.3870	0.2129	16.5999		38,462.1812	38,462.1812	0.5253		38,475.3143
Total	**15.7985**	**87.6358**	**101.1391**	**0.6765**	**69.4749**	**0.3081**	**69.7830**	**18.5997**	**0.2861**	**18.8858**		**69,270.3273**	**69,270.3273**	**2.2597**		**69,326.8200**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	13.7306	17.9786	0.0310		0.8178	0.8178		0.8178	0.8178	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**0.7320**	**13.7306**	**17.9786**	**0.0310**		**0.8178**	**0.8178**		**0.8178**	**0.8178**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0294	81.1453	16.5350	0.2913	7.6849	0.0766	7.7615	2.2127	0.0732	2.2859		30,808.1461	30,808.1461	1.7344		30,851.5057
Worker	13.7691	6.4905	84.6041	0.3852	61.7900	0.2314	62.0215	16.3870	0.2129	16.5999		38,462.1812	38,462.1812	0.5253		38,475.3143
Total	**15.7985**	**87.6358**	**101.1391**	**0.6765**	**69.4749**	**0.3081**	**69.7830**	**18.5997**	**0.2861**	**18.8858**		**69,270.3273**	**69,270.3273**	**2.2597**		**69,326.8200**

3.5 Paving - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.2201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6046**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0399	0.0188	0.2449	1.1100e-003	0.1788	6.7000e-004	0.1795	0.0474	6.2000e-004	0.0481		111.3233	111.3233	1.5200e-003		111.3613
Total	**0.0399**	**0.0188**	**0.2449**	**1.1100e-003**	**0.1788**	**6.7000e-004**	**0.1795**	**0.0474**	**6.2000e-004**	**0.0481**		**111.3233**	**111.3233**	**1.5200e-003**		**111.3613**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0281		0.6093	0.6093		0.6093	0.6093	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.2201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7810**	**11.2952**	**17.2957**	**0.0281**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0399	0.0188	0.2449	1.1100e-003	0.1788	6.7000e-004	0.1795	0.0474	6.2000e-004	0.0481		111.3233	111.3233	1.5200e-003		111.3613
Total	**0.0399**	**0.0188**	**0.2449**	**1.1100e-003**	**0.1788**	**6.7000e-004**	**0.1795**	**0.0474**	**6.2000e-004**	**0.0481**		**111.3233**	**111.3233**	**1.5200e-003**		**111.3613**

3.5 Paving - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.2201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6046**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0173	0.2308	1.0900e-003	0.1788	6.3000e-004	0.1795	0.0474	5.7000e-004	0.0480		109.3452	109.3452	1.3900e-003		109.3800
Total	**0.0369**	**0.0173**	**0.2308**	**1.0900e-003**	**0.1788**	**6.3000e-004**	**0.1795**	**0.0474**	**5.7000e-004**	**0.0480**		**109.3452**	**109.3452**	**1.3900e-003**		**109.3800**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0281		0.6093	0.6093		0.6093	0.6093	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.2201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7810**	**11.2952**	**17.2957**	**0.0281**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0173	0.2308	1.0900e-003	0.1788	6.3000e-004	0.1795	0.0474	5.7000e-004	0.0480		109.3452	109.3452	1.3900e-003		109.3800
Total	**0.0369**	**0.0173**	**0.2308**	**1.0900e-003**	**0.1788**	**6.3000e-004**	**0.1795**	**0.0474**	**5.7000e-004**	**0.0480**		**109.3452**	**109.3452**	**1.3900e-003**		**109.3800**

3.6 Architectural Coating - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	220.0923					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203		281.4481	281.4481	0.0114		281.7328
Total	**220.2230**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**281.4481**	**281.4481**	**0.0114**		**281.7328**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.5485	1.1935	15.9528	0.0757	12.3625	0.0432	12.4057	3.2786	0.0397	3.3183		7,558.4878	7,558.4878	0.0963		7,560.8951
Total	**2.5485**	**1.1935**	**15.9528**	**0.0757**	**12.3625**	**0.0432**	**12.4057**	**3.2786**	**0.0397**	**3.3183**		**7,558.4878**	**7,558.4878**	**0.0963**		**7,560.8951**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	220.0923					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0114		281.7328
Total	**220.1517**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0114**		**281.7328**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.5485	1.1935	15.9528	0.0757	12.3625	0.0432	12.4057	3.2786	0.0397	3.3183		7,558.4878	7,558.4878	0.0963		7,560.8951
Total	**2.5485**	**1.1935**	**15.9528**	**0.0757**	**12.3625**	**0.0432**	**12.4057**	**3.2786**	**0.0397**	**3.3183**		**7,558.4878**	**7,558.4878**	**0.0963**		**7,560.8951**

3.6 Architectural Coating - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	220.0923					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203		281.4481	281.4481	0.0114		281.7328
Total	**220.2230**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**281.4481**	**281.4481**	**0.0114**		**281.7328**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.3768	1.1070	15.0384	0.0745	12.3625	0.0403	12.4028	3.2786	0.0371	3.3157		7,439.7306	7,439.7306	0.0881		7,441.9334
Total	**2.3768**	**1.1070**	**15.0384**	**0.0745**	**12.3625**	**0.0403**	**12.4028**	**3.2786**	**0.0371**	**3.3157**		**7,439.7306**	**7,439.7306**	**0.0881**		**7,441.9334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	220.0923					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0114		281.7328
Total	**220.1517**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0114**		**281.7328**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.3768	1.1070	15.0384	0.0745	12.3625	0.0403	12.4028	3.2786	0.0371	3.3157		7,439.7306	7,439.7306	0.0881		7,441.9334
Total	**2.3768**	**1.1070**	**15.0384**	**0.0745**	**12.3625**	**0.0403**	**12.4028**	**3.2786**	**0.0371**	**3.3157**		**7,439.7306**	**7,439.7306**	**0.0881**		**7,441.9334**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	97.2184	901.8949	1,049.9096	6.4401	521.0540	2.7488	523.8028	141.7270	2.5623	144.2893		663,586.9469	663,586.9469	31.6332		664,377.7768
Unmitigated	97.9792	906.3470	1,066.4425	6.5510	531.6877	2.7973	534.4850	144.6194	2.6076	147.2270		674,974.0625	674,974.0625	31.9296		675,772.3018

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	32,651.50	31,374.90	28772.60	109,058,404	106,877,235
Condo/Townhouse High Rise	5,902.96	6,085.84	4846.32	19,744,772	19,349,877
General Office Building	14,589.27	3,253.82	1388.82	35,707,131	34,992,989
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	13,095.24	15,324.80	7740.60	27,357,375	26,810,228
Regional Shopping Center	11,070.40	12,955.22	6543.72	23,127,276	22,664,731
Total	77,309.37	68,994.58	49,292.07	214,994,959	210,695,060

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-NW	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse High Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Condo/Townhouse High Rise	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
General Office Building	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Other Asphalt Surfaces	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Other Non-Asphalt Surfaces	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Regional Shopping Center	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551
Regional Shopping Center	0.570872	0.033060	0.185207	0.100996	0.009580	0.004113	0.018871	0.068007	0.001377	0.001299	0.005311	0.000756	0.000551

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.8323	24.3022	11.0278	0.1545		1.9568	1.9568		1.9568	1.9568		30,897.2704	30,897.2704	0.5922	0.5665	31,080.8774
NaturalGas Unmitigated	2.8323	24.3022	11.0278	0.1545		1.9568	1.9568		1.9568	1.9568		30,897.2704	30,897.2704	0.5922	0.5665	31,080.8774

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	203604	2.1957	18.7635	7.9845	0.1198		1.5171	1.5171		1.5171	1.5171		23,953.4251	23,953.4251	0.4591	0.4392	24,095.7683
Condo/Townhouse High Rise	42130.7	0.4544	3.8826	1.6522	0.0248		0.3139	0.3139		0.3139	0.3139		4,956.5540	4,956.5540	0.0950	0.0909	4,986.0083
General Office Building	13589.3	0.1466	1.3323	1.1191	7.9900e-003		0.1013	0.1013		0.1013	0.1013		1,598.7450	1,598.7450	0.0306	0.0293	1,608.2455
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1512.97	0.0163	0.1483	0.1246	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.9959	177.9959	3.4100e-003	3.2600e-003	179.0537
Regional Shopping Center	1789.68	0.0193	0.1755	0.1474	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.5504	210.5504	4.0400e-003	3.8600e-003	211.8016
Total		**2.8323**	**24.3022**	**11.0278**	**0.1545**		**1.9568**	**1.9568**		**1.9568**	**1.9568**		**30,897.2703**	**30,897.2703**	**0.5922**	**0.5665**	**31,080.8774**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	203.604	2.1957	18.7635	7.9845	0.1198		1.5171	1.5171		1.5171	1.5171		23,953.4251	23,953.4251	0.4591	0.4392	24,095.7683
Condo/Townhouse High Rise	42.1307	0.4544	3.8826	1.6522	0.0248		0.3139	0.3139		0.3139	0.3139		4,956.5540	4,956.5540	0.0950	0.0909	4,986.0083
General Office Building	13.5893	0.1466	1.3323	1.1191	7.9900e-003		0.1013	0.1013		0.1013	0.1013		1,598.7450	1,598.7450	0.0306	0.0293	1,608.2455
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.51297	0.0163	0.1483	0.1246	8.9000e-004		0.0113	0.0113		0.0113	0.0113		177.9959	177.9959	3.4100e-003	3.2600e-003	179.0537
Regional Shopping Center	1.78968	0.0193	0.1755	0.1474	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.5504	210.5504	4.0400e-003	3.8600e-003	211.8016
Total		**2.8323**	**24.3022**	**11.0278**	**0.1545**		**1.9568**	**1.9568**		**1.9568**	**1.9568**		**30,897.2703**	**30,897.2703**	**0.5922**	**0.5665**	**31,080.8774**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	195.0086	91.6366	523.9812	0.5749		9.6663	9.6663		9.6663	9.6663	0.0000	110,686.0362	110,686.0362	2.9437	2.0131	111,359.5317
Unmitigated	195.0086	91.6366	523.9812	0.5749		9.6663	9.6663		9.6663	9.6663	0.0000	110,686.0362	110,686.0362	2.9437	2.0131	111,359.5317

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	15.0748					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	155.2838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.0655	86.0142	36.6018	0.5490		6.9543	6.9543		6.9543	6.9543	0.0000	109,805.2941	109,805.2941	2.1046	2.0131	110,457.8121
Landscaping	14.5845	5.6225	487.3794	0.0258		2.7119	2.7119		2.7119	2.7119		880.7421	880.7421	0.8391		901.7196
Total	**195.0086**	**91.6366**	**523.9812**	**0.5749**		**9.6663**	**9.6663**		**9.6663**	**9.6663**	**0.0000**	**110,686.0362**	**110,686.0362**	**2.9437**	**2.0131**	**111,359.5317**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	15.0748					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	155.2838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.0655	86.0142	36.6018	0.5490		6.9543	6.9543		6.9543	6.9543	0.0000	109,805.2941	109,805.2941	2.1046	2.0131	110,457.8121
Landscaping	14.5845	5.6225	487.3794	0.0258		2.7119	2.7119		2.7119	2.7119		880.7421	880.7421	0.8391		901.7196
Total	**195.0086**	**91.6366**	**523.9812**	**0.5749**		**9.6663**	**9.6663**		**9.6663**	**9.6663**	**0.0000**	**110,686.0362**	**110,686.0362**	**2.9437**	**2.0131**	**111,359.5317**

CalEEMod Version: CalEEMod.2016.3.1 Date: 11/22/2016 7:33 AM

NMDSP - Existing Land Uses - San Bernardino-South Coast County, Annual

NMDSP - Existing Land Uses

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	18.00	Dwelling Unit	5.84	32,400.00	51
Apartments Low Rise	25.00	Dwelling Unit	36.90	25,000.00	72
Condo/Townhouse	385.00	Dwelling Unit	17.60	385,000.00	1101
Regional Shopping Center	266.00	1000sqft	25.30	266,001.00	0
Regional Shopping Center	177.16	1000sqft	20.90	177,158.00	0
Industrial Park	207.36	1000sqft	4.76	207,356.00	0
Other Non-Asphalt Surfaces	10.50	Acre	10.50	457,380.00	0
Other Non-Asphalt Surfaces	28.20	Acre	28.20	1,228,392.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	627.18	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2016 North Montclair Downtown Specific Plan. San Bernardino County (South Coast Air Basin). CO2 intensity factor updated for effect of 25% RPS.

Land Use - Existing land uses includes: 18 single-family homes, 385 condo/townhomes, 25 apartment units, 266,001 SF in retail, 177,158 SF in services, and 207,356 SF of industrial.

Architectural Coating - Comply with SCAQMD Rule 1113.

Area Coating - Comply with SCAQMD Rule 1113.

Vehicle Trips - Adjusted trip rates based on traffic study.

Energy Use - Use of historical data.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	3,100.00	1.00
tblConstructionPhase	PhaseEndDate	5/15/2031	12/15/2017
tblEnergyUse	T24E	792.75	792.75
tblEnergyUse	T24E	933.44	933.44
tblEnergyUse	T24E	1,269.07	1,269.07
tblEnergyUse	T24NG	12,069.03	12,069.03
tblEnergyUse	T24NG	18,983.37	18,983.37
tblEnergyUse	T24NG	30,907.53	30,907.53
tblLandUse	LotAcreage	1.56	36.90
tblLandUse	LotAcreage	24.06	17.60
tblLandUse	LotAcreage	6.11	25.30
tblLandUse	LotAcreage	4.07	20.90
tblProjectCharacteristics	CO2IntensityFactor	702.44	627.18
tblProjectCharacteristics	OperationalYear	2018	2016
tblVehicleTrips	ST_TR	7.16	7.23
tblVehicleTrips	SU_TR	6.07	6.13
tblVehicleTrips	WD_TR	6.59	6.65

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0486	0.1635	7.2051	7.1700e-003		0.4329	0.4329		0.4329	0.4329	45.4618	94.5889	140.0507	0.1430	3.0900e-003	144.5445
Energy	0.0620	0.5354	0.2689	3.3800e-003		0.0428	0.0428		0.0428	0.0428	0.0000	3,994.7044	3,994.7044	0.1681	0.0436	4,011.8974
Mobile	16.3862	106.6029	181.1041	0.5227	22.2803	0.5734	22.8537	6.2641	0.5414	6.8055	0.0000	48,257.5153	48,257.5153	3.1900	0.0000	48,337.2644
Waste						0.0000	0.0000		0.0000	0.0000	189.1795	0.0000	189.1795	11.1802	0.0000	468.6841
Water						0.0000	0.0000		0.0000	0.0000	34.4740	521.6735	556.1476	3.5649	0.0886	671.6729
Total	**22.4967**	**107.3018**	**188.5780**	**0.5333**	**22.2803**	**1.0491**	**23.3294**	**6.2641**	**1.0170**	**7.2811**	**269.1153**	**52,868.4821**	**53,137.5973**	**18.2462**	**0.1353**	**53,634.0633**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0486	0.1635	7.2051	7.1700e-003		0.4329	0.4329		0.4329	0.4329	45.4618	94.5889	140.0507	0.1430	3.0900e-003	144.5445
Energy	0.0620	0.5354	0.2689	3.3800e-003		0.0428	0.0428		0.0428	0.0428	0.0000	3,994.7044	3,994.7044	0.1681	0.0436	4,011.8974
Mobile	16.3862	106.6029	181.1041	0.5227	22.2803	0.5734	22.8537	6.2641	0.5414	6.8055	0.0000	48,257.5153	48,257.5153	3.1900	0.0000	48,337.2644
Waste						0.0000	0.0000		0.0000	0.0000	189.1795	0.0000	189.1795	11.1802	0.0000	468.6841
Water						0.0000	0.0000		0.0000	0.0000	34.4740	521.6735	556.1476	3.5649	0.0886	671.6729
Total	**22.4967**	**107.3018**	**188.5780**	**0.5333**	**22.2803**	**1.0491**	**23.3294**	**6.2641**	**1.0170**	**7.2811**	**269.1153**	**52,868.4821**	**53,137.5973**	**18.2462**	**0.1353**	**53,634.0633**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	16.3862	106.6029	181.1041	0.5227	22.2803	0.5734	22.8537	6.2641	0.5414	6.8055	0.0000	48,257.5153	48,257.5153	3.1900	0.0000	48,337.2644
Unmitigated	16.3862	106.6029	181.1041	0.5227	22.2803	0.5734	22.8537	6.2641	0.5414	6.8055	0.0000	48,257.5153	48,257.5153	3.1900	0.0000	48,337.2644

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	166.25	180.75	153.25	568,834	568,834
Condo/Townhouse	2,236.85	2,182.95	1863.40	7,435,039	7,435,039
Industrial Park	1,416.27	516.33	151.37	4,402,438	4,402,438
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	11,358.20	13,292.02	6713.84	23,728,518	23,728,518
Regional Shopping Center	7,564.73	8,852.69	4471.52	15,803,550	15,803,550
Single Family Housing	171.36	178.38	155.16	581,082	581,082
Total	22,913.66	25,203.11	13,508.54	52,519,460	52,519,460

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Industrial Park	16.60	8.40	6.90	59.00	28.00	13.00	79	19	2
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Apartments Low Rise	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Condo/Townhouse	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Regional Shopping Center	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Regional Shopping Center	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Industrial Park	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Other Non-Asphalt Surfaces	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Other Non-Asphalt Surfaces	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,381.4997	3,381.4997	0.1564	0.0324	3,395.0488
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,381.4997	3,381.4997	0.1564	0.0324	3,395.0488
NaturalGas Mitigated	0.0620	0.5354	0.2689	3.3800e-003		0.0428	0.0428		0.0428	0.0428	0.0000	613.2047	613.2047	0.0118	0.0112	616.8486
NaturalGas Unmitigated	0.0620	0.5354	0.2689	3.3800e-003		0.0428	0.0428		0.0428	0.0428	0.0000	613.2047	613.2047	0.0118	0.0112	616.8486

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	364176	1.9600e-003	0.0168	7.1400e-003	1.1000e-004		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	19.4338	19.4338	3.7000e-004	3.6000e-004	19.5493
Condo/Townhouse	8.44473e+006	0.0455	0.3891	0.1656	2.4800e-003		0.0315	0.0315		0.0315	0.0315	0.0000	450.6430	450.6430	8.6400e-003	8.2600e-003	453.3209
Industrial Park	870895	4.7000e-003	0.0427	0.0359	2.6000e-004		3.2400e-003	3.2400e-003		3.2400e-003	3.2400e-003	0.0000	46.4743	46.4743	8.9000e-004	8.5000e-004	46.7505
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	458839	2.4700e-003	0.0225	0.0189	1.3000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.4854	24.4854	4.7000e-004	4.5000e-004	24.6309
Regional Shopping Center	688943	3.7100e-003	0.0338	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	36.7646	36.7646	7.0000e-004	6.7000e-004	36.9831
Single Family Housing	663438	3.5800e-003	0.0306	0.0130	2.0000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	35.4036	35.4036	6.8000e-004	6.5000e-004	35.6140
Total		**0.0620**	**0.5354**	**0.2689**	**3.3800e-003**		**0.0428**	**0.0428**		**0.0428**	**0.0428**	**0.0000**	**613.2047**	**613.2047**	**0.0118**	**0.0112**	**616.8486**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	364176	1.9600e-003	0.0168	7.1400e-003	1.1000e-004		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	19.4338	19.4338	3.7000e-004	3.6000e-004	19.5493
Condo/Townhouse	8.44473e+006	0.0455	0.3891	0.1656	2.4800e-003		0.0315	0.0315		0.0315	0.0315	0.0000	450.6430	450.6430	8.6400e-003	8.2600e-003	453.3209
Industrial Park	870895	4.7000e-003	0.0427	0.0359	2.6000e-004		3.2400e-003	3.2400e-003		3.2400e-003	3.2400e-003	0.0000	46.4743	46.4743	8.9000e-004	8.5000e-004	46.7505
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	458839	2.4700e-003	0.0225	0.0189	1.3000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.4854	24.4854	4.7000e-004	4.5000e-004	24.6309
Regional Shopping Center	688943	3.7100e-003	0.0338	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	36.7646	36.7646	7.0000e-004	6.7000e-004	36.9831
Single Family Housing	663438	3.5800e-003	0.0306	0.0130	2.0000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	35.4036	35.4036	6.8000e-004	6.5000e-004	35.6140
Total		**0.0620**	**0.5354**	**0.2689**	**3.3800e-003**		**0.0428**	**0.0428**		**0.0428**	**0.0428**	**0.0000**	**613.2047**	**613.2047**	**0.0118**	**0.0112**	**616.8486**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	105850	30.1126	1.3900e-003	2.9000e-004	30.2332
Condo/Townhouse	1.94825e+006	554.2463	0.0256	5.3000e-003	556.4671
Industrial Park	2.3369e+006	664.8114	0.0307	6.3600e-003	667.4752
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.93905e+006	836.1132	0.0387	8.0000e-003	839.4634
Regional Shopping Center	4.41296e+006	1,255.4158	0.0581	0.0120	1,260.4461
Single Family Housing	143419	40.8004	1.8900e-003	3.9000e-004	40.9639
Total		**3,381.4997**	**0.1564**	**0.0324**	**3,395.0488**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	105850	30.1126	1.3900e-003	2.9000e-004	30.2332
Condo/Townhouse	1.94825e+006	554.2463	0.0256	5.3000e-003	556.4671
Industrial Park	2.3369e+006	664.8114	0.0307	6.3600e-003	667.4752
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.93905e+006	836.1132	0.0387	8.0000e-003	839.4634
Regional Shopping Center	4.41296e+006	1,255.4158	0.0581	0.0120	1,260.4461
Single Family Housing	143419	40.8004	1.8900e-003	3.9000e-004	40.9639
Total		**3,381.4997**	**0.1564**	**0.0324**	**3,395.0488**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.0486	0.1635	7.2051	7.1700e-003		0.4329	0.4329		0.4329	0.4329	45.4618	94.5889	140.0507	0.1430	3.0900e-003	144.5445
Unmitigated	6.0486	0.1635	7.2051	7.1700e-003		0.4329	0.4329		0.4329	0.4329	45.4618	94.5889	140.0507	0.1430	3.0900e-003	144.5445

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4467					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.0582					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4019	0.1110	2.7208	6.9400e-003		0.4087	0.4087		0.4087	0.4087	45.4618	87.3619	132.8237	0.1356	3.0900e-003	137.1326
Landscaping	0.1418	0.0525	4.4843	2.3000e-004		0.0242	0.0242		0.0242	0.0242	0.0000	7.2270	7.2270	7.4000e-003	0.0000	7.4119
Total	**6.0486**	**0.1635**	**7.2051**	**7.1700e-003**		**0.4329**	**0.4329**		**0.4329**	**0.4329**	**45.4618**	**94.5889**	**140.0507**	**0.1430**	**3.0900e-003**	**144.5445**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4467					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.0582					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4019	0.1110	2.7208	6.9400e-003		0.4087	0.4087		0.4087	0.4087	45.4618	87.3619	132.8237	0.1356	3.0900e-003	137.1326
Landscaping	0.1418	0.0525	4.4843	2.3000e-004		0.0242	0.0242		0.0242	0.0242	0.0000	7.2270	7.2270	7.4000e-003	0.0000	7.4119
Total	**6.0486**	**0.1635**	**7.2051**	**7.1700e-003**		**0.4329**	**0.4329**		**0.4329**	**0.4329**	**45.4618**	**94.5889**	**140.0507**	**0.1430**	**3.0900e-003**	**144.5445**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	556.1476	3.5649	0.0886	671.6729
Unmitigated	556.1476	3.5649	0.0886	671.6729

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	9.7961	0.0535	1.3400e-003	11.5336
Condo/Townhouse	25.0843 / 15.814	150.8591	0.8240	0.0207	177.6174
Industrial Park	47.952 / 0	192.8400	1.5707	0.0386	243.6091
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	32.826 / 20.1191	195.5993	1.0782	0.0270	230.6086
Single Family Housing	1.17277 / 0.739357	7.0532	0.0385	9.7000e-004	8.3042
Total		**556.1476**	**3.5649**	**0.0886**	**671.6729**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	9.7961	0.0535	1.3400e-003	11.5336
Condo/Townhouse	25.0843 / 15.814	150.8591	0.8240	0.0207	177.6174
Industrial Park	47.952 / 0	192.8400	1.5707	0.0386	243.6091
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	32.826 / 20.1191	195.5993	1.0782	0.0270	230.6086
Single Family Housing	1.17277 / 0.739357	7.0532	0.0385	9.7000e-004	8.3042
Total		**556.1476**	**3.5649**	**0.0886**	**671.6729**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	189.1795	11.1802	0.0000	468.6841
Unmitigated	189.1795	11.1802	0.0000	468.6841

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Condo/Townhouse	177.1	35.9497	2.1246	0.0000	89.0639
Industrial Park	257.13	52.1951	3.0846	0.0000	129.3111
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	465.32	94.4558	5.5822	0.0000	234.0101
Single Family Housing	20.91	4.2445	0.2509	0.0000	10.5157
Total		**189.1795**	**11.1802**	**0.0000**	**468.6841**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Condo/Townhouse	177.1	35.9497	2.1246	0.0000	89.0639
Industrial Park	257.13	52.1951	3.0846	0.0000	129.3111
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	465.32	94.4558	5.5822	0.0000	234.0101
Single Family Housing	20.91	4.2445	0.2509	0.0000	10.5157
Total		**189.1795**	**11.1802**	**0.0000**	**468.6841**

NMDSP - Existing Land Uses

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	18.00	Dwelling Unit	5.84	32,400.00	51
Apartments Low Rise	25.00	Dwelling Unit	36.90	25,000.00	72
Condo/Townhouse	385.00	Dwelling Unit	17.60	385,000.00	1101
Regional Shopping Center	266.00	1000sqft	25.30	266,001.00	0
Regional Shopping Center	177.16	1000sqft	20.90	177,158.00	0
Industrial Park	207.36	1000sqft	4.76	207,356.00	0
Other Non-Asphalt Surfaces	10.50	Acre	10.50	457,380.00	0
Other Non-Asphalt Surfaces	28.20	Acre	28.20	1,228,392.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	627.18	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2016 North Montclair Downtown Specific Plan. San Bernardino County (South Coast Air Basin). CO2 intensity factor updated for effect of 25% RPS.

Land Use - Existing land uses includes: 18 single-family homes, 385 condo/townhomes, 25 apartment units, 266,001 SF in retail, 177,158 SF in services, and 207,356 SF of industrial.
Construction Phase - No construction.
Area Coating - Comply with SCAQMD Rule 1113.
Vehicle Trips - Adjusted trip rates based on traffic study.
Energy Use - Use of historical data.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	3,100.00	1.00
tblConstructionPhase	PhaseEndDate	5/15/2031	12/15/2017
tblEnergyUse	T24E	792.75	792.75
tblEnergyUse	T24E	933.44	933.44
tblEnergyUse	T24E	1,269.07	1,269.07
tblEnergyUse	T24NG	12,069.03	12,069.03
tblEnergyUse	T24NG	18,983.37	18,983.37
tblEnergyUse	T24NG	30,907.53	30,907.53
tblLandUse	LotAcreage	1.56	36.90
tblLandUse	LotAcreage	24.06	17.60
tblLandUse	LotAcreage	6.11	25.30
tblLandUse	LotAcreage	4.07	20.90
tblProjectCharacteristics	CO2IntensityFactor	702.44	627.18
tblProjectCharacteristics	OperationalYear	2018	2016
tblVehicleTrips	ST_TR	7.16	7.23
tblVehicleTrips	SU_TR	6.07	6.13
tblVehicleTrips	WD_TR	6.59	6.65

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	137.9703	9.2999	253.5349	0.5571		32.8876	32.8876		32.8876	32.8876	4,009.0411	7,767.7312	11,776.7723	12.0210	0.2721	12,158.3835
Energy	0.3395	2.9338	1.4732	0.0185		0.2346	0.2346		0.2346	0.2346		3,703.7942	3,703.7942	0.0710	0.0679	3,725.8040
Mobile	127.7925	685.0838	1,285.8891	3.6660	148.2242	3.7596	151.9838	41.6181	3.5492	45.1672		372,722.2169	372,722.2169	23.2171		373,302.6440
Total	**266.1023**	**697.3175**	**1,540.8973**	**4.2417**	**148.2242**	**36.8817**	**185.1060**	**41.6181**	**36.6713**	**78.2894**	**4,009.0411**	**384,193.7422**	**388,202.7833**	**35.3090**	**0.3400**	**389,186.8315**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	137.9703	9.2999	253.5349	0.5571		32.8876	32.8876		32.8876	32.8876	4,009.0411	7,767.7312	11,776.7723	12.0210	0.2721	12,158.3835
Energy	0.3395	2.9338	1.4732	0.0185		0.2346	0.2346		0.2346	0.2346		3,703.7942	3,703.7942	0.0710	0.0679	3,725.8040
Mobile	127.7925	685.0838	1,285.8891	3.6660	148.2242	3.7596	151.9838	41.6181	3.5492	45.1672		372,722.2169	372,722.2169	23.2171		373,302.6440
Total	**266.1023**	**697.3175**	**1,540.8973**	**4.2417**	**148.2242**	**36.8817**	**185.1060**	**41.6181**	**36.6713**	**78.2894**	**4,009.0411**	**384,193.7422**	**388,202.7833**	**35.3090**	**0.3400**	**389,186.8315**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	127.7925	685.0838	1,285.8891	3.6660	148.2242	3.7596	151.9838	41.6181	3.5492	45.1672		372,722.2169	372,722.2169	23.2171		373,302.6440
Unmitigated	127.7925	685.0838	1,285.8891	3.6660	148.2242	3.7596	151.9838	41.6181	3.5492	45.1672		372,722.2169	372,722.2169	23.2171		373,302.6440

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	166.25	180.75	153.25	568,834	568,834
Condo/Townhouse	2,236.85	2,182.95	1863.40	7,435,039	7,435,039
Industrial Park	1,416.27	516.33	151.37	4,402,438	4,402,438
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	11,358.20	13,292.02	6713.84	23,728,518	23,728,518
Regional Shopping Center	7,564.73	8,852.69	4471.52	15,803,550	15,803,550
Single Family Housing	171.36	178.38	155.16	581,082	581,082
Total	22,913.66	25,203.11	13,508.54	52,519,460	52,519,460

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Industrial Park	16.60	8.40	6.90	59.00	28.00	13.00	79	19	2
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Apartments Low Rise	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Condo/Townhouse	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Regional Shopping Center	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Regional Shopping Center	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Industrial Park	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Other Non-Asphalt Surfaces	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Other Non-Asphalt Surfaces	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3395	2.9338	1.4732	0.0185		0.2346	0.2346		0.2346	0.2346		3,703.7942	3,703.7942	0.0710	0.0679	3,725.8040
NaturalGas Unmitigated	0.3395	2.9338	1.4732	0.0185		0.2346	0.2346		0.2346	0.2346		3,703.7942	3,703.7942	0.0710	0.0679	3,725.8040

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	997.742	0.0108	0.0920	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.3814	117.3814	2.2500e-003	2.1500e-003	118.0789
Condo/Townhouse	23136.2	0.2495	2.1322	0.9073	0.0136		0.1724	0.1724		0.1724	0.1724		2,721.9116	2,721.9116	0.0522	0.0499	2,738.0865
Industrial Park	2386.01	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.7076	280.7076	5.3800e-003	5.1500e-003	282.3757
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1257.09	0.0136	0.1232	0.1035	7.4000e-004		9.3700e-003	9.3700e-003		9.3700e-003	9.3700e-003		147.8934	147.8934	2.8300e-003	2.7100e-003	148.7722
Regional Shopping Center	1887.51	0.0204	0.1851	0.1554	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.0605	222.0605	4.2600e-003	4.0700e-003	223.3801
Single Family Housing	1817.64	0.0196	0.1675	0.0713	1.0700e-003		0.0135	0.0135		0.0135	0.0135		213.8398	213.8398	4.1000e-003	3.9200e-003	215.1106
Total		**0.3395**	**2.9338**	**1.4732**	**0.0185**		**0.2346**	**0.2346**		**0.2346**	**0.2346**		**3,703.7942**	**3,703.7942**	**0.0710**	**0.0679**	**3,725.8040**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0.997742	0.0108	0.0920	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.3814	117.3814	2.2500e-003	2.1500e-003	118.0789
Condo/Townhouse	23.1362	0.2495	2.1322	0.9073	0.0136		0.1724	0.1724		0.1724	0.1724		2,721.9116	2,721.9116	0.0522	0.0499	2,738.0865
Industrial Park	2.38601	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.7076	280.7076	5.3800e-003	5.1500e-003	282.3757
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.25709	0.0136	0.1232	0.1035	7.4000e-004		9.3700e-003	9.3700e-003		9.3700e-003	9.3700e-003		147.8934	147.8934	2.8300e-003	2.7100e-003	148.7722
Regional Shopping Center	1.88751	0.0204	0.1851	0.1554	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.0605	222.0605	4.2600e-003	4.0700e-003	223.3801
Single Family Housing	1.81764	0.0196	0.1675	0.0713	1.0700e-003		0.0135	0.0135		0.0135	0.0135		213.8398	213.8398	4.1000e-003	3.9200e-003	215.1106
Total		**0.3395**	**2.9338**	**1.4732**	**0.0185**		**0.2346**	**0.2346**		**0.2346**	**0.2346**		**3,703.7942**	**3,703.7942**	**0.0710**	**0.0679**	**3,725.8040**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	137.9703	9.2999	253.5349	0.5571		32.8876	32.8876		32.8876	32.8876	4,009.0411	7,767.7312	11,776.7723	12.0210	0.2721	12,158.3835
Unmitigated	137.9703	9.2999	253.5349	0.5571		32.8876	32.8876		32.8876	32.8876	4,009.0411	7,767.7312	11,776.7723	12.0210	0.2721	12,158.3835

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4475					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	22.2368					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	112.1514	8.8803	217.6602	0.5553		32.6942	32.6942		32.6942	32.6942	4,009.0411	7,704.0000	11,713.0411	11.9557	0.2721	12,093.0218
Landscaping	1.1346	0.4196	35.8748	1.8700e-003		0.1934	0.1934		0.1934	0.1934		63.7312	63.7312	0.0652		65.3617
Total	**137.9703**	**9.2999**	**253.5349**	**0.5571**		**32.8876**	**32.8876**		**32.8876**	**32.8876**	**4,009.0411**	**7,767.7312**	**11,776.7723**	**12.0210**	**0.2721**	**12,158.3835**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4475					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	22.2368					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	112.1514	8.8803	217.6602	0.5553		32.6942	32.6942		32.6942	32.6942	4,009.0411	7,704.0000	11,713.0411	11.9557	0.2721	12,093.0218
Landscaping	1.1346	0.4196	35.8748	1.8700e-003		0.1934	0.1934		0.1934	0.1934		63.7312	63.7312	0.0652		65.3617
Total	**137.9703**	**9.2999**	**253.5349**	**0.5571**		**32.8876**	**32.8876**		**32.8876**	**32.8876**	**4,009.0411**	**7,767.7312**	**11,776.7723**	**12.0210**	**0.2721**	**12,158.3835**

CalEEMod Version: CalEEMod.2016.3.1 Date: 11/22/2016 7:36 AM

NMDSP - Existing Land Uses - San Bernardino-South Coast County, Winter

NMDSP - Existing Land Uses

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	18.00	Dwelling Unit	5.84	32,400.00	51
Apartments Low Rise	25.00	Dwelling Unit	36.90	25,000.00	72
Condo/Townhouse	385.00	Dwelling Unit	17.60	385,000.00	1101
Regional Shopping Center	266.00	1000sqft	25.30	266,001.00	0
Regional Shopping Center	177.16	1000sqft	20.90	177,158.00	0
Industrial Park	207.36	1000sqft	4.76	207,356.00	0
Other Non-Asphalt Surfaces	10.50	Acre	10.50	457,380.00	0
Other Non-Asphalt Surfaces	28.20	Acre	28.20	1,228,392.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	627.18	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2016 North Montclair Downtown Specific Plan. San Bernardino County (South Coast Air Basin). CO2 intensity factor updated for effect of 25% RPS.

Land Use - Existing land uses includes: 18 single-family homes, 385 condo/townhomes, 25 apartment units, 266,001 SF in retail, 177,158 SF in services, and 207,356 SF of industrial.

Area Coating - Comply with SCAQMD Rule 1113.

Vehicle Trips - Adjusted trip rates based on traffic study.

Energy Use - Use of historical data.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	3,100.00	1.00
tblConstructionPhase	PhaseEndDate	5/15/2031	12/15/2017
tblEnergyUse	T24E	792.75	792.75
tblEnergyUse	T24E	933.44	933.44
tblEnergyUse	T24E	1,269.07	1,269.07
tblEnergyUse	T24NG	12,069.03	12,069.03
tblEnergyUse	T24NG	18,983.37	18,983.37
tblEnergyUse	T24NG	30,907.53	30,907.53
tblLandUse	LotAcreage	1.56	36.90
tblLandUse	LotAcreage	24.06	17.60
tblLandUse	LotAcreage	6.11	25.30
tblLandUse	LotAcreage	4.07	20.90
tblProjectCharacteristics	CO2IntensityFactor	702.44	627.18
tblProjectCharacteristics	OperationalYear	2018	2016
tblVehicleTrips	ST_TR	7.16	7.23
tblVehicleTrips	SU_TR	6.07	6.13
tblVehicleTrips	WD_TR	6.59	6.65

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	137.9703	9.2999	253.5349	0.5571		32.8876	32.8876		32.8876	32.8876	4,009.0411	7,767.7312	11,776.7723	12.0210	0.2721	12,158.3835
Energy	0.3395	2.9338	1.4732	0.0185		0.2346	0.2346		0.2346	0.2346		3,703.7942	3,703.7942	0.0710	0.0679	3,725.8040
Mobile	111.3252	686.4162	1,157.4411	3.3677	148.2242	3.8105	152.0348	41.6181	3.5979	45.2160		342,740.2998	342,740.2998	23.5851		343,329.9275
Total	**249.6350**	**698.6499**	**1,412.4492**	**3.9434**	**148.2242**	**36.9327**	**185.1569**	**41.6181**	**36.7201**	**78.3382**	**4,009.0411**	**354,211.8252**	**358,220.8662**	**35.6771**	**0.3400**	**359,214.1150**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	137.9703	9.2999	253.5349	0.5571		32.8876	32.8876		32.8876	32.8876	4,009.0411	7,767.7312	11,776.7723	12.0210	0.2721	12,158.3835
Energy	0.3395	2.9338	1.4732	0.0185		0.2346	0.2346		0.2346	0.2346		3,703.7942	3,703.7942	0.0710	0.0679	3,725.8040
Mobile	111.3252	686.4162	1,157.4411	3.3677	148.2242	3.8105	152.0348	41.6181	3.5979	45.2160		342,740.2998	342,740.2998	23.5851		343,329.9275
Total	**249.6350**	**698.6499**	**1,412.4492**	**3.9434**	**148.2242**	**36.9327**	**185.1569**	**41.6181**	**36.7201**	**78.3382**	**4,009.0411**	**354,211.8252**	**358,220.8662**	**35.6771**	**0.3400**	**359,214.1150**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	111.3252	686.4162	1,157.4411	3.3677	148.2242	3.8105	152.0348	41.6181	3.5979	45.2160		342,740.2998	342,740.2998	23.5851		343,329.9275
Unmitigated	111.3252	686.4162	1,157.4411	3.3677	148.2242	3.8105	152.0348	41.6181	3.5979	45.2160		342,740.2998	342,740.2998	23.5851		343,329.9275

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	166.25	180.75	153.25	568,834	568,834
Condo/Townhouse	2,236.85	2,182.95	1863.40	7,435,039	7,435,039
Industrial Park	1,416.27	516.33	151.37	4,402,438	4,402,438
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	11,358.20	13,292.02	6713.84	23,728,518	23,728,518
Regional Shopping Center	7,564.73	8,852.69	4471.52	15,803,550	15,803,550
Single Family Housing	171.36	178.38	155.16	581,082	581,082
Total	22,913.66	25,203.11	13,508.54	52,519,460	52,519,460

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Industrial Park	16.60	8.40	6.90	59.00	28.00	13.00	79	19	2
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Apartments Low Rise	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Condo/Townhouse	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Regional Shopping Center	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Regional Shopping Center	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Industrial Park	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Other Non-Asphalt Surfaces	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456
Other Non-Asphalt Surfaces	0.523718	0.043005	0.177147	0.140404	0.024438	0.006429	0.015954	0.056700	0.001296	0.001913	0.006715	0.000826	0.001456

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3395	2.9338	1.4732	0.0185		0.2346	0.2346		0.2346	0.2346		3,703.7942	3,703.7942	0.0710	0.0679	3,725.8040
NaturalGas Unmitigated	0.3395	2.9338	1.4732	0.0185		0.2346	0.2346		0.2346	0.2346		3,703.7942	3,703.7942	0.0710	0.0679	3,725.8040

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	997.742	0.0108	0.0920	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.3814	117.3814	2.2500e-003	2.1500e-003	118.0789
Condo/Townhouse	23136.2	0.2495	2.1322	0.9073	0.0136		0.1724	0.1724		0.1724	0.1724		2,721.9116	2,721.9116	0.0522	0.0499	2,738.0865
Industrial Park	2386.01	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.7076	280.7076	5.3800e-003	5.1500e-003	282.3757
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1257.09	0.0136	0.1232	0.1035	7.4000e-004		9.3700e-003	9.3700e-003		9.3700e-003	9.3700e-003		147.8934	147.8934	2.8300e-003	2.7100e-003	148.7722
Regional Shopping Center	1887.51	0.0204	0.1851	0.1554	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.0605	222.0605	4.2600e-003	4.0700e-003	223.3801
Single Family Housing	1817.64	0.0196	0.1675	0.0713	1.0700e-003		0.0135	0.0135		0.0135	0.0135		213.8398	213.8398	4.1000e-003	3.9200e-003	215.1106
Total		**0.3395**	**2.9338**	**1.4732**	**0.0185**		**0.2346**	**0.2346**		**0.2346**	**0.2346**		**3,703.7942**	**3,703.7942**	**0.0710**	**0.0679**	**3,725.8040**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0.997742	0.0108	0.0920	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.3814	117.3814	2.2500e-003	2.1500e-003	118.0789
Condo/Townhouse	23.1362	0.2495	2.1322	0.9073	0.0136		0.1724	0.1724		0.1724	0.1724		2,721.9116	2,721.9116	0.0522	0.0499	2,738.0865
Industrial Park	2.38601	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.7076	280.7076	5.3800e-003	5.1500e-003	282.3757
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.25709	0.0136	0.1232	0.1035	7.4000e-004		9.3700e-003	9.3700e-003		9.3700e-003	9.3700e-003		147.8934	147.8934	2.8300e-003	2.7100e-003	148.7722
Regional Shopping Center	1.88751	0.0204	0.1851	0.1554	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.0605	222.0605	4.2600e-003	4.0700e-003	223.3801
Single Family Housing	1.81764	0.0196	0.1675	0.0713	1.0700e-003		0.0135	0.0135		0.0135	0.0135		213.8398	213.8398	4.1000e-003	3.9200e-003	215.1106
Total		**0.3395**	**2.9338**	**1.4732**	**0.0185**		**0.2346**	**0.2346**		**0.2346**	**0.2346**		**3,703.7942**	**3,703.7942**	**0.0710**	**0.0679**	**3,725.8040**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	137.9703	9.2999	253.5349	0.5571		32.8876	32.8876		32.8876	32.8876	4,009.0411	7,767.7312	11,776.7723	12.0210	0.2721	12,158.3835
Unmitigated	137.9703	9.2999	253.5349	0.5571		32.8876	32.8876		32.8876	32.8876	4,009.0411	7,767.7312	11,776.7723	12.0210	0.2721	12,158.3835

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4475					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	22.2368					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	112.1514	8.8803	217.6602	0.5553		32.6942	32.6942		32.6942	32.6942	4,009.0411	7,704.0000	11,713.0411	11.9557	0.2721	12,093.0218
Landscaping	1.1346	0.4196	35.8748	1.8700e-003		0.1934	0.1934		0.1934	0.1934		63.7312	63.7312	0.0652		65.3617
Total	**137.9703**	**9.2999**	**253.5349**	**0.5571**		**32.8876**	**32.8876**		**32.8876**	**32.8876**	**4,009.0411**	**7,767.7312**	**11,776.7723**	**12.0210**	**0.2721**	**12,158.3835**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4475					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	22.2368					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	112.1514	8.8803	217.6602	0.5553		32.6942	32.6942		32.6942	32.6942	4,009.0411	7,704.0000	11,713.0411	11.9557	0.2721	12,093.0218
Landscaping	1.1346	0.4196	35.8748	1.8700e-003		0.1934	0.1934		0.1934	0.1934		63.7312	63.7312	0.0652		65.3617
Total	**137.9703**	**9.2999**	**253.5349**	**0.5571**		**32.8876**	**32.8876**		**32.8876**	**32.8876**	**4,009.0411**	**7,767.7312**	**11,776.7723**	**12.0210**	**0.2721**	**12,158.3835**

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Central Ave & Arrow Highwy PM 2016
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 360.9 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 10. DEGREES TEMP= 10.1 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. WBLA	500	0	-12	0	AG	262	3.3	0.0	33.0
B. WBTA	500	12	0	12	AG	502	3.3	0.0	33.0
C. WBRA	500	24	12	24	AG	37	3.3	0.0	33.0
D. WBD	0	12	-500	12	AG	1466	3.3	0.0	33.0
E. EBLA	-500	0	12	0	AG	266	3.3	0.0	33.0
F. EBTA	-500	-12	0	-12	AG	828	3.3	0.0	33.0
G. EBRA	-500	-24	-12	-24	AG	868	3.3	0.0	33.0
H. EBD	0	-12	500	-12	AG	1116	3.3	0.0	33.0
I. NBLA	0	-500	0	12	AG	751	3.3	0.0	33.0
J. NBTA	12	-500	12	0	AG	672	3.3	0.0	33.0
K. NBRA	24	-500	24	-12	AG	228	3.3	0.0	33.0
L. NBD	12	0	12	500	AG	975	3.3	0.0	33.0
M. SBLA	0	500	0	-12	AG	60	3.3	0.0	33.0
N. SBTA	-12	500	-12	0	AG	889	3.3	0.0	33.0
O. SBRA	-24	500	-24	12	AG	213	3.3	0.0	33.0
P. SBD	-12	0	-12	-500	AG	2019	3.3	0.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. SR1	-60	60	5.9
2. SR2	60	60	5.9
3. SR3	-60	-60	5.9
4. SR4	60	-60	5.9

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Central Ave & Arrow Highwy PM 2016
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SR1	163.	0.7	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0
2. SR2	252.	0.6	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.0
3. SR3	45.	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
4. SR4	285.	0.7	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. SR1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2
2. SR2	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
3. SR3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2
4. SR4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Central Ave & Mission Blvd AM 2040
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

I. SITE VARIABLES

U=	1.0 M/S	Z0=	100. CM	ALT=	284.4 (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	0.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.1 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. WBLA	500	0	-12	0	AG	100	0.1	0.0	33.0
B. WBTA	500	12	0	12	AG	1180	0.1	0.0	33.0
C. WBRA	500	24	12	24	AG	430	0.1	0.0	33.0
D. WBD	0	12	-500	12	AG	1710	0.1	0.0	33.0
E. EBLA	-500	0	12	0	AG	260	0.1	0.0	33.0
F. EBTA	-500	-12	0	-12	AG	500	0.1	0.0	33.0
G. EBRA	-500	-24	-12	-24	AG	50	0.1	0.0	33.0
H. EBD	0	-12	500	-12	AG	760	0.1	0.0	33.0
I. NBLA	0	-500	0	12	AG	280	0.1	0.0	33.0
J. NBTA	12	-500	12	0	AG	1090	0.1	0.0	33.0
K. NBRA	24	-500	24	-12	AG	60	0.1	0.0	33.0
L. NBD	12	0	12	500	AG	1780	0.1	0.0	33.0
M. SBLA	0	500	0	-12	AG	200	0.1	0.0	33.0
N. SBTA	-12	500	-12	0	AG	930	0.1	0.0	33.0
O. SBRA	-24	500	-24	12	AG	250	0.1	0.0	33.0
P. SBD	-12	0	-12	-500	AG	1080	0.1	0.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. SR1	-60	60	5.9
2. SR2	60	60	5.9
3. SR3	-60	-60	5.9
4. SR4	60	-60	5.9

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Central Ave & Mission Blvd AM 2040
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SR1	105.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. SR2	252.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. SR3	17.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. SR4	342.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. SR1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. SR2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. SR3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. SR4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Central Ave & Mission Blvd PM 2040
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

I. SITE VARIABLES

U=	1.0 M/S	Z0=	100. CM	ALT=	284.4 (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	0.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.1 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. WBLA	500	0	-12	0	AG	210	0.1	0.0	33.0
B. WBTA	500	12	0	12	AG	600	0.1	0.0	33.0
C. WBRA	500	24	12	24	AG	350	0.1	0.0	33.0
D. WBD	0	12	-500	12	AG	920	0.1	0.0	33.0
E. EBLA	-500	0	12	0	AG	380	0.1	0.0	33.0
F. EBTA	-500	-12	0	-12	AG	1060	0.1	0.0	33.0
G. EBRA	-500	-24	-12	-24	AG	180	0.1	0.0	33.0
H. EBD	0	-12	500	-12	AG	1580	0.1	0.0	33.0
I. NBLA	0	-500	0	12	AG	140	0.1	0.0	33.0
J. NBTA	12	-500	12	0	AG	1230	0.1	0.0	33.0
K. NBRA	24	-500	24	-12	AG	150	0.1	0.0	33.0
L. NBD	12	0	12	500	AG	1960	0.1	0.0	33.0
M. SBLA	0	500	0	-12	AG	370	0.1	0.0	33.0
N. SBTA	-12	500	-12	0	AG	1340	0.1	0.0	33.0
O. SBRA	-24	500	-24	12	AG	180	0.1	0.0	33.0
P. SBD	-12	0	-12	-500	AG	1730	0.1	0.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. SR1	-60	60	5.9
2. SR2	60	60	5.9
3. SR3	-60	-60	5.9
4. SR4	60	-60	5.9

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Central Ave & Mission Blvd PM 2040
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SR1	107.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. SR2	252.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. SR3	17.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. SR4	342.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. SR1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. SR2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. SR3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. SR4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX C

CNDDB Occurrence Report

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Ontario (3411716))

Map Index Number:	25606	**EO Index:**	91475
Key Quad:	Ontario (3411716)	**Element Code:**	ABNKC19070
Occurrence Number:	2548	**Occurrence Last Updated:**	2013-10-22

Scientific Name: *Buteo swainsoni*

Common Name: Swainson's hawk

Listing Status: **Federal:** None
State: Threatened

CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

General Habitat:

BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, & AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.

Micro Habitat:

REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Last Date Observed:	1920-05-10	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1920-05-10	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Possibly Extirpated		

Location:

CHINO.

Detailed Location:

MAPPED GENERALLY TO CHINO, PER SPECIMEN LOCALITIES "NEAR CHINO, SAN BERNARDINO CO." EXACT COLLECTION LOCATIONS UNKNOWN.

Ecological:

1916: NEST FOUND 45' UP IN LARGE COTTONWOOD; MADE OF STICKS, BRANCHES, GREEN LEAVES, AND LINED WITH COTTONWOOD BARK.
1920: 2 NESTS IN COTTONWOODS, 35' AND 40' UP, BOTH MADE OF STICKS AND LINED WITH SHREDDED BARK AND DOWN FEATHERS.

Threats:

EXTENSIVE DEVELOPMENT SINCE THE TIME OF COLLECTION HAS LIKELY ELIMINATED NESTING AND FORAGING HABITAT.

General:

NESTING PAIR OBSERVED, WITH ONE ADULT INCUBATING, ON 4 MAY 1916; EGGS COLLECTED. BIRDS FLUSHED FROM 2 NESTS FOUND ON 10 MAY 1920, EGGS COLLECTED FROM BOTH NESTS. HISTORICAL OCCURRENCE, OUTSIDE CURRENT BREEDING RANGE AS GENERALLY ACCEPTED.

PLSS:	T02S, R08W (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3764675 E436336	**Latitude/Longitude:**	34.02079 / -117.68955	**Elevation (feet):**	750

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

BLO79R0001	BLOOM, P. - THE STATUS OF THE SWAINSON'S HAWK IN CALIFORNIA, 1979. 1979-XX-XX
PIE16S0003	PIERCE, W. - WFVZ EGG-NEST SPECIMEN #97257, COLLECTED NEAR CHINO. 1916-05-04
PIE20S0002	PIERCE, W. - WFVZ EGG-NEST SPECIMENS #97254 & 97256, COLLECTED NEAR CHINO. 1920-05-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	53604	**EO Index:**	53604
Key Quad:	Ontario (3411716)	**Element Code:**	ABNSB10010
Occurrence Number:	646	**Occurrence Last Updated:**	2003-12-17

Scientific Name: *Athene cunicularia*

Common Name: burrowing owl

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

General Habitat:

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro Habitat:

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Last Date Observed:	2003-01-30	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2003-01-30	**Occurrence Rank:**	None
Owner/Manager:	PVT	**Trend:**	Decreasing
Presence:	Extirpated		

Location:

WEST OF PALMETTO AVENUE, 0.2 MILE SOUTH OF SCHAEFER AVENUE, ON THE SE EDGE OF CHINO.

Detailed Location:

DUE TO CURRENT DEVELOPMENT, BURROWING OWLS WERE PASSIVELY EXCLUDED FROM THIS SITE.

Ecological:

HABITAT CONSISTS OF DAIRY PROPERTY, WITH FLAT, OPEN PASTURE, CONSISTING OF RUDERAL PLANT SPECIES (BERMUDA GRASS, HARE BARLEY, RUSSIAN THISTLE, STINGING NETTLE, MILK THISTLE, COMMON MALLOW, AND WILD HELIOTROPE).

Threats:

THREATENED BY DEVELOPMENT (SITE IS BEING CLEARED FOR A SMALL BUSINESS DEVELOPMENT COMPLEX).

General:

5 ADULT OWLS OBSERVED UTILIZING WINTER BURROWS ON 30 JAN 2003; OWLS ARE BEING PASSIVELY EXCLUDED TO ALLOW FOR DEVELOPMENT.

PLSS:	T02S, R08W, Sec. 13, NE (S)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-11 N3762572 E438307	**Latitude/Longitude:**	34.00194 / -117.66805	**Elevation (feet):**	695

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

SIE03F0004 SIEMENS, M. (LFR, INC.) - FIELD SURVEY FORM FOR ATHENE CUNICULARIA (WINTERING BURROW SITE) 2003-01-30

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	71323	**EO Index:**	72226
Key Quad:	Ontario (3411716)	**Element Code:**	ABNSB10010
Occurrence Number:	1046	**Occurrence Last Updated:**	2008-05-15

Scientific Name: *Athene cunicularia*

Common Name: burrowing owl

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

General Habitat:

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro Habitat:

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Last Date Observed:	2007-08-18	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2007-08-18	**Occurrence Rank:**	Poor
Owner/Manager:	SBD COUNTY	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

WEST OF CYPRESS AVE, 0.22 MI N OF THE INTERSECTION OD CYPRESS AVE & SCHAEFER AVE, CHINO.

Detailed Location:

DRAINAGE PIPE IS LOCATED JUST NORTH OF THE PEDESTRIAN BRIDGE THAT CROSSES THE CANAL ALONG CYPRESS AVE, DIRECTLY ACROSS THE STREET FROM HOWARD CATTLE ELEMENTARY SCHOOL.

Ecological:

Threats:

THREATENED BY FLOODING.

General:

1 OWL WAS OBSERVED AT A DRAINAGE PIPE OPENING.

PLSS:	T02S, R08W, Sec. 12 (S)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-11 N3763251 E438716	**Latitude/Longitude:**	34.00808 / -117.66367	**Elevation (feet):**	725

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

TRA07F0001 TRAVER, G. - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2007-01-18

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	81894	**EO Index:**	82870
Key Quad:	Ontario (3411716)	**Element Code:**	ABNSB10010
Occurrence Number:	1790	**Occurrence Last Updated:**	2011-03-01

Scientific Name: *Athene cunicularia*

Common Name: burrowing owl

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

General Habitat:

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro Habitat:

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Last Date Observed:	2009-09-15	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2009-09-15	**Occurrence Rank:**	Excellent
Owner/Manager:	PVT	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

SW OF SCHAEFER AVE AT S BON VIEW AVE, ABOUT 1.8 MI N OF CHINO AIRPORT.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT DESCRIBED AS AN ABANDONED DAIRY WITH LARGE CONCRETE PADS WHERE CALIFORNIA GROUND SQUIRRELS BURROWED BENEATH. SURROUNDED BY ACTIVE AND FALLOW DAIRY LAND WITH SCATTERED SCTRUCTURES, DIRT AND PAVED ROADS, AND LIVESTOCK PADDOCKS.

Threats:

THREATENED BY DEVELOPMENT.

General:

10 ADULTS AND 10 ACTIVE BURROWS OBSERVED ON 15 SEP 2009.

PLSS:	T02S, R07W, Sec. 17, NW (S)	**Accuracy:**	specific area	**Area (acres):**	21
UTM:	Zone-11 N3762683 E441037	**Latitude/Longitude:**	34.00309 / -117.63850	**Elevation (feet):**	720

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

COU09F0009 COUFFER, M. - FIELD SURVEY FORM FOR ATHENE CUNICULARIA 2009-09-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	81898	**EO Index:**	82871
Key Quad:	Ontario (3411716)	**Element Code:**	ABNSB10010
Occurrence Number:	1791	**Occurrence Last Updated:**	2011-03-01

Scientific Name: *Athene cunicularia*

Common Name: burrowing owl

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

General Habitat:

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro Habitat:

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Last Date Observed:	2006-06-21	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2006-06-21	**Occurrence Rank:**	Unknown
Owner/Manager:	PVT	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

JUST SE PEPPERDINE ST AT AMSTERDAM AVE, CHINO.

Detailed Location:

BLOCK CODE 3760-435 - LOCATION CODE B. MAPPED TO PROVIDED COORDINATES.

Ecological:

HABITAT DESCRIBED AS HORSE PASTURE. LOWLAND ELEVATION SUBREGION. GROUND SQUIRRELS DETECTED WITHIN 100 M OF BREEDING LOCATION.

Threats:

General:

2 ADULTS AND 2 JUVENILES OBSERVED; 1 BREEDING PAIR ESTIMATED TO OCCUR IN AREA ON 21 JUN 2006.

PLSS:	T02S, R08W, Sec. 13, NE (S)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-11 N3762456 E438602	**Latitude/Longitude:**	34.00091 / -117.66485	**Elevation (feet):**	700

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

WIL09D0003 WILKERSON, R. & R. SIEGEL - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY. 2009-09-29

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	81899	**EO Index:**	82872
Key Quad:	Ontario (3411716)	**Element Code:**	ABNSB10010
Occurrence Number:	1792	**Occurrence Last Updated:**	2011-03-01

Scientific Name: *Athene cunicularia*

Common Name: burrowing owl

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFWS_BCC-Birds of Conservation Concern

General Habitat:

OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.

Micro Habitat:

SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Last Date Observed:	2006-05-21	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2006-05-21	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

JUST SE OF E RIVERSIDE DR AT S CAMPUS AVE, ONTARIO.

Detailed Location:

BLOCK CODE 3760-440 - LOCATION CODE A. COORDINATES LOCATED AT CONCRETE PARKING LOT WHEREAS LOCATION DESCRIBED AS DIRT PARKING LOT. MAPPED TO ENCOMPASS THE DIRT PARKING LOT JUST E OF COORDINATES.

Ecological:

HABITAT DESCRIBED AS DIRT PARKING LOT. LOWLAND ELEVATION SUBREGION. GROUND SQUIRRELS DETECTED WITHIN 100 M OF BREEDING LOCATION.

Threats:

General:

2 ADULTS OBSERVED AND 1 BREEDING PAIR ESTIMATED TO OCCUR IN AREA ON 21 MAY 2006.

PLSS:	T02S, R07W, Sec. 08, NW (S)	**Accuracy:**	1/10 mile	**Area (acres):**	0
UTM:	Zone-11 N3764436 E440832	**Latitude/Longitude:**	34.01889 / -117.64083	**Elevation (feet):**	780

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

WIL09D0003 WILKERSON, R. & R. SIEGEL - DATABASE AND DATA DICTIONARY FOR IBP'S 2006-2007 STATEWIDE BURROWING OWL SURVEY. 2009-09-29

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	02841	**EO Index:**	5055
Key Quad:	Ontario (3411716)	**Element Code:**	ABPBJ08081
Occurrence Number:	36	**Occurrence Last Updated:**	2010-08-12

Scientific Name: *Polioptila californica californica*

Common Name: coastal California gnatcatcher

Listing Status: **Federal:** Threatened
State: None

CNDDB Element Ranks: **Global:** G4G5T2Q
State: S2

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
NABCI_YWL-Yellow Watch List

General Habitat:

OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro Habitat:

LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Last Date Observed:	1994-02-12	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1994-02-12	**Occurrence Rank:**	None
Owner/Manager:	CLAREMONT UNIVERSITY	**Trend:**	Unknown
Presence:	Extirpated		

Location:

ROBERT J. BERNARD BIOLOGICAL FIELD STATION/RANCHO SANTA ANA BOTANIC GARDEN, N OF HWY 66 & E OF MILLS AVE, CLAREMONT.

Detailed Location:

FIELD STATION IS IN VARIOUS STAGES OF RECOVERY FROM DISTURBANCE - FROM INTRODUCED GRASSES TO GOOD COASTAL SAGE SCRUB.

Ecological:

SITE IS RELATIVELY FLAT, ON AN ALLUVIAL FLOODPLAIN. HABITAT IS COASTAL SAGE SCRUB, DOMINATED BY ARTEMISIA CALIFORNICA, ERIOGONUM FASCICULATUM, SALVIA MELLIFERA, AND SAMBUCUS MEXICANA.

Threats:

THREATS INCLUDE SURROUNDING URBANIZATION & POSSIBLE CONVERSION OF THE FIELD STATION INTO MORE COLLEGE BUILDINGS.

General:

5-10 PAIRS ESTIMATED DURING A 1980 STUDY. ON 12 FEBRUARY 1994, 3 INDIVIDUALS WERE OBSERVED. BERNARD FIELD STATION BIRD LIST INDICATES THAT GNATCATCHERS HAVE NOT BEEN SEEN HERE SINCE 1994 & ARE CONSIDERED EXTIRPATED.

PLSS:	T01S, R08W, Sec. 03, SW (S)	**Accuracy:**	specific area	**Area (acres):**	79
UTM:	Zone-11 N3774570 E434422	**Latitude/Longitude:**	34.10990 / -117.71102	**Elevation (feet):**	1,300

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716)

Sources:

ATW80U0001	ATWOOD, J.L. - CALIFORNIA BLACK-TAILED GNATCATCHER POPULATION SURVEY, 1980. UCLA DEPT. OF BIOLOGY. 1980-XX-XX
CLA10U0002	CLAREMONT UNIVERSITY BERNARD FIELD STATION - ONLINE BIRD LIST OF THE BIRDS OF THE BERNARD FIELD STATION. HTTP://BFS.CLAREMONT.EDU/BIOTA.HTML 2010-01-04
MAY94F0001	MAYER, A. - FIELD SURVEY FORM FOR POLIOPTILA CALIFORNICA CALIFORNICA 1994-02-12
SWE92M0002	SWEETWATER ENVIRONMENTAL BIOLOGISTS, INC. - MAPS OF PUBLIC 1990-1992 CALIFORNIA GNATCATCHER LOCATIONS WITHIN THE SAN DIEGO REGION. 1992-08-14

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	02843	**EO Index:**	25061
Key Quad:	Ontario (3411716)	**Element Code:**	ABPBJ08081
Occurrence Number:	104	**Occurrence Last Updated:**	1989-08-10

Scientific Name: *Polioptila californica californica*

Common Name: coastal California gnatcatcher

Listing Status: **Federal:** Threatened
State: None

CNDDB Element Ranks: **Global:** G4G5T2Q
State: S2

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
NABCI_YWL-Yellow Watch List

General Habitat:

OBLIGATE, PERMANENT RESIDENT OF COASTAL SAGE SCRUB BELOW 2500 FT IN SOUTHERN CALIFORNIA.

Micro Habitat:

LOW, COASTAL SAGE SCRUB IN ARID WASHES, ON MESAS & SLOPES. NOT ALL AREAS CLASSIFIED AS COASTAL SAGE SCRUB ARE OCCUPIED.

Last Date Observed:	1918-05-12	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1918-05-12	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

INDIAN HILL, CLAREMONT.

Detailed Location:

Ecological:

Threats:

General:

EGG SET FROM A NEST IN CHOLLA CACTUS.

PLSS:	T01S, R08W, Sec. 03, NW (S)	**Accuracy:**	1/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3775287 E434213	**Latitude/Longitude:**	34.11636 / -117.71334	**Elevation (feet):**	1,380

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716)

Sources:

ANO18S0002 ANONYMOUS - WFVZ EGG SET. NO COLLECTION NUMBER. 1918-05-12

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	54930	**EO Index:**	58906
Key Quad:	San Dimas (3411717)	**Element Code:**	AMACC05070
Occurrence Number:	11	**Occurrence Last Updated:**	2004-12-21

Scientific Name: *Lasiurus xanthinus*

Common Name: western yellow bat

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_H-High Priority

General Habitat:

FOUND IN VALLEY FOOTHILL RIPARIAN, DESERT RIPARIAN, DESERT WASH, AND PALM OASIS HABITATS.

Micro Habitat:

ROOSTS IN TREES, PARTICULARLY PALMS. FORAGES OVER WATER AND AMONG TREES.

Last Date Observed:	1985-04-10	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1985-04-10	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

POMONA.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED IN THE VICINITY OF POMONA.

Ecological:

Threats:

General:

1 FEMALE SPECIMEN COLLECTED 10 APR 1985 BY D. CONSTANTINE AT "POMONA." DEPOSITED AT MVZ #181878.

PLSS:	T01S, R08W, Sec. 30 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3769236 E429702	**Latitude/Longitude:**	34.06149 / -117.76176	**Elevation (feet):**	860

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), San Dimas (3411717)

Sources:

MAN04S0014 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF LASIURUS XANTHINUS SPECIMEN RECORDS FROM MANIS. THIS INCLUDES RECORDS FROM LACM & MVZ. 2004-12-20

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	66573	**EO Index:**	66709
Key Quad:	Ontario (3411716)	**Element Code:**	AMACC10010
Occurrence Number:	243	**Occurrence Last Updated:**	2006-10-03

Scientific Name: *Antrozous pallidus*

Common Name: pallid bat

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G5

State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive
WBWG_H-High Priority

General Habitat:

DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS & FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.

Micro Habitat:

ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.

Last Date Observed:	1951-04-16	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1951-04-16	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ONTARIO.

Detailed Location:

MAPPED ACCORDING TO LAT/LONG COORDINATES GIVEN IN MANIS, WITH UNCERTAINTY OF 10000 M.

Ecological:

Threats:

General:

1 FEMALE SPECIMEN COLLECTED BY T.A. VAUGHAN ON 16 APR 1951, KU #49743.

PLSS:	T01S, R07W, Sec. 30 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3769362 E439904	**Latitude/Longitude:**	34.06327 / -117.65122	**Elevation (feet):**	10,000

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

MAN04S0028	MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF ANTROZOUS PALLIDUS SPECIMEN RECORDS FROM MANIS. INCLUDES RECORDS FROM MVZ, CAS, KU, UWBM, UMNH, LACM, MSB, FMNH, TTU, MSU. 2004-12-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	66306	**EO Index:**	66392
Key Quad:	San Dimas (3411717)	**Element Code:**	AMACD02011
Occurrence Number:	63	**Occurrence Last Updated:**	2006-09-26

Scientific Name: *Eumops perotis californicus*

Common Name: western mastiff bat

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G5T4

State: S3S4

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:

MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL ETC

Micro Habitat:

ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES & TUNNELS.

Last Date Observed:	1952-09-29	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1952-09-29	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

LA VERNE.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED IN THE GENERAL VICINITY OF LA VERNE.

Ecological:

Threats:

General:

1 MALE SPECIMEN COLLECTED BY J.R. NORTHERN ON 29 SEP 1952, LACM #37575.

PLSS:	T01S, R08W, Sec. 07 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3773622 E429200	**Latitude/Longitude:**	34.10101 / -117.76756	**Elevation (feet):**	

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), San Dimas (3411717)

Sources:

MAN04S0027	MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF EUMOPS PEROTIS CALIFORNICUS SPECIMEN RECORDS FROM MANIS. INCLUDES RECORDS FROM MVZ, CAS, TTU, ROM, LACM, KU, MSU AND FMNH. 2004-12-10
PIE98R0001	PIERSON, E. & W. RAINEY - DISTRIBUTION, HABITAT ASSOCIATIONS, STATUS AND SURVEY METHODOLOGIES FOR THREE MOLOSSID BAT SPECIES AND THE VESPERTILIONID. FINAL REPORT CAL FISH & GAME WILDLIFE MANAGEMENT DIVISION 1998-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	66312	**EO Index:**	66398
Key Quad:	San Dimas (3411717)	**Element Code:**	AMACD02011
Occurrence Number:	69	**Occurrence Last Updated:**	2006-09-26

Scientific Name: *Eumops perotis californicus*

Common Name: western mastiff bat

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G5T4
State: S3S4

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
WBWG_H-High Priority

General Habitat:

MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL ETC

Micro Habitat:

ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES & TUNNELS.

Last Date Observed:	1925-09-28	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1925-09-28	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

POMONA.

Detailed Location:

SPECIFIC LOCALITIES "POMONA, 5TH STREET KINDERGARTEN SCHOOL BUILDING" AND "POMONA, UNIVERSITY OF KANSAS" INCLUDED HERE. MAPPED ALONG 5TH AVE. IN POMONA. NEEDS FIELDWORK.

Ecological:

Threats:

General:

SPECIMEN COLLECTED 21 APR 1921, DEPOSITED AT SDNHM. 1 MALE AND 1 FEMALE SPECIMEN COLLECTED BY E.L. SUMNER JR. ON 28 SEP 1925, KU #4705-4706.

PLSS:	T01S, R08W, Sec. 30 (S)	**Accuracy:**	nonspecific area	**Area (acres):**	133
UTM:	Zone-11 N3768526 E430670	**Latitude/Longitude:**	34.05515 / -117.75121	**Elevation (feet):**	

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), San Dimas (3411717)

Sources:

COC60A0001	COCKRUM, E.L. (UNIVERSITY OF ARIZONA) - DISTRIBUTION, HABITAT AND HABITS OF THE MASTIFF BAT, EUMOPS PEROTIS, IN NORTH AMERICA. 1960: JOURNAL OF THE ARIZONA ACADEMY OF SCIENCE, 1:79-84 1960-01-01
MAN04S0027	MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF EUMOPS PEROTIS CALIFORNICUS SPECIMEN RECORDS FROM MANIS. INCLUDES RECORDS FROM MVZ, CAS, TTU, ROM, LACM, KU, MSU AND FMNH. 2004-12-10
PIE98R0001	PIERSON, E. & W. RAINEY - DISTRIBUTION, HABITAT ASSOCIATIONS, STATUS AND SURVEY METHODOLOGIES FOR THREE MOLOSSID BAT SPECIES AND THE VESPERTILIONID. FINAL REPORT CAL FISH & GAME WILDLIFE MANAGEMENT DIVISION 1998-04-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	54930	**EO Index:**	59566
Key Quad:	San Dimas (3411717)	**Element Code:**	AMACD04020
Occurrence Number:	7	**Occurrence Last Updated:**	2005-01-21

Scientific Name: *Nyctinomops macrotis*

Common Name: big free-tailed bat

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G5
State: S3

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
WBWG_MH-Medium-High Priority

General Habitat:

LOW-LYING ARID AREAS IN SOUTHERN CALIFORNIA.

Micro Habitat:

NEED HIGH CLIFFS OR ROCKY OUTCROPS FOR ROOSTING SITES. FEEDS PRINCIPALLY ON LARGE MOTHS.

Last Date Observed:	1987-11-23	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1987-11-23	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

POMONA.

Detailed Location:

EXACT LOCATION UNKNOWN. LOCATION ONLY GIVEN AS "POMONA." MAPPED IN THE VICINITY OF POMONA. LAT/LONG COORDINATES PROVIDED BY MANIS FALL WITHIN THIS CIRCLE AND HAVE AN UNCERTAINTY OF 3218 METERS (ABOUT 2 MILES).

Ecological:

Threats:

General:

ONE MALE SPECIMEN COLLECTED 23 NOV 1987 BY D. CONSTANTINE AT "POMONA." DEPOSITED AT MVZ #181985.

PLSS:	T01S, R08W, Sec. 30 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3769236 E429702	**Latitude/Longitude:**	34.06149 / -117.76176	**Elevation (feet):**	860

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), San Dimas (3411717)

Sources:

MAN05S0005 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF NYCTINOMOPS MACROTIS SPECIMEN RECORDS FROM MANIS. THIS INCLUDES RECORDS FROM LACM & MVZ. 2005-01-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	50414	**EO Index:**	57719
Key Quad:	Ontario (3411716)	**Element Code:**	AMAFD05031
Occurrence Number:	62	**Occurrence Last Updated:**	2004-10-26

Scientific Name: *Chaetodipus fallax fallax*

Common Name: northwestern San Diego pocket mouse

Listing Status: **Federal:** None

State: None

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern

CNDDB Element Ranks: **Global:** G5T3T4

State: S3S4

General Habitat:

COASTAL SCRUB, CHAPARRAL, GRASSLANDS, SAGEBRUSH, ETC. IN WESTERN SAN DIEGO CO.

Micro Habitat:

SANDY, HERBACEOUS AREAS, USUALLY IN ASSOCIATION WITH ROCKS OR COARSE GRAVEL.

Last Date Observed:	2001-01-14	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2001-01-14	**Occurrence Rank:**	Poor
Owner/Manager:	CALTRANS	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

JUST EAST OF PADUA AVENUE AND NORTH OF BASELINE ROAD, CLAREMONT.

Detailed Location:

Ecological:

HABITAT CONSISTS OF RIVERSIDEAN ALLUVIAL FAN SAGE SCRUB. OTHER RARE SPECIES AT THIS SITE INCLUDE NEOTOMA LEPIDA INTERMEDIA.

Threats:

THREATENED BY FREEWAY (I-210) CONSTRUCTION (NOW COMPLETE).

General:

5 ADULTS CAPTURED AND BURROW SITES OBSERVED 7-14 JAN 2001; SEVERAL COLLECTED & DEPOSITED AT LACM. ALSO FOUND SOMEWHERE ELSE IN SECTION 35 (SPECIFIC LOCATION NOT GIVEN - HOLLIDAY ROCK PROPERTY) 30 INDIVIDUALS OBSERVED 27 SEP 1999.

PLSS:	T01N, R08W, Sec. 35, SW (S)	**Accuracy:**	nonspecific area	**Area (acres):**	42
UTM:	Zone-11 N3776052 E435828	**Latitude/Longitude:**	34.12336 / -117.69589	**Elevation (feet):**	1,550

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), Mt. Baldy (3411726)

Sources:

ERI01F0018	ERICKSON, R. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR CHAETODIPUS FALLAX FALLAX 2001-01-14
MON99F0012	MONTGOMERY, S. (SJM BIOLOGICAL CONSULTANTS) - FIELD SURVEY FORM FOR CHAETODIPUS FALLAX FALLAX 1999-09-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	57710	**EO Index:**	57726
Key Quad:	Mt. Baldy (3411726)	**Element Code:**	AMAFD05031
Occurrence Number:	65	**Occurrence Last Updated:**	2010-11-09

Scientific Name: *Chaetodipus fallax fallax*

Common Name: northwestern San Diego pocket mouse

Listing Status: **Federal:** None

State: None

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern

CNDDB Element Ranks: **Global:** G5T3T4

State: S3S4

General Habitat:

COASTAL SCRUB, CHAPARRAL, GRASSLANDS, SAGEBRUSH, ETC. IN WESTERN SAN DIEGO CO.

Micro Habitat:

SANDY, HERBACEOUS AREAS, USUALLY IN ASSOCIATION WITH ROCKS OR COARSE GRAVEL.

Last Date Observed:	2002-04-13	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2002-04-13	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Stable
Presence:	Possibly Extirpated		

Location:

FROM NORTH CAMPUS AVENUE TO CUCAMONGA CREEK, & JUST FROM E 20TH STREET TO BASE LINE RD, UPLAND.

Detailed Location:

Ecological:

2002: HABITAT CONSISTS OF RIVERSIDEAN ALLUVIAL FAN SAGE SCRUB, ALLUVIAL CHAPARRAL AND WILLOW/MULEFAT. OTHER RARE SPECIES AT THIS SITE INCLUDE NEOTOMA LEPIDA INTERMEDIA. 2009: AERIAL PHOTOS SHOW THAT THE SITE HAS BEEN COMPLETELY DEVELOPED.

Threats:

2002: FOOTHILL FWY NOW RUNS THROUGH HABITAT. THREATENED BY RESIDENTIAL DEVELOPMENT.

General:

116 INDIVIDAULS CAPTURED FROM 8 APR 2002 TO 13 APR 2002. 202 ADULTS CAPTURED 3 DEC 2000 TO 19 JAN 2001. SEVERAL COLLECTED AND DEPOSITED AT LACM.

PLSS:	T01N, R07W, Sec. 32 (S)	**Accuracy:**	nonspecific area	**Area (acres):**	439
UTM:	Zone-11 N3776786 E441548	**Latitude/Longitude:**	34.13031 / -117.63391	**Elevation (feet):**	1,800

County Summary:	**Quad Summary:**
San Bernardino	Guasti (3411715), Ontario (3411716), Cucamonga Peak (3411725), Mt. Baldy (3411726)

Sources:

ERI01F0021	ERICKSON, R. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR CHAETODIPUS FALLAX FALLAX 2001-01-19
ERI02F0016	ERICKSON, R. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR CHAETODIPUS FALLAX FALLAX 2002-04-13

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	50414	**EO Index:**	50414
Key Quad:	Ontario (3411716)	**Element Code:**	AMAFF08041
Occurrence Number:	48	**Occurrence Last Updated:**	2003-03-05

Scientific Name: *Neotoma lepida intermedia*

Common Name: San Diego desert woodrat

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G5T3T4

State: S3S4

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern

General Habitat:

COASTAL SCRUB OF SOUTHERN CALIFORNIA FROM SAN DIEGO COUNTY TO SAN LUIS OBISPO COUNTY.

Micro Habitat:

MODERATE TO DENSE CANOPIES PREFERRED. THEY ARE PARTICULARLY ABUNDANT IN ROCK OUTCROPS & ROCKY CLIFFS & SLOPES.

Last Date Observed:	2001-01-14	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2001-01-14	**Occurrence Rank:**	None
Owner/Manager:	CALTRANS	**Trend:**	Unknown
Presence:	Possibly Extirpated		

Location:

JUST EAST OF PADUA AVENUE AND NORTH OF BASELINE ROAD, CLAREMONT.

Detailed Location:

Ecological:

HABITAT CONSISTS OF RIVERSIDEAN ALLUVIAL FAN SAGE SCRUB. OTHER RARE SPECIES AT THIS SITE INCLUDE CHAETODIPUS FALLAX FALLAX.

Threats:

THREATENED BY FREEWAY (I-210) CONSTRUCTION (NOW COMPLETE).

General:

43 ADULT CAPTURES FROM 7-14 JAN 2001; SEVERAL COLLECTED AND DEPOSITED AT LACM.

PLSS:	T01N, R08W, Sec. 35, SW (S)	**Accuracy:**	nonspecific area	**Area (acres):**	42
UTM:	Zone-11 N3776052 E435828	**Latitude/Longitude:**	34.12336 / -117.69589	**Elevation (feet):**	1,550

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), Mt. Baldy (3411726)

Sources:

ERI01F0007 ERICKSON, R.A. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR NEOTOMA LEPIDA INTERMEDIA 2001-01-14

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	50418	**EO Index:**	50418
Key Quad:	Mt. Baldy (3411726)	**Element Code:**	AMAFF08041
Occurrence Number:	52	**Occurrence Last Updated:**	2003-03-05

Scientific Name: *Neotoma lepida intermedia*

Common Name: San Diego desert woodrat

Listing Status: **Federal:** None

State: None

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern

CNDDB Element Ranks: **Global:** G5T3T4

State: S3S4

General Habitat:

COASTAL SCRUB OF SOUTHERN CALIFORNIA FROM SAN DIEGO COUNTY TO SAN LUIS OBISPO COUNTY.

Micro Habitat:

MODERATE TO DENSE CANOPIES PREFERRED. THEY ARE PARTICULARLY ABUNDANT IN ROCK OUTCROPS & ROCKY CLIFFS & SLOPES.

Last Date Observed:	2002-04-13	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2002-04-13	**Occurrence Rank:**	None
Owner/Manager:	CALTRANS	**Trend:**	Unknown
Presence:	Possibly Extirpated		

Location:

FROM WEST CAMPUS AVENUE TO CUCAMONGA CREEK, & 24TH STREET TO 16TH STREET, UPLAND.

Detailed Location:

Ecological:

HABITAT CONSISTS OF RIVERSIDEAN ALLUVIAL FAN SAGE SCRUB. OTHER RARE SPECIES AT THIS SITE INCLUDE CHAETODIPUS FALLAX FALLAX.

Threats:

THREATENED BY FREEWAY CONSTRUCTION (NOW COMPLETE).

General:

86 ADULT CAPTURES FROM 3 DEC 2000-19 JAN 2001; SEVERAL COLLECTED AND DEPOSITED AT LACM. 366 CAPTURED BETWEEN 8 & 13 APR 2002.

PLSS:	T01N, R07W, Sec. 32 (S)	**Accuracy:**	nonspecific area	**Area (acres):**	783
UTM:	Zone-11 N3777378 E441403	**Latitude/Longitude:**	34.13564 / -117.63553	**Elevation (feet):**	1,800

County Summary:	**Quad Summary:**
San Bernardino	Guasti (3411715), Ontario (3411716), Cucamonga Peak (3411725), Mt. Baldy (3411726)

Sources:

ERI01F0011	ERICKSON, R.A. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR NEOTOMA LEPIDA INTERMEDIA 2001-01-19
ERI02F0008	ERICKSON, R.A. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR NEOTOMA LEPIDA INTERMEDIA 2002-04-13

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	02868	**EO Index:**	28109
Key Quad:	Ontario (3411716)	**Element Code:**	ARACF12100
Occurrence Number:	73	**Occurrence Last Updated:**	2012-11-02

Scientific Name: *Phrynosoma blainvillii*

Common Name: coast horned lizard

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G3G4
State: S3S4

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern

General Habitat:

FREQUENTS A WIDE VARIETY OF HABITATS, MOST COMMON IN LOWLANDS ALONG SANDY WASHES WITH SCATTERED LOW BUSHES.

Micro Habitat:

OPEN AREAS FOR SUNNING, BUSHES FOR COVER, PATCHES OF LOOSE SOIL FOR BURIAL, & ABUNDANT SUPPLY OF ANTS & OTHER INSECTS.

Last Date Observed:	1941-05-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1941-05-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

THOMPSON CREEK, IN THE VICINITY OF WEBB CANYON RD & BASE LINE RD, ABOUT 2 MILES NORTHWEST OF THE CLAREMONT POST OFFICE.

Detailed Location:

1931 LOCALITY: "SAN GABRIEL MTS; THOMPSON CREEK WASH." MAPPED TO 1941 SPECIMEN LOCALITY, "THOMPSON CREEK, 1.5 MI NW CLAREMONT," USING 1940 TOPO FOR REFERENCE.

Ecological:

Threats:

General:

LACM #26964 COLLECTED BY L. WHEELER ON 18 APR 1931. MVZ #36312 COLLECTED BY C. MILLER IN MAY 1941.

PLSS:	T01N, R08W, Sec. 32, NW (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3776094 E431966	**Latitude/Longitude:**	34.12349 / -117.73776	**Elevation (feet):**	2,400

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), San Dimas (3411717), Mt. Baldy (3411726), Glendora (3411727)

Sources:

LAC06S0001	LOS ANGELES COUNTY MUSEUM - PRINTOUT OF LACM PHRYNOSOMA CORONATUM SPECIMEN RECORDS FOR LOS ANGELES COUNTY. 2006-01-23
MIL41S0003	MILLER, C. (MUSEUM OF VERTEBRATE ZOOLOGY) - MVZ HERPS #36312 1941-05-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	78632	**EO Index:**	79560
Key Quad:	Ontario (3411716)	**Element Code:**	ARADB36160
Occurrence Number:	127	**Occurrence Last Updated:**	2010-04-21

Scientific Name: *Thamnophis hammondii*

Common Name: two-striped gartersnake

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3S4

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive

General Habitat:

COASTAL CALIFORNIA FROM VICINITY OF SALINAS TO NORTHWEST BAJA CALIFORNIA. FROM SEA TO ABOUT 7,000 FT ELEVATION.

Micro Habitat:

HIGHLY AQUATIC, FOUND IN OR NEAR PERMANENT FRESH WATER. OFTEN ALONG STREAMS WITH ROCKY BEDS AND RIPARIAN GROWTH.

Last Date Observed:	2010-04-14	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2010-04-14	**Occurrence Rank:**	Fair
Owner/Manager:	LAX COUNTY	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

0.15 MI NNW OF W BASELINE ROAD AT LIVE OAK CANYON ROAD, LA VERNE.

Detailed Location:

WITHIN FENCED FLOOD CONTROL BASIN AT MOUTH OF LIVE OAK CANYON AND ALONG LIVE OAK WASH. MAPPED TO PROVIDED COORDINATES.

Ecological:

BASIN PEAR-SHAPED, CA. 500 FT LONG X 250 FT WIDE (~2 ACRES). STREAMBED W/ SEASONAL FLOW DEC - JUN. RIPARIAN VEG OF WATERCRESS, MULEFAT, GRASSES & SOME CATTAILS; GENERALLY CLEARED ANNUALLY BY LAX FLOOD CONTROL, USUALLY IN SUMMER OR FALL.

Threats:

THREATENED BY COMPLETE REMOVAL OF RIPARIAN VEGETATION FOR FIRE AND FLOOD CONTROL.

General:

SPECIFICALLY, ONE DETECTED BASKING ON ROCK ON 14 APR 2010 DURING A PERIOD OF TIME THAT HEAVY EQUIPMENT WAS BEING USED TO CLEAR VEGETATION. CHORUS FROGS WERE ALSO PRESENT. GENERALLY, T. HAMMONDII HAVE BEEN OBSERVED IN THE AREA SINCE 1974.

PLSS:	T01N, R08W, Sec. 32, SW (S)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-11 N3776133 E431361	**Latitude/Longitude:**	34.12380 / -117.74433	**Elevation (feet):**	1,360

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716)

Sources:

STE10F0001	STEWART, G. (CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA) - FIELD SURVEY FORM FOR THAMNOPHIS HAMMONDII 2010-04-14

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	02875	**EO Index:**	23229
Key Quad:	Mt. Baldy (3411726)	**Element Code:**	CTT32720CA
Occurrence Number:	5	**Occurrence Last Updated:**	1998-07-13

Scientific Name: *Riversidian Alluvial Fan Sage Scrub*

Common Name: Riversidian Alluvial Fan Sage Scrub

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G1

State: S1.1

Rare Plant Rank:

Other Lists:

General Habitat:

□

Micro Habitat:

□

Last Date Observed:	1985-02-14	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1985-02-14	**Occurrence Rank:**	Fair
Owner/Manager:	LAX COUNTY, PVT	**Trend:**	Decreasing
Presence:	Presumed Extant		

Location:

BELOW SAN ANTONIO DAM TO CABLE AIRPORT, SAN ANTONIO CREEK, UPLANDS. (SMALL AMOUNT ALSO ABOVE DAM).

Detailed Location:

SMALL AMOUNT OF LOW COVER SCRUB ABOVE DAM.

Ecological:

SOBOBA STONY LOAM & RIVER WASH. VEGETATION VARIED: PART W/80% COVER DOMINATED BY ARTEMISIA CALIFORNICA, ERIOGONUM FASCICULATUM; PART W/ 30-40% COVER W/ LEPIDOSPARTUM SQUAMATUM, HAPLOPAPPUS PINIFOLIUS; PART BURNED; 20% COVER MIXED DOM.

Threats:

PERCOLATION PONDS AND GRAVEL PITS.

General:

SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

PLSS:	T01N, R08W, Sec. 35, SW (S)	**Accuracy:**	specific area	**Area (acres):**	1,247
UTM:	Zone-11 N3776886 E436495	**Latitude/Longitude:**	34.13092 / -117.68872	**Elevation (feet):**	1,800

County Summary:	**Quad Summary:**
Los Angeles, San Bernardino	Ontario (3411716), Mt. Baldy (3411726)

Sources:

HAN80U0002	HANES, T. & D. JENSEN - REPORT OF MEETING WITH TED HANES ON ALLUVIAL FAN COASTAL SAGE, CNERIDIUM STANDS, COMAROSTAPHYLIS & XYLOCOCCUS, TECATE CYPRESS, KNOBCONE PINE, ENGELMANN OAK, AND REDSHANK.. 1980-10-28
HOL85F0035	HOLLAND, R.F. - FIELD SURVEY FORM FOR RIVERSIDIAN ALLUVIAL FAN SAGE SCRUB (NC32720) 1985-02-14
HOO77R0001	HOOD, L. - INVENTORY OF CALIFORNIA NATURAL AREAS, CNACC 1977-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	35234	**EO Index:**	98986
Key Quad:	Ontario (3411716)	**Element Code:**	IIHYM24480
Occurrence Number:	159	**Occurrence Last Updated:**	2015-10-19

Scientific Name: *Bombus crotchii*

Common Name: Crotch bumble bee

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G3G4

State: S1S2

Rare Plant Rank:

Other Lists:

General Habitat:

COASTAL CALIFORNIA EAST TO THE SIERRA-CASCADE CREST AND SOUTH INTO MEXICO.

Micro Habitat:

FOOD PLANT GENERA INCLUDE ANTIRRHINUM, PHACELIA, CLARKIA, DENDROMECON, ESCHSCHOLZIA, AND ERIOGONUM.

Last Date Observed:	1928-04-13	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1928-04-13	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

CLAREMONT.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN THE VICINITY OF THE CITY OF CLAREMONT.

Ecological:

Threats:

General:

COLLECTIONS WERE MADE IN THIS VICINITY ON 8 MAR 1908, 12 APR 1928, AND 13 APR 1928.

PLSS:	T01S, R08W, Sec. 10 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3772958 E433980	**Latitude/Longitude:**	34.09534 / -117.71570	**Elevation (feet):**	1,200

County Summary:	**Quad Summary:**
Los Angeles, San Bernardino	Ontario (3411716)

Sources:

ANO08S0004	ANONYMOUS - UCRC ENT #289315 FROM CLAREMONT, CAL 1908-03-08
ANO28S0007	ANONYMOUS - LACM ENT #227 & 229 COLLECTED FROM CLAREMONT 1928-04-13
ANO28S0008	ANONYMOUS - LACM ENT #228 COLLECTED FROM CLAREMONT 1928-04-12
CAZNDS0001	CAZIER, M. - AMNH BEE #26199 COLLECTED FROM CLAREMONT XXXX-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	54930	**EO Index:**	98987
Key Quad:	San Dimas (3411717)	**Element Code:**	IIHYM24480
Occurrence Number:	160	**Occurrence Last Updated:**	2015-09-28

Scientific Name: *Bombus crotchii*

Common Name: Crotch bumble bee

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G3G4

State: S1S2

Rare Plant Rank:

Other Lists:

General Habitat:

COASTAL CALIFORNIA EAST TO THE SIERRA-CASCADE CREST AND SOUTH INTO MEXICO.

Micro Habitat:

FOOD PLANT GENERA INCLUDE ANTIRRHINUM, PHACELIA, CLARKIA, DENDROMECON, ESCHSCHOLZIA, AND ERIOGONUM.

Last Date Observed:	1934-07-16	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1934-07-16	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

POMONA.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN THE GENERAL VICINITY OF POMONA.

Ecological:

Threats:

General:

COLLECTIONS WERE MADE IN THIS VICINITY ON 5 JUN 1932, 10 JUN 1932, 15 APR 1933, AND 16 JUL 1934.

PLSS:	T01S, R08W, Sec. 30 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3769236 E429702	**Latitude/Longitude:**	34.06149 / -117.76176	**Elevation (feet):**	850

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), San Dimas (3411717)

Sources:

ANO32S0006	ANONYMOUS - EMEC #554139 COLLECTED FROM POMONA 1932-06-05
ANO32S0007	ANONYMOUS - UCRC ENT #289356 COLLECTED FROM POMONA 1932-06-10
HAL34S0001	HALL, B. - UCRC ENT #289326 COLLECTED FROM POMONA 1934-07-16
MCK33S0001	MCKENZIE, H. - INHS #230578 COLLECTED FROM POMONA 1933-04-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	66573	**EO Index:**	99039
Key Quad:	Ontario (3411716)	**Element Code:**	IIHYM24480
Occurrence Number:	187	**Occurrence Last Updated:**	2015-10-01

Scientific Name: *Bombus crotchii*

Common Name: Crotch bumble bee

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G3G4

State: S1S2

Rare Plant Rank:

Other Lists:

General Habitat:

COASTAL CALIFORNIA EAST TO THE SIERRA-CASCADE CREST AND SOUTH INTO MEXICO.

Micro Habitat:

FOOD PLANT GENERA INCLUDE ANTIRRHINUM, PHACELIA, CLARKIA, DENDROMECON, ESCHSCHOLZIA, AND ERIOGONUM.

Last Date Observed:	1894-04-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1894-04-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ONTARIO.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN THE GENERAL VICINITY OF THE CITY OF ONTARIO.

Ecological:

Threats:

General:

COLLECTED IN APRIL 1894.

PLSS:	T01S, R07W, Sec. 30 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3769362 E439904	**Latitude/Longitude:**	34.06327 / -117.65122	**Elevation (feet):**	1,000

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

SNO94S0001	SNODGRASS, R. - EMEC #554375 COLLECTED FROM ONTARIO 1894-04-XX
SNONDS0001	SNODGRASS, R. - EMEC #554308 & 554374 COLLECTED FROM ONTARIO XXXX-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	35234	**EO Index:**	66300
Key Quad:	Ontario (3411716)	**Element Code:**	IITRI23010
Occurrence Number:	1	**Occurrence Last Updated:**	2006-09-14

Scientific Name: *Diplectrona californica*

Common Name: California diplectronan caddisfly

Listing Status: **Federal:** None

State: None

Rare Plant Rank:

Other Lists:

CNDDB Element Ranks: **Global:** G1G2

State: S1S2

General Habitat:

□

Micro Habitat:

□

Last Date Observed:	XXXX-XX-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	XXXX-XX-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

CLAREMONT.

Detailed Location:

Ecological:

Threats:

General:

TYPE LOCALITY. ORIGINAL DESCRIPTION GIVES NO ADDITIONAL COLLECTING INFORMATION OR NUMBER OF SPECIMENS EXAMINED.

PLSS:	T01S, R08W, Sec. 10 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3772958 E433980	**Latitude/Longitude:**	34.09534 / -117.71570	**Elevation (feet):**	1,250

County Summary:	**Quad Summary:**
Los Angeles, San Bernardino	Ontario (3411716)

Sources:

BAN14A0001 BANKS, N. - AMERICAN TRICHOPTERA: NOTES AND DESCRIPTIONS. CANADIAN ENTOMOLOGIST 1914 46:253 1914-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	69981	**EO Index:**	70818
Key Quad:	Ontario (3411716)	**Element Code:**	PDAST440C0
Occurrence Number:	10	**Occurrence Last Updated:**	2016-06-29

Scientific Name: *Pseudognaphalium leucocephalum*

Common Name: white rabbit-tobacco

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 2B.2

Other Lists:

CNDDB Element Ranks: **Global:** G4

State: S2

General Habitat:

RIPARIAN WOODLAND, CISMONTANE WOODLAND, COASTAL SCRUB, CHAPARRAL.

Micro Habitat:

SANDY, GRAVELLY SITES. 35-515 M.

Last Date Observed:	1931-09-11	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1931-09-11	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

2 MILES NORTHEAST OF LA VERNE.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS ABOUT 2 AIR MILES NORTHEAST OF LA VERNE.

Ecological:

Threats:

General:

ONLY SOURCE OF INFORMATION IS A 1931 COLLECTION BY WHEELER. NEEDS FIELDWORK.

PLSS:	T01S, R08W, Sec. 5 (S)	**Accuracy:**	1 mile	**Area (acres):**	1,987
UTM:	Zone-11 N3775501 E431597	**Latitude/Longitude:**	34.11812 / -117.74173	**Elevation (feet):**	

County Summary:

Los Angeles

Quad Summary:

Ontario (3411716), San Dimas (3411717), Mt. Baldy (3411726), Glendora (3411727)

Sources:

WHE31S0002 WHEELER, L. - WHEELER #136 POM #358741, LA #203656 1931-09-11

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	47956	**EO Index:**	60519
Key Quad:	Guasti (3411715)	**Element Code:**	PDASTE80C0
Occurrence Number:	20	**Occurrence Last Updated:**	2010-05-05

Scientific Name: *Symphyotrichum defoliatum*

Common Name: San Bernardino aster

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G2
State: S2

Rare Plant Rank: 1B.2

Other Lists: BLM_S-Sensitive
USFS_S-Sensitive

General Habitat:

MEADOWS AND SEEPS, CISMONTANE WOODLAND, COASTAL SCRUB, LOWER MONTANE CONIFEROUS FOREST, MARSHES AND SWAMPS, VALLEY AND FOOTHILL GRASSLAND.

Micro Habitat:

VERNALLY MESIC GRASSLAND OR NEAR DITCHES, STREAMS AND SPRINGS; DISTURBED AREAS. 2-2040 M.

Last Date Observed:	1916-11-03	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1916-11-03	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Extirpated		

Location:

RED HILL, UPLAND.

Detailed Location:

Ecological:

HILLSIDE.

Threats:

SITE PRESUMED EXTIRPATED; AREA HAS BEEN HEAVILY DEVELOPED SINCE 1916.

General:

SITE BASED ON TWO 1916 JOHNSTON COLLECTIONS.

PLSS:	T01S, R07W, Sec. 04 (S)	**Accuracy:**	3/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3774983 E442701	**Latitude/Longitude:**	34.11412 / -117.62129	**Elevation (feet):**	

County Summary:	**Quad Summary:**
San Bernardino	Guasti (3411715), Ontario (3411716)

Sources:

JOH16S0003	JOHNSTON, I. - JOHNSTON #753 UC #195533 POM #4783 1916-11-02
JOH16S0006	JOHNSTON, I. - JOHNSTON #95 UCR #51808 1916-11-03

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	25606	**EO Index:**	60564
Key Quad:	Ontario (3411716)	**Element Code:**	PDASTE80C0
Occurrence Number:	26	**Occurrence Last Updated:**	2010-04-27

Scientific Name: *Symphyotrichum defoliatum*

Common Name: San Bernardino aster

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G2
State: S2

Rare Plant Rank: 1B.2

Other Lists: BLM_S-Sensitive
USFS_S-Sensitive

General Habitat:

MEADOWS AND SEEPS, CISMONTANE WOODLAND, COASTAL SCRUB, LOWER MONTANE CONIFEROUS FOREST, MARSHES AND SWAMPS, VALLEY AND FOOTHILL GRASSLAND.

Micro Habitat:

VERNALLY MESIC GRASSLAND OR NEAR DITCHES, STREAMS AND SPRINGS; DISTURBED AREAS. 2-2040 M.

Last Date Observed:	1918-10-05	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1918-10-05	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Extirpated		

Location:

NEAR CHINO.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS NEAR "CHINO".

Ecological:

IN DITCH.

Threats:

SITE PRESUMED EXTIRPATED; MUCH DEVELOPMENT HAS OCCURRED IN THIS AREA SINCE 1918.

General:

ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1918 JOHNSTON COLLECTION.

PLSS:	T02S, R08W (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3764675 E436336	**Latitude/Longitude:**	34.02079 / -117.68955	**Elevation (feet):**	700

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

JOH18S0006 JOHNSTON, I. - JOHNSTON #2156 UC #303523 RSA #4776 1918-10-05

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	54930	**EO Index:**	60584
Key Quad:	San Dimas (3411717)	**Element Code:**	PDASTE80C0
Occurrence Number:	34	**Occurrence Last Updated:**	2010-05-06

Scientific Name: *Symphyotrichum defoliatum*

Common Name: San Bernardino aster

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G2
State: S2

Rare Plant Rank: 1B.2

Other Lists: BLM_S-Sensitive
USFS_S-Sensitive

General Habitat:

MEADOWS AND SEEPS, CISMONTANE WOODLAND, COASTAL SCRUB, LOWER MONTANE CONIFEROUS FOREST, MARSHES AND SWAMPS, VALLEY AND FOOTHILL GRASSLAND.

Micro Habitat:

VERNALLY MESIC GRASSLAND OR NEAR DITCHES, STREAMS AND SPRINGS; DISTURBED AREAS. 2-2040 M.

Last Date Observed:	1896-10-19	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1896-10-19	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Possibly Extirpated		

Location:

NEAR POMONA EXP. STATION.

Detailed Location:

UNABLE TO LOCATE STATION; MAPPED BY CNDDB IN VICINITY OF POMONA.

Ecological:

Threats:

SITE PRESUMED EXTIRPATED; MUCH DEVELOPMENT HAS OCCURRED IN THIS AREA SINCE THE LATE 1800S.

General:

ONLY SOURCE OF INFORMATION FOR THIS SITE IS AN 1896 DAVY COLLECTION.

PLSS:	T01S, R08W, Sec. 30 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3769236 E429702	**Latitude/Longitude:**	34.06149 / -117.76176	**Elevation (feet):**	

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), San Dimas (3411717)

Sources:

DAV96S0005	DAVY, J. - DAVY #2870 UC #75947 1896-10-19
SAN03U0002	SANDERS, A. - EMAIL TO DAVE TIBOR REGARDING SYMPHYOTRICHUM DEFOLIATUM 2003-02-12

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	78719	**EO Index:**	79629
Key Quad:	Prado Dam (3311786)	**Element Code:**	PDASTE80C0
Occurrence Number:	77	**Occurrence Last Updated:**	2010-04-28

Scientific Name: *Symphyotrichum defoliatum*

Common Name: San Bernardino aster

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G2
State: S2

Rare Plant Rank: 1B.2

Other Lists: BLM_S-Sensitive
USFS_S-Sensitive

General Habitat:

MEADOWS AND SEEPS, CISMONTANE WOODLAND, COASTAL SCRUB, LOWER MONTANE CONIFEROUS FOREST, MARSHES AND SWAMPS, VALLEY AND FOOTHILL GRASSLAND.

Micro Habitat:

VERNALLY MESIC GRASSLAND OR NEAR DITCHES, STREAMS AND SPRINGS; DISTURBED AREAS. 2-2040 M.

Last Date Observed:	1928-09-12	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1928-09-12	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Possibly Extirpated		

Location:

3 MILES SE OF CHINO.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS ~3 AIR MILES SE OF CHINO.

Ecological:

Threats:

THIS AREA IS NOW MOSTLY AGRICULTURE AND DEVELOPMENT.

General:

ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1928 MUNZ & JOHNSTON COLLECTION.

PLSS:	T02S, R07W, Sec. 18 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3761556 E440189	**Latitude/Longitude:**	33.99288 / -117.64760	**Elevation (feet):**	

County Summary:	**Quad Summary:**
San Bernardino	Prado Dam (3311786), Ontario (3411716)

Sources:

MUN28S0004 MUNZ, P. & I. JOHNSTON - MUNZ #11298 POM #153399 1928-09-12

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	25606	**EO Index:**	12520
Key Quad:	Ontario (3411716)	**Element Code:**	PDBRA1M114
Occurrence Number:	3	**Occurrence Last Updated:**	1996-03-15

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's pepper-grass

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 4.3

Other Lists:

CNDDB Element Ranks: **Global:** G5T3

State: S3

General Habitat:

CHAPARRAL, COASTAL SCRUB.

Micro Habitat:

DRY SOILS, SHRUBLAND. 1-885 M.

Last Date Observed:	1936-07-30	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1936-07-30	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

CHINO.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN GENERAL VICINITY OF CHINO.

Ecological:

Threats:

General:

ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1936 COLLECTION BY YORK. NEEDS FIELDWORK.

PLSS:	T02S, R08W (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3764675 E436336	**Latitude/Longitude:**	34.02079 / -117.68955	**Elevation (feet):**	750

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

YOR36S0001 YORK - YORK SN DS #244466 1936-07-30

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	85285	**EO Index:**	86309
Key Quad:	Ontario (3411716)	**Element Code:**	PDBRA1M114
Occurrence Number:	146	**Occurrence Last Updated:**	2013-04-09

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's pepper-grass

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 4.3

Other Lists:

CNDDB Element Ranks: **Global:** G5T3

State: S3

General Habitat:

CHAPARRAL, COASTAL SCRUB.

Micro Habitat:

DRY SOILS, SHRUBLAND. 1-885 M.

Last Date Observed:	1963-05-01	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1963-05-01	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ADJACENT TO RSABG IN CLAREMONT, NEAR FOOTHILL BLVD.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB ALONG FOOTHILL BLVD NEAR THE RANCHO SANTA ANA BOTANIC GARDEN.

Ecological:

IN RUDERAL HABITAT. COASTAL SAGE SCRUB COMMUNITY.

Threats:

General:

ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1963 COLLECTION BY HENRICKSON, PLANTS NOTED AS "COMMON." NEEDS FIELDWORK.

PLSS:	T01S, R08W, Sec. 10, N (S)	**Accuracy:**	nonspecific area	**Area (acres):**	56
UTM:	Zone-11 N3774248 E434201	**Latitude/Longitude:**	34.10699 / -117.71339	**Elevation (feet):**	1,250

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716)

Sources:

HEN63S0001 HENRICKSON, J. - HENRICKSON #1252 RSA #182201 1963-05-01

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	54930	**EO Index:**	86311
Key Quad:	San Dimas (3411717)	**Element Code:**	PDBRA1M114
Occurrence Number:	147	**Occurrence Last Updated:**	2012-03-02

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's pepper-grass

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 4.3

Other Lists:

CNDDB Element Ranks: **Global:** G5T3

State: S3

General Habitat:

CHAPARRAL, COASTAL SCRUB.

Micro Habitat:

DRY SOILS, SHRUBLAND. 1-885 M.

Last Date Observed:	1926-03-16	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1926-03-16	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

POMONA.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN GENERAL VICINITY OF POMONA.

Ecological:

Threats:

General:

ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1926 COLLECTION BY JONES. NEEDS FIELDWORK.

PLSS:	T01S, R08W, Sec. 30 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3769236 E429702	**Latitude/Longitude:**	34.06149 / -117.76176	**Elevation (feet):**	

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), San Dimas (3411717)

Sources:

JON26S0027 JONES, M. - JONES SN POM #94304 1926-03-16

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	88693	**EO Index:**	89709
Key Quad:	Ontario (3411716)	**Element Code:**	PDBRA1M114
Occurrence Number:	167	**Occurrence Last Updated:**	2013-04-09

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's pepper-grass

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 4.3

Other Lists:

CNDDB Element Ranks: **Global:** G5T3

State: S3

General Habitat:

CHAPARRAL, COASTAL SCRUB.

Micro Habitat:

DRY SOILS, SHRUBLAND. 1-885 M.

Last Date Observed:	1971-03-19	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1971-03-19	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

POMONA COLLEGE WASH, CLAREMONT.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN GENERAL VICINITY OF THE POMONA COLLEGE WASH.

Ecological:

Threats:

General:

ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1971 COLLECTION BY BURNELL. NEEDS FIELDWORK.

PLSS:	T01S, R08W, Sec. 10, SW (S)	**Accuracy:**	1/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3773084 E434644	**Latitude/Longitude:**	34.09652 / -117.70850	**Elevation (feet):**	1,100

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716)

Sources:

BUR71S0005 BURNELL, B. - BURNELL #246 POM #346619 1971-03-19

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	82329	**EO Index:**	83342
Key Quad:	Mt. Baldy (3411726)	**Element Code:**	PDBRA2Q070
Occurrence Number:	4	**Occurrence Last Updated:**	2011-04-25

Scientific Name: *Thysanocarpus rigidus*

Common Name: rigid fringepod

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G1G2

State: S1

Rare Plant Rank: 1B.2

Other Lists: BLM_S-Sensitive
USFS_S-Sensitive

General Habitat:

PINYON AND JUNIPER WOODLAND.

Micro Habitat:

DRY, ROCKY SLOPES AND RIDGES OF OAK AND PINE WOODLAND IN ARID MOUNTAIN RANGES. 425-2165

Last Date Observed:	1923-03-14	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1923-03-14	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Possibly Extirpated		

Location:

2 MILES N OF CLAREMONT.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS 2 MILES N OF CLAREMONT AT ELEVATION PROVIDED ON COLLECTION LABEL.

Ecological:

CLEARED FIELD.

Threats:

DEVELOPMENT. THERE IS SO LITTLE NATURAL LAND HERE THAT WE MADE THIS "POSSIBLY EXTIRPATED."

General:

ONLY SOURCE OF INFORMATION IS A 1923 MUNZ COLLECTION. NEEDS FIELDWORK.

PLSS:	T01N, R08W, Sec. 34 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3776280 E433985	**Latitude/Longitude:**	34.12530 / -117.71589	**Elevation (feet):**	1,400

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), Mt. Baldy (3411726)

Sources:

MUN23S0026	MUNZ, P. - MUNZ #6589 POM #18173 1923-03-14
WIL11U0003	WILKEN, D. - EMAIL FROM D. WILKEN REGARDING THYSANOCARPUS RIGIDUS THREATS 2011-02-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	93402	**EO Index:**	94537
Key Quad:	Ontario (3411716)	**Element Code:**	PDCON040P0
Occurrence Number:	6	**Occurrence Last Updated:**	2014-08-14

Scientific Name: *Calystegia felix*

Common Name: lucky morning-glory

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 3.1

Other Lists:

CNDDB Element Ranks: **Global:** GHQ

State: SH

General Habitat:

MEADOWS AND SEEPS, RIPARIAN SCRUB.

Micro Habitat:

SOMETIMES ALKALINE, ALLUVIAL. 30-215 M.

Last Date Observed:	2013-06-03	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2013-06-03	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

NORTH OF THE JUNCTION OF SR 71 AND GRAND AVENUE, EAST OF CHINO CREEK, WEST CHINO.

Detailed Location:

MAPPED BY CNDDB BASED ON A COMBINATION OF COORDINATES (+/- 300 M) AND LOCATION DESCRIPTION.

Ecological:

PLANTER BED IN PUBLIC PARKING AREA.

Threats:

General:

ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 2013 PROVANCE COLLECTION. NEED ADDITIONAL INFORMATION FOR THIS SITE.

PLSS:	T02S, R08W, Sec. 16, NE (S)	**Accuracy:**	1/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3762745 E433350	**Latitude/Longitude:**	34.00319 / -117.72174	**Elevation (feet):**	680

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

PRO13A0001 PROVANCE, M. & A. SANDERS - LUCKY MORNING GLORY, CALYSTEGIA FELIX (CONVOLVULACEA): A NEW SPECIES FROM SOUTHERN CALIFORNIA, WITH NOTES ON THE HISTORICAL ECOLOGY OF THE CHINO CIENEGA BELT. PHYTOKEYS 32: 1-26. 2013-XX-XX

PRO13S0002 PROVANCE, M. - PROVANCE #17526 UCR (CITED IN PRO13A0001) 2013-06-03

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	35234	**EO Index:**	19989
Key Quad:	Ontario (3411716)	**Element Code:**	PDMAL110J0
Occurrence Number:	7	**Occurrence Last Updated:**	1996-07-23

Scientific Name: *Sidalcea neomexicana*

Common Name: Salt Spring checkerbloom

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 2B.2

Other Lists: USFS_S-Sensitive

CNDDB Element Ranks: **Global:** G4

State: S2

General Habitat:

PLAYAS, CHAPARRAL, COASTAL SCRUB, LOWER MONTANE CONIFEROUS FOREST, MOJAVEAN DESERT SCRUB.

Micro Habitat:

ALKALI SPRINGS AND MARSHES. 0-1530 M.

Last Date Observed: 1909-06-12

Last Survey Date: 1909-06-12

Owner/Manager: UNKNOWN

Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence

Occurrence Rank: Unknown

Trend: Unknown

Location:

CLAREMONT.

Detailed Location:

Ecological:

Threats:

General:

ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1909 COLLECTION BY PRUETT CITED IN LETTER BY T. ROSS (1993).

PLSS:	T01S, R08W, Sec. 10 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3772958 E433980	**Latitude/Longitude:**	34.09534 / -117.71570	**Elevation (feet):**	1,200

County Summary:	**Quad Summary:**
Los Angeles, San Bernardino	Ontario (3411716)

Sources:

PRU09S0001	PRUETT, H. - PRUETT #67 POM #2911 1909-06-12
ROS93U0001	ROSS, T. - LETTER TO CNPS REGARDING CALOCHORTUS WEEDII INTERMEDIUS, EUPHORBIA MISERA, LOMATIUM INSULARE, NAMA STENOCARPUM, SIDALCEA NEOMEXICANA, DUDLEYA VIRENS, ERIASTRUM VIRGATUM, ET AL. 1993-10-17

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	47957	**EO Index:**	72602
Key Quad:	Ontario (3411716)	**Element Code:**	PDPGN0V010
Occurrence Number:	40	**Occurrence Last Updated:**	2008-07-15

Scientific Name: *Dodecahema leptoceras*

Common Name: slender-horned spineflower

Listing Status: **Federal:** Endangered

State: Endangered

Rare Plant Rank: 1B.1

Other Lists: SB_RSABG-Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G1

State: S1

General Habitat:

CHAPARRAL, CISMONTANE WOODLAND, COASTAL SCRUB (ALLUVIAL FAN SAGE SCRUB).

Micro Habitat:

FLOOD DEPOSITED TERRACES AND WASHES; ASSOCIATES INCLUDE ENCELIA, DALEA, LEPIDOSPARTUM, ETC. SANDY SOILS. 200-765 M.

Last Date Observed:	1905-06-01	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1905-06-01	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Extirpated		

Location:

UPLAND.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN THE VICINITY OF THE CITY OF UPLAND.

Ecological:

Threats:

General:

ONLY SOURCE OF INFORMATION IS A 1905 PARISH COLLECTION. ENTIRE AREA IS HIGHLY DEVELOPED; PRESUMED EXTIRPATED.

PLSS:	T01S, R07W, Sec. 07 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3773292 E440164	**Latitude/Longitude:**	34.09872 / -117.64868	**Elevation (feet):**	

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

PAR05S0002 PARISH, S. - PARISH SN UC #69642 1905-06-01

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	47956	**EO Index:**	47956
Key Quad:	Guasti (3411715)	**Element Code:**	PDPLM0C0Q0
Occurrence Number:	15	**Occurrence Last Updated:**	2015-02-11

Scientific Name: *Navarretia prostrata*

Common Name: prostrate vernal pool navarretia

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 1B.1

Other Lists:

CNDDB Element Ranks: **Global:** G2

State: S2

General Habitat:

COASTAL SCRUB, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS, MEADOWS AND SEEPS.

Micro Habitat:

ALKALINE SOILS IN GRASSLAND, OR IN VERNAL POOLS. MESIC, ALKALINE SITES. 3-1235 M.

Last Date Observed:	1918-04-25	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1918-04-25	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Extirpated		

Location:

RED HILL, NEAR UPLAND.

Detailed Location:

Ecological:

ON DRYING BOTTOMS OF WINTER POOLS.

Threats:

PRESUMED EXTIRPATED BY DEVELOPMENT.

General:

ABUNDANT IN 1917, SEEN IN 1918. A 2006 WHITE COMMUNICATION MENTIONS THAT FROM ROAD, NO VISIBLE HABITAT REMAINS AND THERE IS DEVELOPMENT ON ALL FLAT GROUND WHERE VERNAL POOLS COULD HAVE FORMED; PRESUMED EXTIRPATED. FORMER EO 16 LUMPED HERE.

PLSS:	T01S, R07W, Sec. 04 (S)	**Accuracy:**	3/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3774983 E442701	**Latitude/Longitude:**	34.11412 / -117.62129	**Elevation (feet):**	

County Summary:	**Quad Summary:**
San Bernardino	Guasti (3411715), Ontario (3411716)

Sources:

JOH17S0009	JOHNSTON, I. - JOHNSTON #1201 POM #3608, UCR #66597, UC #856878, DS #84170 1917-04-28
MUN18S0003	MUNZ, P. - MUNZ #2105 POM #3450 1918-04-25
PAR17S0009	PARISH, S. - PARISH #11162 JEPS #15000, UC #201684 1917-05-04
WHI06U0001	WHITE, S. - EMAIL COMMUNICATION REGARDING SEVERAL RARE TAXA 2006-09-15

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	27642	**EO Index:**	54927
Key Quad:	Ontario (3411716)	**Element Code:**	PDROS0W045
Occurrence Number:	12	**Occurrence Last Updated:**	2016-01-04

Scientific Name: *Horkelia cuneata var. puberula*

Common Name: mesa horkelia

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 1B.1

Other Lists: USFS_S-Sensitive

CNDDB Element Ranks: **Global:** G4T1

State: S1

General Habitat:

CHAPARRAL, CISMONTANE WOODLAND, COASTAL SCRUB.

Micro Habitat:

SANDY OR GRAVELLY SITES. 15-1645 M.

Last Date Observed:	2009-03-13	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2009-03-13	**Occurrence Rank:**	Fair
Owner/Manager:	CLAREMONT UNIV CONSORTIUM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

NEAR PITZER COLLEGE, 500 FT SW OF THE INTERSECTION OF FOOTHILL BLVD AND CLAREMONT BLVD, CLAREMONT.

Detailed Location:

MAPPED ACCORDING TO 2009 WOOD COORDINATES, IN THE NW 1/4 OF THE NE 1/4 OF SECTION 10.

Ecological:

REMNANT PATCH OF ALLUVIAL/COASTAL SAGE SCRUB. PLANTS GROWING IN FINE SOILS WITH SURROUNDING VEGETATION INCLUDING RHUS OVATA, SALVIA APIANA, AND CYLINDROPUNTIA CALIFORNICA VAR. PARKERI. MOST PLANTS GROWING AMONG SUCCULENTS & SMALLER SHRUBS.

Threats:

RECENT DEVELOPMENT IMMEDIATELY SOUTH OF OCCURRENCE; UNKNOWN IF ANY FURTHER DEVELOPMENT IS PLANNED.

General:

6 PLANTS IN 2009. 1923 PEIRSON COLLECTION FROM SAN ANTONIO WASH AT FOOTHILL BLVD, 1970 ELVANDER COLLECTION FROM RTE 66 AND CLAREMONT BLVD, AND 1999 MOORE COLLECTION FROM PITZER COLLEGE ARE ALSO ATTRIBUTED TO THIS SITE.

PLSS:	T01S, R08W, Sec. 10, NE (S)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-11 N3774083 E435103	**Latitude/Longitude:**	34.10556 / -117.70360	**Elevation (feet):**	1,308

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716)

Sources:

ELV70S0001	ELVANDER - ELVANDER #119 WTU (CITED IN ERT93B0001) 1970-03-13
ERT93B0001	ERTTER, B. - EXTRACTS FROM MANUSCRIPT BY ERTTER, PP. 1-8 1993-XX-XX
MOO99S0001	MOORE, L. - MOORE #014 RSA #805107 1999-04-10
PEI23S0043	PEIRSON, F. - PEIRSON #4278 RSA #85204 1923-03-23
WOO09F0004	WOOD, J. - FIELD SURVEY FORM FOR HORKELIA CUNEATA SSP. PUBERULA 2009-03-13
WOO09S0021	WOOD, J. - WOOD #360 RSA #746828 2009-03-13

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	47957	**EO Index:**	54929
Key Quad:	Ontario (3411716)	**Element Code:**	PDROS0W045
Occurrence Number:	13	**Occurrence Last Updated:**	2004-04-05

Scientific Name: *Horkelia cuneata var. puberula*

Common Name: mesa horkelia

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 1B.1

Other Lists: USFS_S-Sensitive

CNDDB Element Ranks: **Global:** G4T1

State: S1

General Habitat:

CHAPARRAL, CISMONTANE WOODLAND, COASTAL SCRUB.

Micro Habitat:

SANDY OR GRAVELLY SITES. 15-1645 M.

Last Date Observed:	1917-03-10	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1917-03-10	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Extirpated		

Location:

UPLAND.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB, IN THE VICINITY OF UPLAND AT HWY 66.

Ecological:

Threats:

DEVELOPMENT.

General:

UNKNOWN NUMBER OF PLANTS SEEN IN 1917. PER M. SKINNER, POPULATIONS IN LA BASIN ARE PRESUMED EXTIRPATED DUE TO DEVELOPMENT IN AREA SINCE DATE OF COLLECTION.

PLSS:	T01S, R07W, Sec. 07 (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3773292 E440164	**Latitude/Longitude:**	34.09872 / -117.64868	**Elevation (feet):**	1,200

County Summary:	**Quad Summary:**
San Bernardino	Ontario (3411716)

Sources:

JOH17S0015	JOHNSTON, I. - JOHNSTON #56 UC, NY 1917-03-10
SKI94U0001	SKINNER, M. - APPEARS TO BE NOTES FROM CONVERSATION WITH B. ERTTER REGARDING HORKELIA SP. 1994-11-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	98659	**EO Index:**	54930
Key Quad:	Ontario (3411716)	**Element Code:**	PDROS0W045
Occurrence Number:	14	**Occurrence Last Updated:**	2016-01-19

Scientific Name: *Horkelia cuneata var. puberula*

Common Name: mesa horkelia

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 1B.1

Other Lists: USFS_S-Sensitive

CNDDB Element Ranks: **Global:** G4T1

State: S1

General Habitat:

CHAPARRAL, CISMONTANE WOODLAND, COASTAL SCRUB.

Micro Habitat:

SANDY OR GRAVELLY SITES. 15-1645 M.

Last Date Observed:	1900-06-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1900-06-XX	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Extirpated		

Location:

LINCOLN PARK, POMONA.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB IN VICINITY OF LINCOLN PARK IN POMONA.

Ecological:

Threats:

DEVELOPMENT.

General:

SITE BASED ON A 1900 GRANT COLLECTION. POPULATIONS IN LA BASIN PRESUMED EXTIRPATED DUE TO DEVELOPMENT IN AREA SINCE DATE OF COLLECTION.

PLSS:	T01S, R08W, Sec. 20 (S)	**Accuracy:**	3/5 mile	**Area (acres):**	776
UTM:	Zone-11 N3770167 E431395	**Latitude/Longitude:**	34.07 / -117.7435	**Elevation (feet):**	

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), San Dimas (3411717)

Sources:

ERT93B0001	ERTTER, B. - EXTRACTS FROM MANUSCRIPT BY ERTTER, PP. 1-8 1993-XX-XX
GRA00S0002	GRANT - GRANT #2202 DS (CITED IN ERT93B0001) 1900-06-XX
SKI94U0001	SKINNER, M. - APPEARS TO BE NOTES FROM CONVERSATION WITH B. ERTTER REGARDING HORKELIA SP. 1994-11-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	76409	**EO Index:**	77369
Key Quad:	Ontario (3411716)	**Element Code:**	PDROS0W045
Occurrence Number:	59	**Occurrence Last Updated:**	2016-01-19

Scientific Name: *Horkelia cuneata var. puberula*

Common Name: mesa horkelia

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 1B.1

Other Lists: USFS_S-Sensitive

CNDDB Element Ranks: **Global:** G4T1

State: S1

General Habitat:

CHAPARRAL, CISMONTANE WOODLAND, COASTAL SCRUB.

Micro Habitat:

SANDY OR GRAVELLY SITES. 15-1645 M.

Last Date Observed:	2009-04-02	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2009-04-02	**Occurrence Rank:**	Good
Owner/Manager:	CLAREMONT UNIV CONSORTIUM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

BERNARD FIELD STATION, 350' NE OF THE INTERSECTION OF FOOTHILL BLVD AND NORTH DARTMOUTH AVE, CLAREMONT.

Detailed Location:

MAPPED ACCORDING TO 2009 WOOD COORDINATES.

Ecological:

REMNANT PATCH OF ALLUVIAL/COASTAL SAGE SCRUB. PLANTS GROWING IN FINE SOILS WITH SURROUNDING VEGETATION INCLUDING RHAMNUS CROCEA, SAMBUCUS NIGRA, AND SALVIA APIANA. MOST PLANTS GROWING UNDER AND AROUND LARGER SHRUBS.

Threats:

SEVERAL PROPOSED DEVELOPMENTS BY THE LANDOWNER IN RECENT YEARS (WOOD 2009).

General:

ONE LARGE COLONY IN 1998. 18 PLANTS SEEN IN 2009. A 1901 ABRAMS COLLECTION FROM "INDIAN HILL, CLAREMONT" AND A 1963 ANDERSON COLLECTION FROM "NORTHERN BORDER OF WASH, POMONA COLLEGE" ARE ALSO ATTRIBUTED TO THIS SITE.

PLSS:	T01S, R08W, Sec. 03, SW (S)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-11 N3774305 E434310	**Latitude/Longitude:**	34.10750 / -117.71221	**Elevation (feet):**	1,300

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716)

Sources:

ABR01S0012	ABRAMS - ABRAMS #1910 DS, NY (CITED IN ERT93B01) 1901-07-XX
AND63S0012	ANDERSON, C. - ANDERSON #71 RSA #485314 1963-06-06
ERT93B0001	ERTTER, B. - EXTRACTS FROM MANUSCRIPT BY ERTTER, PP. 1-8 1993-XX-XX
ROS97S0001	ROSS, D. - ROSS #21 RSA #611622 1997-03-29
SOZ98S0016	SOZA, V. - SOZA #78 RSA #612067, UCR #109147 1998-04-26
WOO09F0005	WOOD, J. - FIELD SURVEY FORM FOR HORKELIA CUNEATA SSP. PUBERULA 2009-04-02
WOO09S0022	WOOD, J. - WOOD #462 RSA #748147 2009-04-02

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	47956	**EO Index:**	70439
Key Quad:	Guasti (3411715)	**Element Code:**	PMCYP04010
Occurrence Number:	3	**Occurrence Last Updated:**	2011-06-06

Scientific Name: *Cladium californicum*

Common Name: California saw-grass

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G4

State: S2

Rare Plant Rank: 2B.2

Other Lists: USFS_S-Sensitive

General Habitat:

MEADOWS AND SEEPS, MARSHES AND SWAMPS (ALKALINE OR FRESHWATER).

Micro Habitat:

FRESHWATER OR ALKALINE MOIST HABITATS. -20-2135 M.

Last Date Observed:	1918-07-04	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1918-07-04	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Extirpated		

Location:

RED HILL, EAST OF UPLAND.

Detailed Location:

EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS A BEST GUESS.

Ecological:

IN SWAMP.

Threats:

General:

ONLY SOURCES OF INFORMATION FOR THIS OCCURRENCE ARE FIVE COLLECTIONS TAKEN BY JOHNSTON BETWEEN 1916 AND 1918. THIS AREA IS NOW FULLY DEVELOPED. OCCURRENCE EXTIRPATED.

PLSS:	T01S, R07W, Sec. 04 (S)	**Accuracy:**	3/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3774983 E442701	**Latitude/Longitude:**	34.11412 / -117.62129	**Elevation (feet):**	1,400

County Summary:	**Quad Summary:**
San Bernardino	Guasti (3411715), Ontario (3411716)

Sources:

JOH16S0004	JOHNSTON, I. - JOHNSTON SN UC #306126 1916-10-21
JOH16S0005	JOHNSTON, I. - JOHNSTON SN POM #1423 1916-09-19
JOH16S0007	JOHNSTON, I. - JOHNSTON #2 DS #81554 1916-10-08
JOH17S0027	JOHNSTON, I. - JOHNSTON #1731 POM #1422, DS #83679 1917-07-22
JOH18S0007	JOHNSTON, I. - JOHNSTON SN RSA #364795 1918-07-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	27710	**EO Index:**	739
Key Quad:	Mt. Baldy (3411726)	**Element Code:**	PMLIL0D150
Occurrence Number:	26	**Occurrence Last Updated:**	1996-02-21

Scientific Name: *Calochortus plummerae*

Common Name: Plummer's mariposa-lily

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 4.2

Other Lists: SB_RSABG-Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G4

State: S4

General Habitat:

COASTAL SCRUB, CHAPARRAL, VALLEY AND FOOTHILL GRASSLAND, CISMONTANE WOODLAND, LOWER MONTANE CONIFEROUS FOREST.

Micro Habitat:

OCCURS ON ROCKY AND SANDY SITES, USUALLY OF GRANITIC OR ALLUVIAL MATERIAL. CAN BE VERY COMMON AFTER FIRE. 100-1700 M.

Last Date Observed:	1928-06-15	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1992-XX-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

CLAREMONT, LIVE OAK CANYON.

Detailed Location:

OTHER COLLECTIONS ATTRIBUTED TO THIS SITE INCLUDE "CLAREMONT" BY FLINN IN 1912 AND EASTWOOD IN 1928 AND "BASELINE ROAD, CLAREMONT" BY MUNZ IN 1919.

Ecological:

Threats:

MUCH HABITAT IN THIS AREA HAS BEEN LOST TO DEVELOPMENT ACCORDING TO S. WHITE (1992).

General:

SITE KNOWN FROM THE FOLLOWING COLLECTIONS: HILL IN 1897, FLINN IN 1912, MUNZ IN 1919, AND EASTWOOD IN 1928.

PLSS:	T01N, R08W (S)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-11 N3777502 E431425	**Latitude/Longitude:**	34.13615 / -117.74375	**Elevation (feet):**	1,200

County Summary:

Los Angeles

Quad Summary:

Ontario (3411716), San Dimas (3411717), Mt. Baldy (3411726), Glendora (3411727)

Sources:

EAS28S0001	EASTWOOD, A. - EASTWOOD #15408 UC #410550 1928-06-15
FLI12S0001	FLINN, B. - FLINN SN POM #1705 1912-06-15
HIL97S0001	HILL, L. - HILL #10342 POM #1706 1897-06-10
MCD91U0001	MCDONALD, H. & K. STOKKINK - LETTER TO CNPS REGARDING CALOCHORTUS PLUMMERAE 1991-07-20
MUN19S0001	MUNZ, P. - MUNZ #3274 POM #9570 1919-06-10
WHI92U0002	WHITE, S. - LETTER TO CNPS REGARDING PROPOSED REVISIONS FOR CNPS INVENTORY, 5TH EDITION 1992-05-28

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	27711	**EO Index:**	740
Key Quad:	Ontario (3411716)	**Element Code:**	PMLIL0D150
Occurrence Number:	27	**Occurrence Last Updated:**	2002-05-20

Scientific Name: *Calochortus plummerae*

Common Name: Plummer's mariposa-lily

Listing Status: **Federal:** None

State: None

CNDDB Element Ranks: **Global:** G4

State: S4

Rare Plant Rank: 4.2

Other Lists: SB_RSABG-Rancho Santa Ana Botanic Garden

General Habitat:

COASTAL SCRUB, CHAPARRAL, VALLEY AND FOOTHILL GRASSLAND, CISMONTANE WOODLAND, LOWER MONTANE CONIFEROUS FOREST.

Micro Habitat:

OCCURS ON ROCKY AND SANDY SITES, USUALLY OF GRANITIC OR ALLUVIAL MATERIAL. CAN BE VERY COMMON AFTER FIRE. 100-1700 M.

Last Date Observed:	1937-06-03	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1937-06-03	**Occurrence Rank:**	None
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Possibly Extirpated		

Location:

CLAREMONT, ALONG MILLS AVENUE.

Detailed Location:

MAPPED ALONG MILLS AVENUE IN CLAREMONT.

Ecological:

IN CHAPARRAL.

Threats:

MUCH HABITAT IN THIS AREA HAS BEEN LOST TO DEVELOPMENT ACCORDING TO S. WHITE (1992).

General:

ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1937 COLLECTION CITED IN LETTER FROM THE AMERICAN CALOCHORTUS SOCIETY TO CNPS (MCDONALD AND STOKKINK, 1991); COLLECTOR'S NAME IS NOT CITED.

PLSS:	T01S, R08W, Sec. 03 (S)	**Accuracy:**	nonspecific area	**Area (acres):**	213
UTM:	Zone-11 N3775584 E434771	**Latitude/Longitude:**	34.11907 / -117.70732	**Elevation (feet):**	1,600

County Summary:	**Quad Summary:**
Los Angeles	Ontario (3411716), Mt. Baldy (3411726)

Sources:

MCD91U0001 MCDONALD, H. & K. STOKKINK - LETTER TO CNPS REGARDING CALOCHORTUS PLUMMERAE 1991-07-20

WHI92U0002 WHITE, S. - LETTER TO CNPS REGARDING PROPOSED REVISIONS FOR CNPS INVENTORY, 5TH EDITION 1992-05-28

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	47956	**EO Index:**	130
Key Quad:	Guasti (3411715)	**Element Code:**	PMPOA480A0
Occurrence Number:	1	**Occurrence Last Updated:**	2007-10-19

Scientific Name: *Muhlenbergia californica*

Common Name: California muhly

Listing Status: **Federal:** None

State: None

Rare Plant Rank: 4.3

Other Lists:

CNDDB Element Ranks: **Global:** G4

State: S4

General Habitat:

COASTAL SCRUB, CHAPARRAL, LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS.

Micro Habitat:

USUALLY FOUND NEAR STREAMS OR SEEPS. 100-2000 M.

Last Date Observed:	1916-10-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1916-10-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

RED HILL, EAST OF UPLAND.

Detailed Location:

Ecological:

GROWING ALONG CREEK UNDER TREES.

Threats:

General:

ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1916 COLLECTION BY JOHNSTON.

PLSS:	T01S, R07W, Sec. 04 (S)	**Accuracy:**	3/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3774983 E442701	**Latitude/Longitude:**	34.11412 / -117.62129	**Elevation (feet):**	1,400

County Summary:	**Quad Summary:**
San Bernardino	Guasti (3411715), Ontario (3411716)

Sources:

JOH16S0001 JOHNSTON, I. - JOHNSTON SN UC #205653 1916-10-XX

APPENDIX D

Noise Modeling Data

APPENDIX D – 1

NOISE MEASUREMENT FIELD DATA

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Field Noise Measurement Data

Record: 251	
Project Name	*Montclair*
Project #	*9633*
Observer(s)	*Connor Burke*
Date	*2016-10-26*
autoemail	*cburke@dudek.com*

Meteorological Conditions	
Temp (F)	*84*
Humidity % (R.H.)	*61*
Wind	*Calm*
Wind Speed (MPH)	*2.1*
Wind Direction	*East*
Sky	*Sunny*

Instrument and Calibrator Information	
Instrument Name List	*(ENC) Rion NL-52*
Instrument Name	*(ENC) Rion NL-52*
Instrument Name Lookup Key	*(ENC) Rion NL-52*
Manufacturer	*Rion*
Model	*NL-52*
Serial Number	*553896*
Calibrator Name	*(ENC) LD CAL150*
Calibrator Name	*(ENC) LD CAL150*
Calibrator Name Lookup Key	*(ENC) LD CAL150*
Calibrator Manufacturer	*Larson Davis*
Calibrator Model	*LD CAL150*
Calibrator Serial #	*5152*
Pre-Test (dBA SPL)	*94*
Post-Test (dBA SPL)	*94*
Windscreen	*Yes*
Weighting?	*A-WTD*
Slow/Fast?	*Slow*
ANSI?	*Yes*

Recordings	
Record #	*1*
Site ID	*ST2*
Site Location	*Latitude:34.095023, Longitude:-117.704400, Altitude:365.196045, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:3.000000, Time:9:55:22 AM PDT*
Begin (Time)	*09:54:00*
End (Time)	*10:04:00*
Leq	*60.4*
Lmax	*77.7*
Lmin	*42.2*
Other Lx?	*L90, L50, L10*
L90	*47.8*
L50	*53.8*
L10	*63.5*
Other (Specify Metric)	

powered by ZerionSoftware

Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Rustling Leaves*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

Source Info and Traffic Counts	
Distance to Roadway (feet)	*40*
Estimated Vehicle Speed (MPH)	*45*
Count Duration (Min)	*10*
Speeds Estimated by:	*Driving the Pace*
Posted Speed Limit Sign (MPH)	*45*

Traffic Counts	
Counting Both Directions?	*Yes*
Autos	*1*
Number of Vehicles - Autos	*65*

Description / Photos

Site Photos	
Photo	
Comments / Description	*Facing west towards Claremont Blvd.*

powered by ZerionSoftware

FIELD DATA REPORT

Recordings	
Record #	*2*
Site ID	*ST6*
Site Location	*Latitude:34.094149, Longitude:-117.702972, Altitude:363.852158, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:4.000000, Time:10:15:19 AM PDT*
Begin (Time)	*10:15:00*
End (Time)	*10:25:00*
Leq	*46.9*
Lmax	*58.5*
Lmin	*40.5*
Other Lx?	*L90, L50, L10*
L90	*41.8*
L50	*44.3*
L10	*49.3*
Other (Specify Metric)	
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Industrial, Rustling Leaves*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

Description / Photos

Site Photos	
Photo	
Comments / Description	*Facing south towards railroad.*

powered by ZerionSoftware

FIELD DATA REPORT

Site Photos	
Photo	
Comments / Description	*Over fence facing railway.*

Recordings	
Record #	*3*
Site ID	*ST3*
Site Location	*Latitude:34.090950, Longitude:-117.698577, Altitude:352.105806, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:3.000000, Time:10:34:09 AM PDT*
Begin (Time)	*10:33:00*
End (Time)	*10:43:00*
Leq	*64.7*
Lmax	*74.1*
Lmin	*47.3*
Other Lx?	*L90, L50, L10*
L90	*53.1*
L50	*62.2*
L10	*68.3*
Other (Specify Metric)	
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Industrial, Distant Traffic*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

powered by ZerionSoftware

FIELD DATA REPORT

Source Info and Traffic Counts	
Distance to Roadway (feet)	*30*
Estimated Vehicle Speed (MPH)	*45*
Count Duration (Min)	*10*

Traffic Counts	
Counting Both Directions?	*Yes*
Autos	*1*
Number of Vehicles - Autos	*201*
Medium Trucks	*1*
Number of Vehicles - Medium Trucks	*3*
Heavy Trucks	*1*
Number of Vehicles - Heavy Trucks	*4*
Buses	*1*
Number of Vehicles - Buses	*7*
Motorcyles	*1*
Number of Vehicles - Motorcyles	*2*

Description / Photos

Site Photos	
Photo	
Comments / Description	*Facing east*

powered by ZerionSoftware

FIELD DATA REPORT

Recordings	
Record #	*4*
Site ID	*ST1*
Site Location	*Latitude:34.090500, Longitude:-117.695053, Altitude:357.102612, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:3.000000, Time:10:51:54 AM PDT*
Begin (Time)	*10:51:00*
End (Time)	*11:01:00*
Leq	*46.4*
Lmax	*75*
Lmin	*42.8*
Other Lx?	*L90, L50, L10*
L90	*43.8*
L50	*45.2*
L10	*48.2*
Other (Specify Metric)	
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Traffic, Rustling Leaves*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

Description / Photos

Site Photos	
Photo	

powered by ZerionSoftware

FIELD DATA REPORT

Recordings	
Record #	*5*
Site ID	*ST5*
Site Location	*Latitude:34.092212, Longitude:-117.692802, Altitude:364.994946, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:3.000000, Time:11:07:11 AM PDT*
Begin (Time)	*11:07:00*
End (Time)	*11:17:00*
Leq	*67.4*
Lmax	*80*
Lmin	*51.4*
Other Lx?	*L90, L50, L10*
L90	*54.4*
L50	*64*
L10	*71.3*
Other (Specify Metric)	
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Traffic, Rustling Leaves*
Other Noise Sources Additional Description	*Car was across the street*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

Source Info and Traffic Counts	
Distance to Roadway (feet)	*15*
Estimated Vehicle Speed (MPH)	*45*
Count Duration (Min)	*10*

Traffic Counts	
Counting Both Directions?	*Yes*
Autos	*1*
Number of Vehicles - Autos	*148*
Medium Trucks	*1*
Number of Vehicles - Medium Trucks	*2*
Heavy Trucks	*1*
Number of Vehicles - Heavy Trucks	*2*

Description / Photos

powered by ZerionSoftware

Site Photos	
Photo	

Recordings	
Record #	*6*
Site ID	*ST4*
Site Location	*Latitude:34.094684, Longitude:-117.689878, Altitude:371.883694, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:3.000000, Time:11:26:34 AM PDT*
Begin (Time)	*11:25:00*
End (Time)	*11:36:00*
Leq	*71.7*
Lmax	*86.3*
Lmin	*55.3*
Other Lx?	*L90, L50, L10*
L90	*61.1*
L50	*67.2*
L10	*74.7*
Other (Specify Metric)	
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Traffic, Rustling Leaves*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

FIELD DATA REPORT

Source Info and Traffic Counts	
Distance to Roadway (feet)	*15*
Estimated Vehicle Speed (MPH)	*45*
Count Duration (Min)	*10*
Speeds Estimated by:	*Driving the Pace*
Posted Speed Limit Sign (MPH)	*45*

Traffic Counts	
Counting Both Directions?	*Yes*
Autos	*1*
Number of Vehicles - Autos	*256*
Medium Trucks	*1*
Number of Vehicles - Medium Trucks	*5*
Heavy Trucks	*1*
Number of Vehicles - Heavy Trucks	*2*
Buses	*1*
Number of Vehicles - Buses	*4*
Motorcyles	*1*
Number of Vehicles - Motorcyles	*2*

Description / Photos

Site Photos	
Photo	

powered by ZerionSoftware

APPENDIX D – 2

TRAFFIC NOISE MODELIING RESULTS

TRAFFIC NOISE LEVELS AND NOISE CONTOUR BOUNDARY DISTANCES

Project Number: 9633
Project Name: North Montclair Downtown Specific Plan Amendment

DUDEK

Noise Model Assumptions and Background Data

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Traffic Data Source: Stantec, November 2016
Community Noise Descriptor: CNEL

CNEL Contour Notes:
" - " countour is located within the roadway right-of-way
Distance is from the centerline of the roadway segment
to the receptor location.

24 Hour Traffic Distrbution Assumptions	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium Trucks	87.43%	5.05%	7.52%
Heavy Trucks	89.10%	2.64%	8.06%

Analysis Condition		Median	ADT	Design Speed	Vehicle Mix Medium	Vehicle Mix Heavy	**CNEL at**	Distance from C.L. of Roadway Distance to Contour	
Roadway Segment	Lanes	Width	Volume	(mph)	Trucks	Trucks	**50 Feet**	70 CNEL	65 CNEL
Central Avenue									
South of Moreno, existing	6	15	47,000	40	2%	1%	71.8	66	142
South of Moreno, existing + proj	6	15	62,000	40	2%	1%	73.0	79	171
South of Moreno, Long Range (no proj.)	6	15	60,000	40	2%	1%	72.9	78	168
South of Moreno, Long Range + proj	6	15	67,000	40	2%	1%	73.3	83	179
Central Avenue									
North of Arrow Highway, existing	6	15	22,000	40	2%	1%	68.5	-	86
North of Arrow Highway, existing + proj	6	15	26,000	40	2%	1%	69.2	-	95
North of Arrow Highwayo, Long Range (no proj.)	6	15	30,000	40	2%	1%	69.8	-	104
North of Arrow Highway, Long Range + proj	6	15	33,000	40	2%	1%	70.2	-	111
Monte Vista Avenue									
South of San Jose St., existing	6	11	30,000	40	2%	1%	69.8	-	104
South of San Jose St, existing + proj	6	11	43,000	40	2%	1%	71.4	62	134
South of San Jose St, Long Range (no proj.)	6	11	37,000	40	2%	1%	70.8	57	122
South of San Jose St, Long Range + proj	6	11	43,000	40	2%	1%	71.4	62	134
Monte Vista Avenue									
South of Moreno, existing	6	11	22,000	40	2%	1%	68.5	-	86
South of Moreno, existing + proj	6	11	37,000	40	2%	1%	70.8	57	122
South of Moreno, Long Range (no proj.)	6	11	29,000	40	2%	1%	69.7	-	103
South of Moreno, Long Range + proj	6	11	36,000	40	2%	1%	70.6	55	118
Monte Vista Avenue									
North of Arrow Highway, existing	6	11	20,000	40	2%	1%	68.1	-	80
North of Arrow Highway, existing + proj	6	11	26,000	40	2%	1%	69.2	-	95
North of Arrow Highway, Long Range (no proj.)	6	11	28,000	40	2%	1%	69.5	-	100
North of Arrow Highway, Long Range + proj	6	11	30,000	40	2%	1%	69.8	-	104

Analysis Condition Roadway Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Medium Trucks	Heavy Trucks	**CNEL at 50 Feet**	Distance to Contour 70 CNEL	 65 CNEL
Mills Avenue									
North of Moreno, existing	2	11	6,000	40	2%	1%	62.9	-	36
North of Moreno, existing + proj	2	11	8,000	40	2%	1%	64.1	-	44
North of Moreno, Long Range (no proj.)	2	11	9,000	40	2%	1%	64.6	-	47
North of Moreno, Long Range + proj	2	11	9,000	40	2%	1%	64.6	-	47
Mills Avenue									
North of Arrow Highway, existing	2	11	10,000	40	2%	1%	65.1	-	51
North of Arrow Highway, existing + proj	2	11	11,000	40	2%	1%	65.5	-	54
North of Arrow Highway, Long Range (no proj.)	2	11	15,000	40	2%	1%	66.8	-	66
North of Arrow Highway, Long Range + proj	2	11	16,000	40	2%	1%	67.1	-	69
Moreno Street									
East of Central Ave, existing	4	25	13,000	40	2%	1%	66.2	-	60
East of Central Ave, existing + proj	4	25	15,000	40	2%	1%	66.8	-	66
East of Central Ave, Long Range (no proj.)	4	25	13,000	40	2%	1%	66.2	-	60
East of Central Ave, Long Range + proj	4	25	13,000	40	2%	1%	66.2	-	60
Moreno Street									
West of Monte Vista Ave, existing	4	25	5,000	40	2%	1%	62.1	-	32
West of Monte Vista Ave, existing + proj	4	25	14,000	40	2%	1%	66.5	-	63
West of Monte Vista Ave, Long Range (no proj.)	4	25	11,000	40	2%	1%	65.5	-	54
West of Monte Vista Ave, Long Range + proj	4	25	14,000	40	2%	1%	66.5	-	63
Arrow Highway (8th Street)									
West of Central Ave, existing	4	11	12,000	45	2%	1%	67.1	-	69
West of Central Ave, existing + proj	4	11	35,000	45	2%	1%	71.8	66	142
West of Central Ave, Long Range (no proj.)	4	11	18,000	45	2%	1%	68.9	-	91
West of Central Ave, Long Range + proj	4	11	31,000	45	2%	1%	71.2	60	130
Arrow Highway (8th Street)									
East of Monte Vista Ave, existing	4	11	13,000	45	2%	1%	67.5	-	73
East of Monte Vista Ave, existing + proj	4	11	24,000	45	2%	1%	70.1	51	109
East of Monte Vista Ave, Long Range (no proj.)	4	11	19,000	45	2%	1%	69.1	-	94
East of Monte Vista Ave, Long Range + proj	4	11	24,000	45	2%	1%	70.1	51	109
Arrow Highway (8th Street)									
West of Monte Vista Ave, existing	4	11	16,000	45	2%	1%	68.4	-	-
West of Monte Vista Ave, existing + proj	4	11	27,000	45	2%	1%	70.6	55	-
West of Monte Vista Ave, Long Range (no proj.)	4	11	20,000	45	2%	1%	69.3	-	97
West of Monte Vista Ave, Long Range + proj	4	11	25,000	45	2%	1%	70.3	52	113
Arrow Route (6th Street)									
West of Monte Vista Ave, existing	4	11	7,000	45	2%	1%	64.8	-	48
West of Monte Vista Ave, existing + proj	4	11	9,000	45	2%	1%	65.9	-	57
West of Monte Vista Ave, Long Range (no proj.)	4	11	13,000	45	2%	1%	67.5	-	73
West of Monte Vista Ave, Long Range + proj	4	11	13,000	45	2%	1%	67.5	-	73

APPENDIX E

Traffic Study

North Montclair Downtown Specific Plan Amendment Project Traffic Study, Montclair, CA

Prepared for:
Dudek

Prepared by:
Stantec Consulting Services Inc.

January 10, 2017

Sign-off Sheet

This document entitled North Montclair Downtown Specific Plan Amendment Project Traffic Study, Montclair, CA was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Dudek (the "Client").

Prepared by _____
(signature)

Sandhya Perumalla
(949) 923-6074

Reviewed by _____
(signature)

Melissa Dugan, AICP, PTP
(949) 923-6216

Independent Review by _____
(signature)

Daryl Zerfass, PE, PTP
(949) 923-6058

Stantec

Table of Contents

1.0 INTRODUCTION 1.1

2.0 ANALYSIS SCOPE AND METHODOLOGY 2.1

3.0 TRANSPORTATION SETTING 3.1
3.1 EXISTING TRANSPORTATION SYSTEM 3.1
3.1.1 San Bernardino and Los Angeles County Congestion Management Program (CMP) 3.1
3.2 EXISTING TRAFFIC CONDITIONS 3.5

4.0 PROJECT DESCRIPTION 4.1

5.0 IMPACT ANALYSIS 5.1
5.1 EXISTING PLUS PROJECT ANALYSIS 5.1
5.2 LONG-RANGE (YEAR 2040) ANALYSIS 5.7

6.0 MITIGATION MEASURES 6.1

7.0 FREEWAY MAINLINE SEGMENTS 7.1

8.0 INTERSECTION CONTROL EVALUATION 8.1

9.0 CONSTRUCTION – RELATED IMPACTS 9.1

LIST OF TABLES

Table 1 Performance Criteria – Arterial Intersections 2.4
Table 2 Level of Service Descriptions - Intersections 2.6
Table 3 Existing Intersection Delay and LOS Summary 3.6
Table 4 Trip Generation Summary 4.3
Table 5 Existing with and without Project - Intersection Delay and LOS Summary 5.2
Table 6 2040 with and without Project - Intersection Delay and LOS Summary 5.8
Table 7 Existing plus Project Intersection Mitigation Summary 6.1
Table 8 2040 with Project Mitigation Summary 6.2
Table 9 I-10 Mainline Freeway Analysis 7.1
Table 10 Intersection Control Evaluation 8.1

LIST OF FIGURES

Figure 1 Project Location Map 2.2
Figure 2 Intersection Location Map 3.3
Figure 3 Transit Routes Map 3.4
Figure 4 Lane Geometry 3.7
Figure 5 Existing ADT Volumes – 000's 3.8
Figure 6 AM Peak Hour Volumes – Existing Conditions 3.9
Figure 7 PM Peak Hour Volumes – Existing Conditions 3.10

Figure 8 Site Map 4.2
Figure 9 Project Trip Distribution 4.4
Figure 10 AM Peak Hour Volumes - Project Only Trips 4.5
Figure 11 PM Peak Hour Volumes - Project Only Trips 4.6
Figure 12 Existing Plus Project ADT Volumes – 000's 5.4
Figure 13 AM Peak Hour Volumes – Existing with Project Conditions 5.5
Figure 14 PM Peak Hour Volumes – Existing with Project Conditions 5.6
Figure 15 Long Range No Project ADT Volumes – 000's 5.10
Figure 16 AM Peak Hour Volumes - Long Range No Project 5.11
Figure 17 PM Peak Hour Volumes - Long Range No Project 5.12
Figure 18 Long Range with Project ADT Volumes – 000's 5.13
Figure 19 AM Peak Hour Volumes - Long Range with Project 5.14
Figure 20 PM Peak Hour Volumes - Long Range with Project 5.15

LIST OF APPENDICES

APPENDIX A SYNCHRO WORKSHEETS A.1

APPENDIX B TRAFFIC COUNTS B.1

APPENDIX C SIDRA WORKSHEETS C.1

1.0 INTRODUCTION

This technical report presents transportation information prepared in support of the proposed amendment to the 2006 North Montclair Downtown Specific Plan (NMDSP) in the City of Montclair, California. The NMDSP is an area with major land-use development potential planned on approximately 150 acres within the 640-acre North Montclair area.

The adopted land uses plan creates the framework for new development opportunities for a mixed-use, transit-oriented district between the Montclair Transcenter and the Montclair Plaza regional shopping center. Montclair Transcenter is currently a stop on Metrolink's San Bernardino line and will eventually be the easterly terminus of the Foothill Gold Line light rail. Montclair Transcenter services bus lines for Foothill Transit, OmniTrans and Riverside Transit Agency (RTA).

The NMDSP goal is to establish livable neighborhoods by creating mixed-density housing types like townhouses, condominiums, apartments, live/work lofts, and courtyard housing above retail and office. The plan would implement a transit oriented, mixed-use development that links land use and transit as mutually supportive through a unified approach to development.

This report is prepared to identify the traffic impacts of the development of the proposed project and provide the technical information for the traffic section of the Environment Impact Report (EIR) being prepared for this project.

2.0 ANALYSIS SCOPE AND METHODOLOGY

In comparison to the current NMDSP, the proposed amendment consists of 2,688 more residential units and 782,285 more square feet of commercial/industrial to allow for a maximum number of 5,888 residential units and a total of 1,681,285 square feet of non-residential uses. Figure 1 illustrates the project location. The project area facilitates transit oriented development based on the planned future Gold Line station.

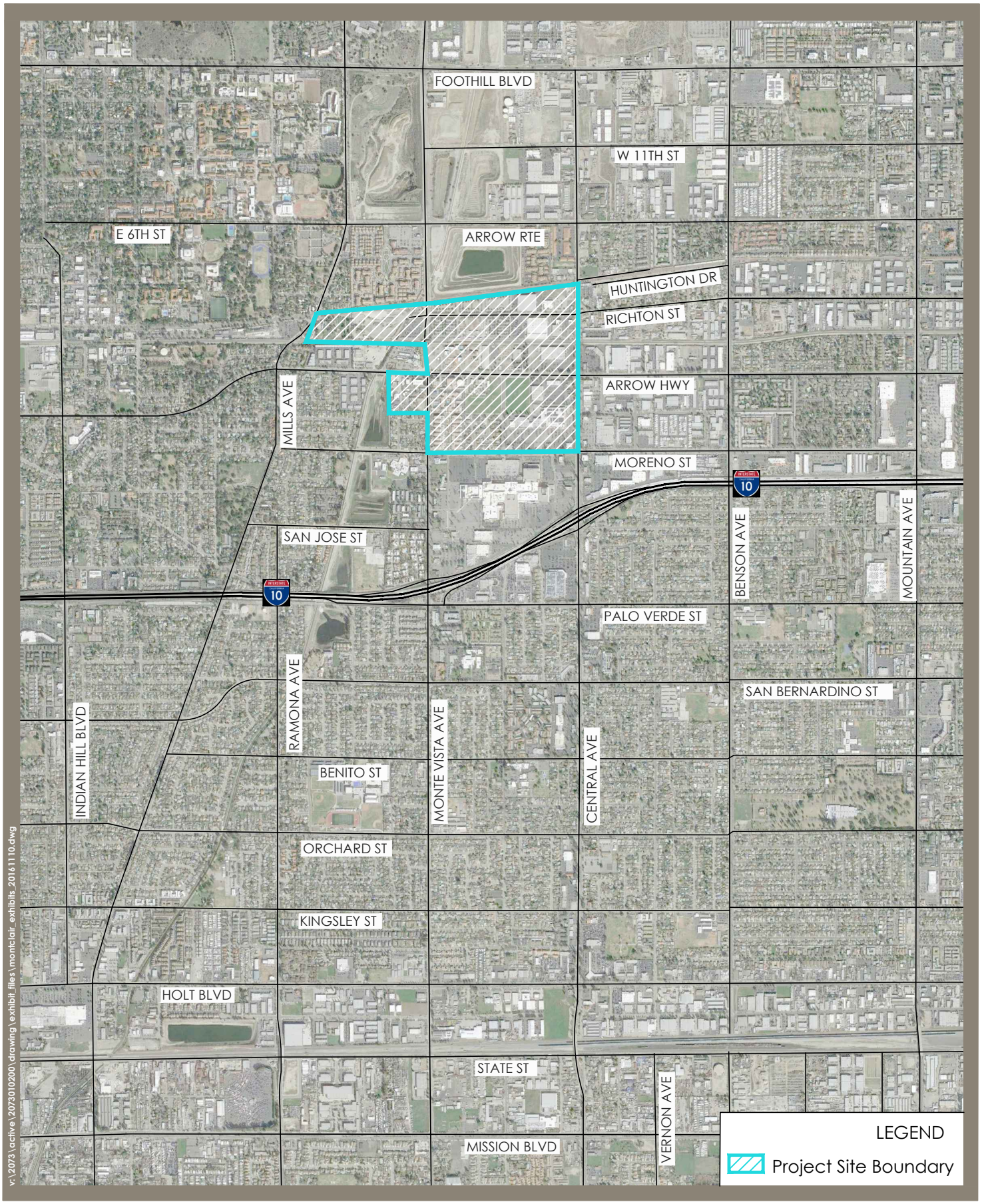
The traffic study provides an existing conditions impact analysis and a long-range impact analysis of the proposed project. Existing traffic conditions are analyzed in the study based on observed traffic counts (traffic count worksheets are shown in Appendix B). The existing conditions analysis examines the existing-plus-project impacts and is compared against existing conditions to satisfy California Environmental Quality Act (CEQA) requirements for a plan-to-ground analysis. The long-range impact analysis examines the project in a General Plan context.

Long-range traffic forecasts applied in this study were prepared using the San Bernardino County Transportation Analysis Model (SBTAM). The SBTAM is a sub-regional travel demand model that is used for the future planning and environmental projects in the County of San Bernardino. The traffic forecast data produced by the SBTAM includes average daily traffic (ADT) volumes for arterial roadway and freeway mainline segments and AM and PM peak hour volumes for selected intersections on the modeled roadway system.

For this study, the SBTAM model runs are used to calculate the increment of project traffic between 2040 no-project and 2040 with-project conditions for each arterial roadway segment in the project study area. The incremental traffic volume changes are then applied to a baseline set of traffic volumes to develop a forecast that reflect the effects of the scenarios that are being analyzed. Intersection peak hour turning volume forecasts are developed based on the growth in surrounding roadway ADT volumes.

Traffic analysis data presented in this traffic study are as follows:

1. Existing Conditions
2. Existing plus Project
3. Long-range with current General Plan (No-Project)
4. Long-range With-Project



Stantec

N

Figure 1

Project Location Map

2.2

The two peak hours (AM and PM) for an average weekday are the accepted time periods used for evaluating the study area roadways and intersections. While many other roadway demand conditions can represent localized peak periods, typical weekday peak hours are the regional standard for traffic operations based on the frequency and consistency of occurrence.

For signalized intersections, the HCM operational analysis is applied using peak hour volumes and the geometric configuration of the intersection. This methodology assumes optimized signal timing/phasing for existing and future signal analysis, unless the given intersection is in a coordinated intersection system, in which case estimated actual cycle length is utilized. The result of the HCM calculations is an estimate of average control delay at the intersection. The HCM calculation methodology and associated LOS performance standards used in this analysis are summarized in Table 1.

The HCM saturation flow rate and clearance interval parameters used in the HCM calculations are consistent with the San Bernardino Congestion Management Program (CMP) procedures and, thereby, with the methodology adopted by many local jurisdictions throughout the County.

As noted in Table 1, City of Montclair performance standard LOS D (average control delay not to exceed 55 seconds) is applied for all City intersections in the study area regardless if it is a CMP intersection since LOS D is more conservative than the CMP criteria.

The San Bernardino County performance standard of LOS D (average control delay not to exceed 55 seconds) is applied for all non CMP intersections outside the City of Montclair.

The San Bernardino County and Los Angeles County CMP performance standard of LOS E is applied for all CMP intersections outside the City of Montclair.

Table 2 describes the driving experience at arterial intersections operating at different levels of service based on material contained in the HCM.

Significant impact for this analysis is defined as an increase of 1.0 second or more in the average delay at an intersection that reaches LOS E or F during the AM and PM peak hour. Significant impacts shall be mitigated by the proposed project.

For LA County CMP intersections, intersections are analyzed using Intersection Capacity Utilization (ICU) method, as described in Table 1. A significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity (V/C ≥ 0.02) causing LOS F (V/C > 1.00); if the facility is already at LOS F, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity (V/C ≥ 0.02).

Table 1 Performance Criteria – Arterial Intersections

SIGNALIZED INTERSECTIONS – HCM METHODOLOGY

Methodology

Level of service based on average control delay as calculated using the Highway Capacity Manual (HCM) signalized intersection methodology with the following assumptions:

Optimized signal timing/phasing for future signal analysis, unless assumed to be in a coordinated system, in which case estimated actual cycle length is used

10 second minimum phase time, including change interval

2 second lost time per phase

Performance Standard

City of Montclair: Level of Service D (average control delay not to exceed 55 seconds) for all intersections in the study area (including CMP intersections since it is more conservative than the CMP criteria)

Other Cities: Level of Service D (average control delay not to exceed 55 seconds) for all other non-CMP intersections outside the City of Montclair

Congestion Management Program (CMP): Level of Service E for San Bernardino County and Los Angeles County CMP intersections outside of City of Montclair.

LEVELS OF SERVICE

Level of service ranges are as follows:

Level of Service (LOS)	Delay (in Seconds)
A	0 – 10.0
B	10.1 – 20.0
C	20.1 – 35.0
D	35.1 – 55.0
E	55.1 – 80.0
F	80.1 and up

Sources: 1. San Bernardino County CMP, 2005 Update- Appendix C
2. HCM 2010

V/C Calculation Methodology

The CMP for Los Angeles County requires use of the Intersection Capacity Utilization (ICU)method to calculate volume-to-capacity (V/C) ratios and levels of service with the following assumptions:

Capacity : 1,600 vehicles/lane for all through and turn lanes
2,880 total for dual turn lanes

Clearance: 0.1

Performance Standard

The level of service (LOS) standard in Los Angeles County is LOS E, except where base year LOS is worse than E. In such cases, base year LOS is the standard.

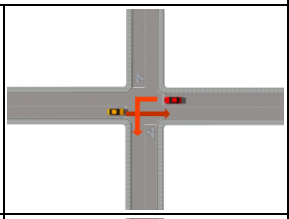
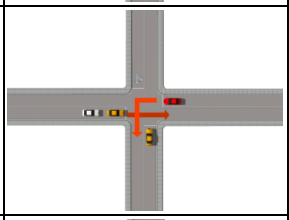
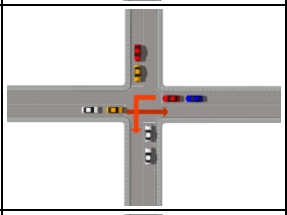
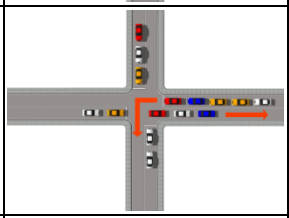
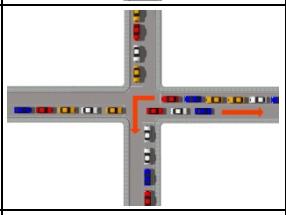
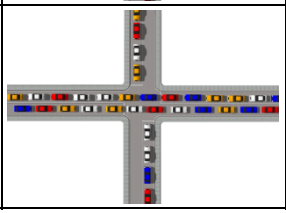
LEVELS OF SERVICE

Level of service based on V/C ratios are as follows:

V/C Ratio	LOS
0.00 – 0.60	A
> 0.60 – 0.70	B
> 0.70 – 0.80	C
> 0.80 – 0.90	D
> 0.90 – 1.00	E
> 1.00	F

Sources: 1. 2010 Congestion Management Program for LA County - Appendix A

Table 2 Level of Service Descriptions - Intersections

Level of Service (LOS)		Delay Description	Delay (seconds) Signalized
A		Minimal or no vehicle delay	≤ 10
B		Slight delay to vehicles	10.1 – 20.0
C		Moderate vehicle delays, traffic flow remains stable	20.1 – 35.0
D		More extensive delays at intersections	35.1 – 55.0
E		Long queues create lengthy delays	55.1 – 80.0
F		Severe delays and congestion	> 80.0

Source: Highway Capacity Manual 2010, Transportation Research Board, National Research Council.

3.0 TRANSPORTATION SETTING

This section describes the existing circulation system and traffic conditions for the traffic analysis study area. Recent traffic volume counts are summarized together with the existing operating conditions. Future roadway improvement assumptions for the study area are also described.

3.1 EXISTING TRANSPORTATION SYSTEM

Figure 2 illustrates the 18 study intersection locations being analyzed. Regional access for the City is provided via two interchanges with the Interstate 10 (I-10) freeway, located at Monte Vista Avenue and at Central Avenue. I-10 is the principal east-west freeway in the vicinity of the project.

Foothill Transit provides local transit service and regional transit connections between Montclair and other cities in the San Gabriel Valley. These services include express routes, local routes, and school supplementary routes. Service is also provided by Omnitrans, which provides public transit to the west valley of San Bernardino County from the City of Montclair east to the City of Yucaipa. Its services include demand response for those with disabilities. Riverside Transit Agency also provides a direct connection between Montclair and Riverside. Figure 3 shows the Transit Routes Map.

The San Bernardino Extension of Metrolink provides commuter rail service between Montclair, Los Angeles and San Bernardino. Other regional transportation options that operate throughout the County include bicycle routes and park-and-ride facilities. The Pacific Electric Bike Trail is located in the northern section of Montclair. Montclair, San Bernardino County, and neighboring cities continue to develop new alternatives to improve regional mobility.

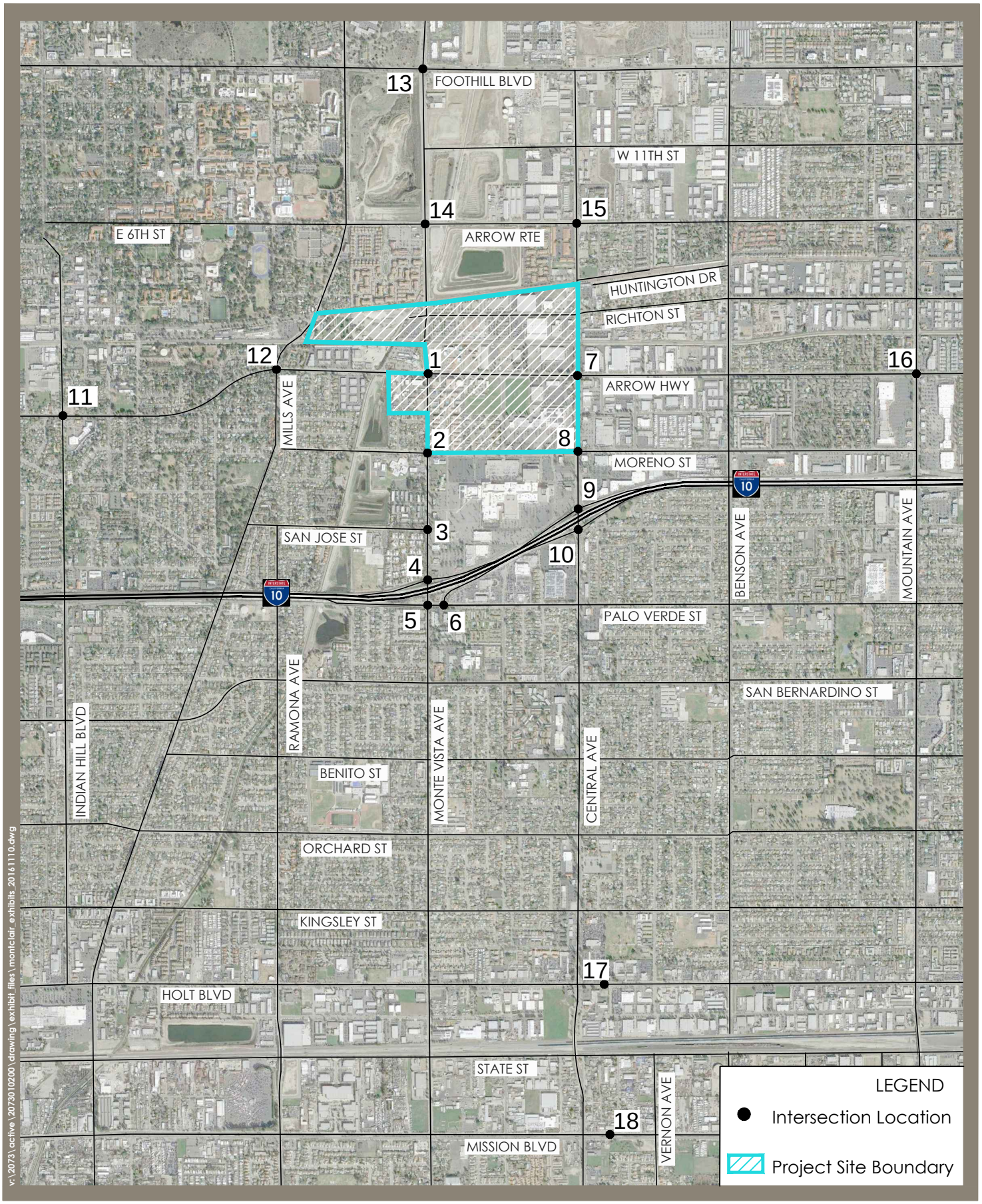
3.1.1 San Bernardino and Los Angeles County Congestion Management Program (CMP)

San Bernardino County adopted the Congestion Management Program (CMP) with passage of the Proposition 111 gas tax increase in June 1990. Los Angeles County first adopted the CMP in 1992 and it was most recently updated in 2010. These CMP programs allow for the coordination of local land use planning and regional transportation improvement decisions. The San Bernardino County CMP falls under the jurisdiction of the San Bernardino County Transportation Authority (SBCTA), previously known as San Bernardino Associated Governments (SANBAG). The Los Angeles County CMP falls under the jurisdiction of the Los Angeles County Metropolitan Transportation Authority.

As noted above, the performance standard for CMP intersections (under both the County of San Bernardino and Los Angeles) is LOS E, and the following CMP intersections are located within the study area:

CMP Intersections	Jurisdiction
Monte Vista Ave & Arrow Hwy	Montclair
Monte Vista Ave & I-10 WB Ramps	Montclair
Monte Vista Ave & I-10 EB Off Ramp/Palo Verde St	Montclair
Central Ave & Arrow Hwy	Montclair
Central Ave & Moreno St	Montclair
Central Ave & I-10 WB Ramps	Montclair
Central Ave & I-10 EB Ramps	Montclair
Central Ave & Holt Blvd	Montclair
Central Ave & Mission Blvd	Montclair
Indian Hill Blvd & Arrow Hwy	Claremont (County of Los Angeles)
Monte Vista Ave & Foothill Blvd	Upland
Mountain Ave & 8th Street	Upland
Note: Intersections are in the County of San Bernardino unless noted otherwise.	

However, it should be noted that even though the performance standard for CMP intersections is LOS E, the City of Montclair's LOS D performance criteria is utilized for intersections in Montclair since it is a more conservative criteria.



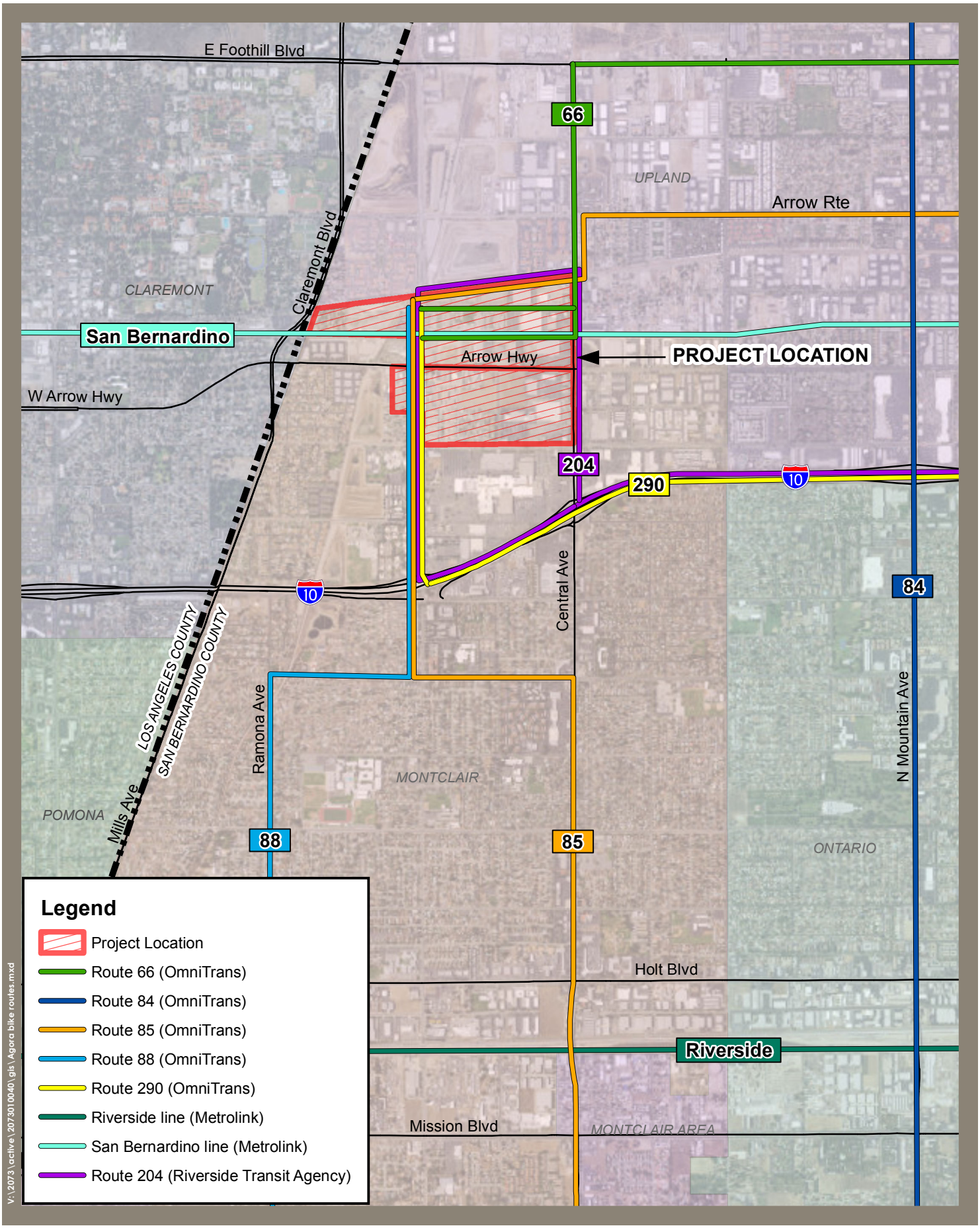
Stantec

N

Figure 2

Intersection Location Map

3.3



Stantec

N

Figure 3

Transit Routes Map

3.4

3.2 EXISTING TRAFFIC CONDITIONS

The existing roadway lane geometry of the study area intersections is shown in Figure 4. Existing average daily traffic (ADT) volumes on the arterial highway system in the study area are illustrated in Figure 5. The traffic volumes for the amended NMDSP are from a comprehensive count program performed in Fall 2014 and counts conducted in Summer/Fall 2016.

Peak hour intersection counts were conducted in Fall 2014 and Summer/Fall 2016 for these intersections and that information has been used here to calculate existing intersection levels of service. Illustrations of peak hour intersection turning movement volumes can be found in Figure 6 for the AM peak hour and Figure 7 for the PM peak hour.

Table 3 summarizes the existing peak hour delay and LOS for each intersection. It also summarizes the V/C ratio and LOS for LA county CMP intersections. The HCM LOS worksheets and ICU worksheets for each intersection can be found in Appendix A.

As shown, all intersections maintained by City of Montclair meet the City's (LOS D) performance criteria and operate at an LOS D or better except the following, which doesn't meet the performance criteria during PM peak hour.

- Monte Vista Ave & Arrow Hwy – LOS E (65.7 sec delay approximately)

The study intersections outside the City of Montclair meet or exceed the County's (LOS D) and CMP (LOS E) performance criteria.

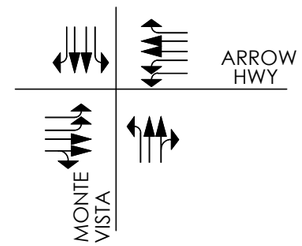
Table 3 Existing Intersection Delay and LOS Summary

Intersection	Jurisdiction	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1. Monte Vista Ave & Arrow Hwy*	Montclair	25.5	C	**65.7**	**E**
2. Monte Vista Ave & Moreno St	Montclair	18.1	B	18.7	B
3. Monte Vista Ave & San Jose St	Montclair	25.4	C	28.0	C
4. Monte Vista Ave & I-10 WB Ramps*	Montclair	16.0	B	32.3	C
5. Monte Vista Ave & I-10 EB off Ramp/Palo Verde St*	Montclair	34.4	C	35.1	D
6. Palo Verde St & I-10 EB On Ramp	Montclair	12.5	B	14.1	B
7. Central Ave & Arrow Hwy*	Montclair	34.2	C	28.3	C
8. Central Ave & Moreno St*	Montclair	40.0	D	30.9	C
9. Central Ave & I-10 WB Ramps*	Montclair	25.0	C	21.9	C
10. Central Ave & I-10 EB Ramps*	Montclair	19.3	B	28.7	C
11. Indian Hill Blvd & Arrow Hwy***	Claremont	44.9	D	46.9	D
12. Claremont Blvd/Mills Ave & Arrow Hwy***	Claremont	28.7	C	38.1	D
13. Monte Vista Ave & Foothill Blvd*	Upland	27.4	C	31.8	C
14. Monte Vista Ave & Arrow Route	Upland	20.0	B	23.1	C
15. Central Ave & Arrow Route	Upland	25.2	C	25.9	C
16. Mountain Ave & 8th Street*	Upland	48.3	D	43.6	D
17. Central Ave & Holt Blvd*	Montclair	27.3	C	31.6	C
18. Central Ave & Mission Blvd*	Montclair	45.7	D	54.1	D

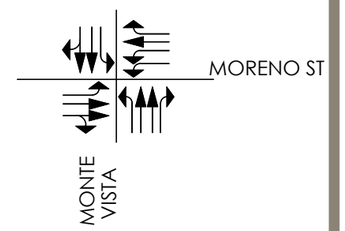
Abbreviations: LOS – level of service
Note: The performance standard used are as follows:
* CMP intersections in Montclair – LOS D
* CMP intersections outside Montclair – LOS E
*** Los Angeles County CMP intersection, ICU calculations included below
Non CMP intersections in Montclair – LOS D
Non CMP intersections outside Montclair – LOS D

Intersection	Jurisdiction	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
11. Indian Hill Bl & Arrow Hwy***	LA County	0.73	C	0.82	D
12. Claremont Blvd/Mills Ave & Arrow Hwy***	LA County	0.55	A	0.64	B

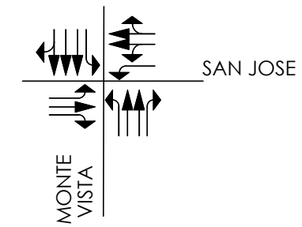
1.Monte Vista Ave & Arrow Hwy



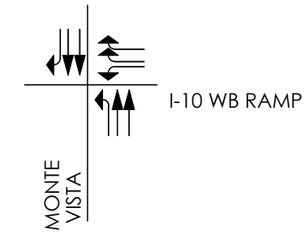
2. Monte Vista Ave & Moreno St



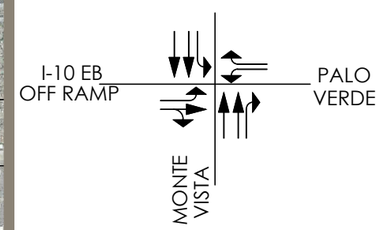
3. Monte Vista Ave & San Jose St



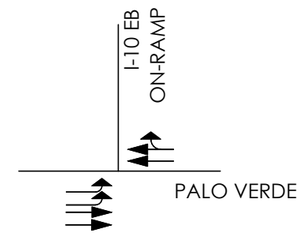
4. Monte Vista Ave & I-10 WB Ramps



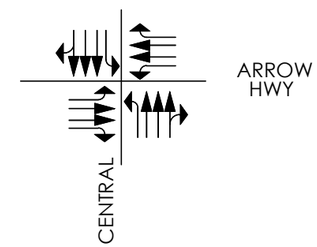
5. Monte Vista Ave & Palo Verde St



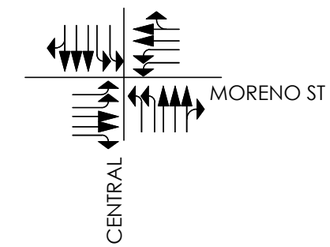
6. Palo Verde St & I-10 EB Ramp



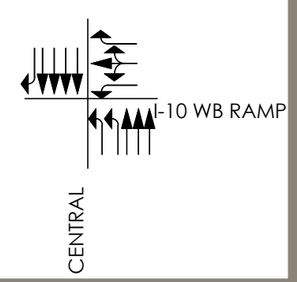
7. Central Ave & Arrow Hwy



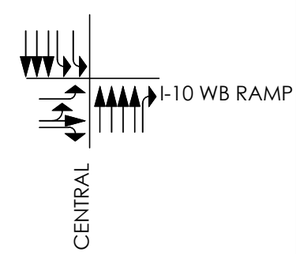
8. Central Ave & Moreno St



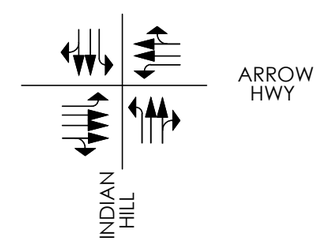
9. Central Avenue & I-10 WB Ramps



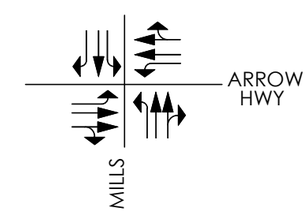
10. Central Avenue & I-10 EB Ramps



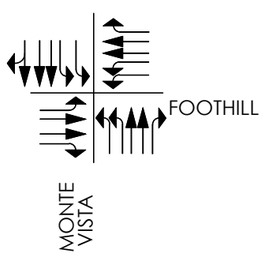
11. Indian Hill Blvd & Arrow Hwy



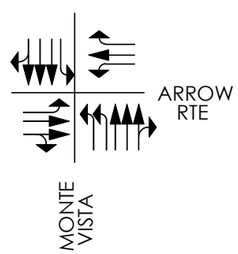
12. Mills Ave & Arrow Hwy



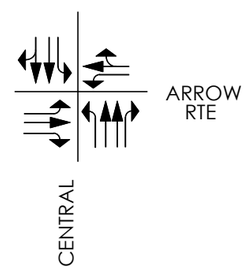
13. Monte Vista Ave & Foothill Blvd



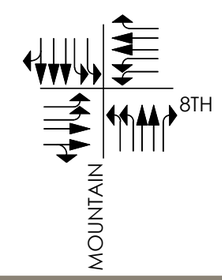
14. Monte Vista Ave & Arrow Rte



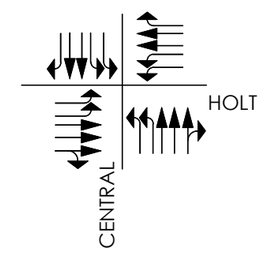
15. Central Ave & Arrow Rte



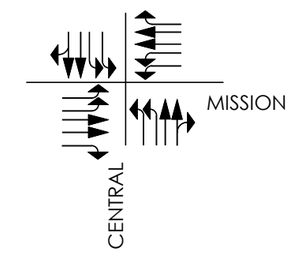
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161110.dwg

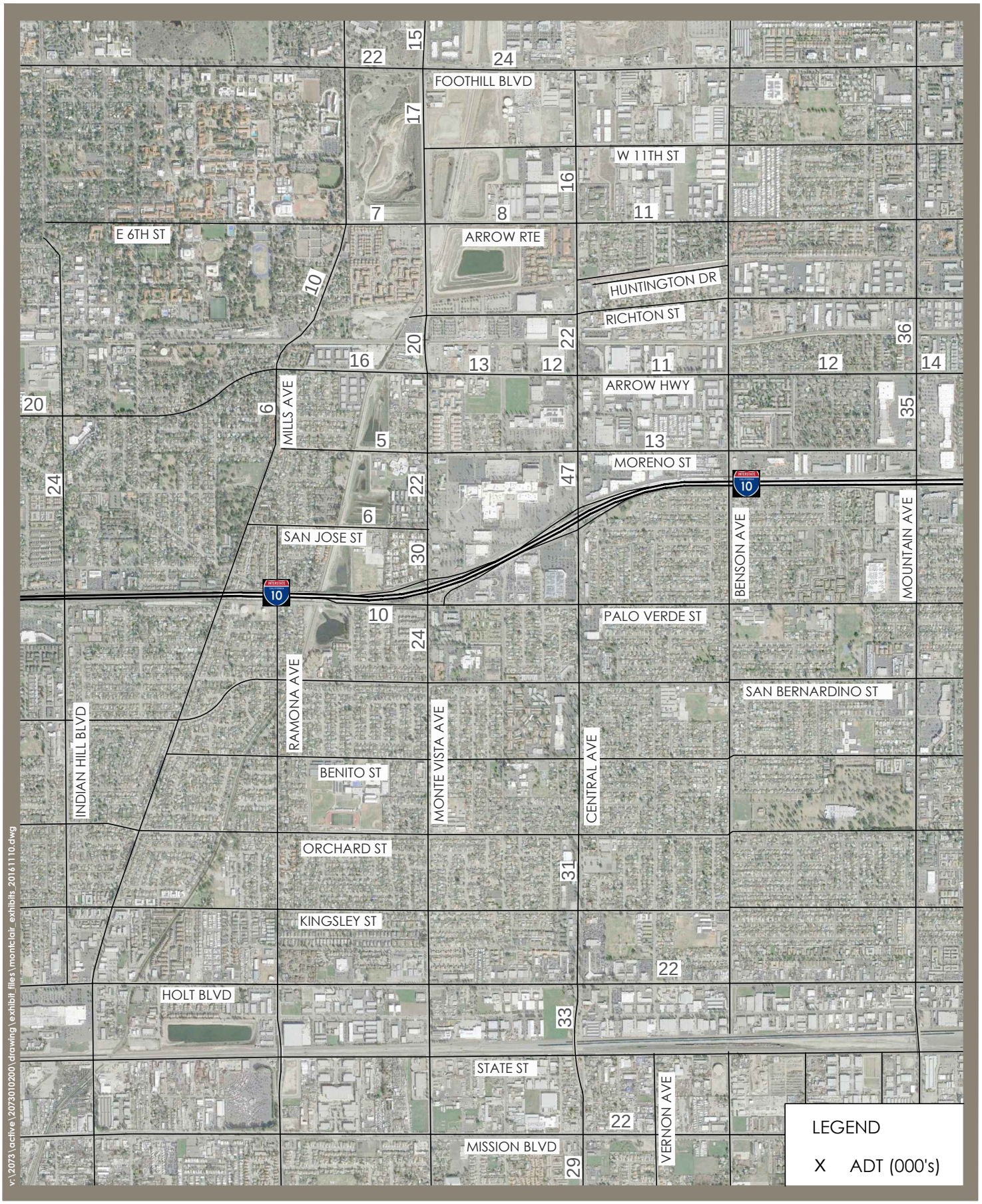
Stantec

N

Figure 4

Existing Lane Geometry

3.7



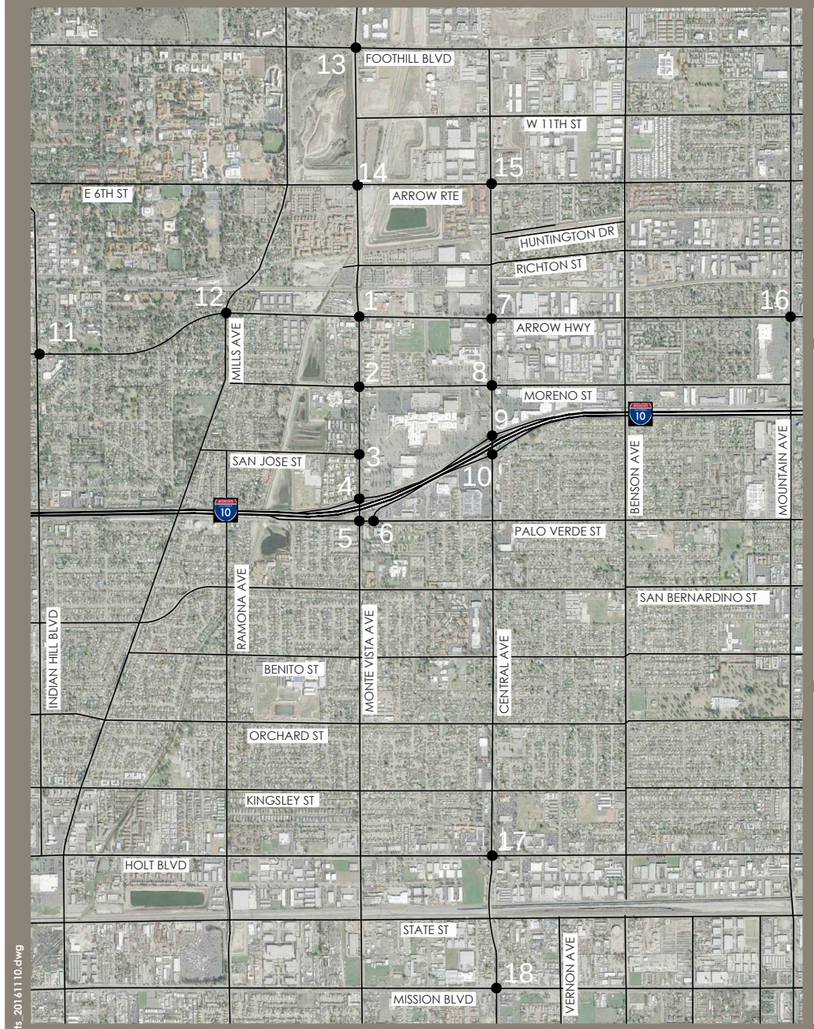
Stantec

N

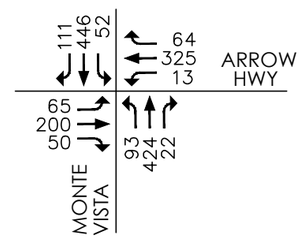
Figure 5

Existing ADT Volumes - 000's

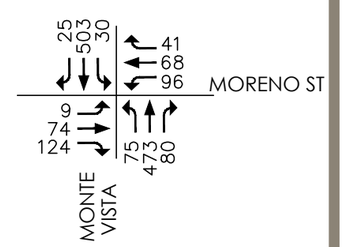
3.8



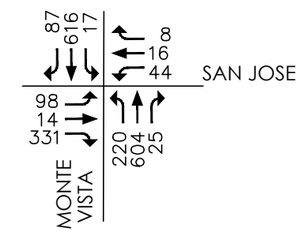
1.Monte Vista Ave & Arrow Hwy



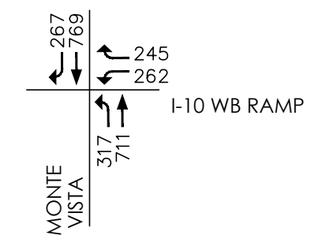
2. Monte Vista Ave & Moreno St



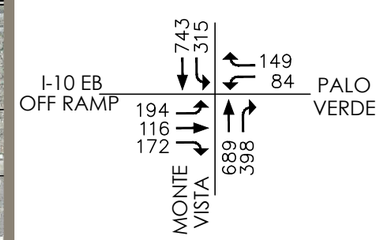
3. Monte Vista Ave & San Jose St



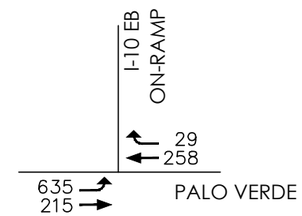
4. Monte Vista Ave & I-10 WB Ramps



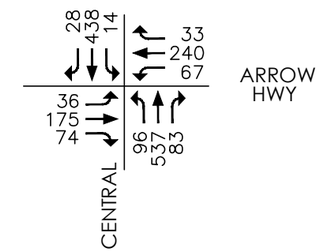
5. Monte Vista Ave & Palo Verde St



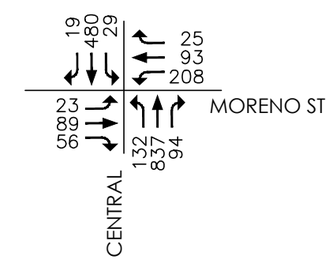
6. Palo Verde St & I-10 EB Ramp



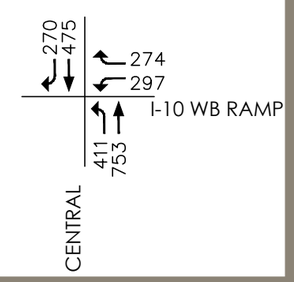
7. Central Ave & Arrow Hwy



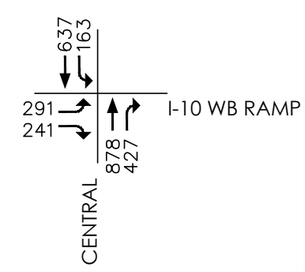
8. Central Ave & Moreno St



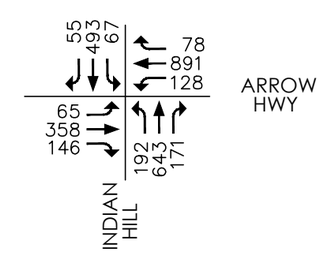
9. Central Avenue & I-10 WB Ramps



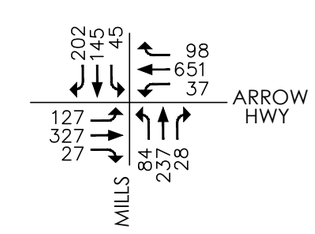
10. Central Avenue & I-10 EB Ramps



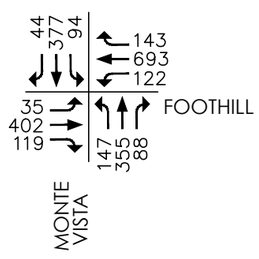
11. Indian Hill Blvd & Arrow Hwy



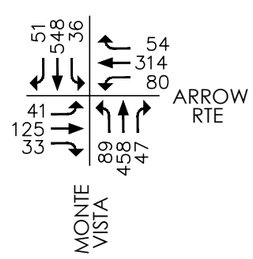
12. Mills Ave & Arrow Hwy



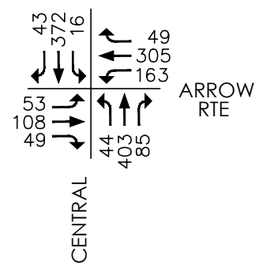
13. Monte Vista Ave & Foothill Blvd



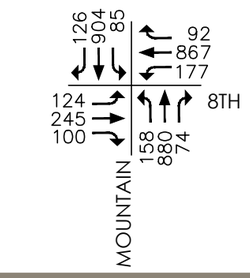
14. Monte Vista Ave & Arrow Rte



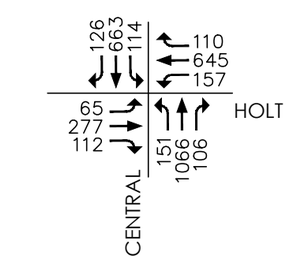
15. Central Ave & Arrow Rte



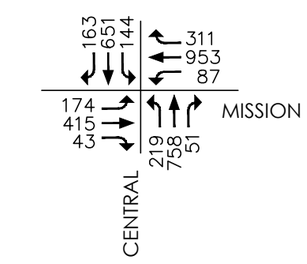
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



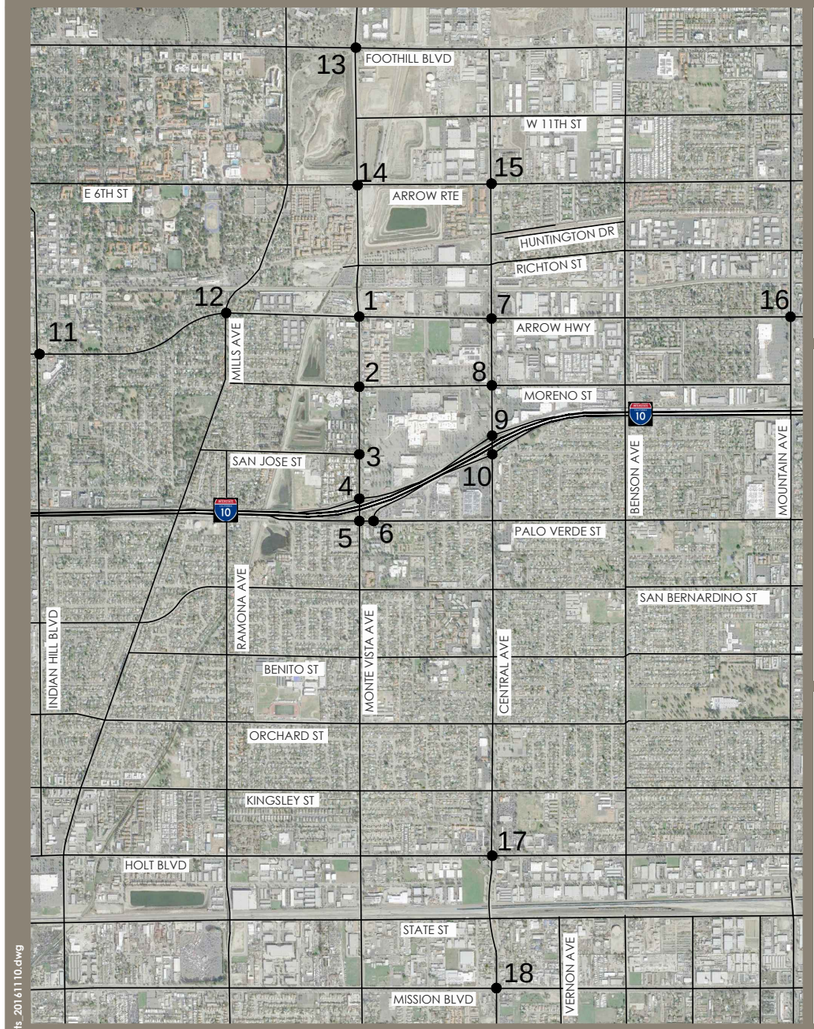
v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161110.dwg

Stantec

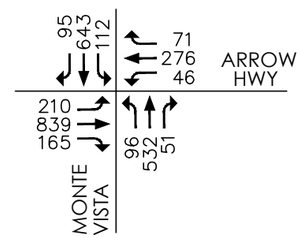
N

Figure 6

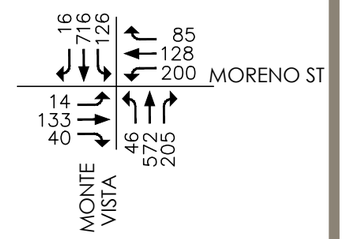
AM Peak Hour Volumes - Existing Conditions



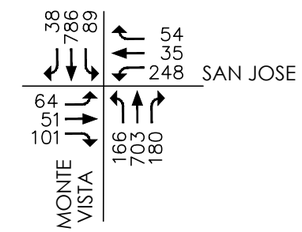
1.Monte Vista Ave & Arrow Hwy



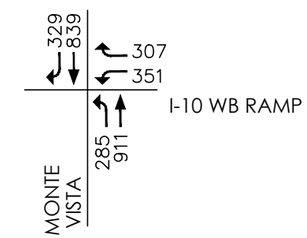
2. Monte Vista Ave & Moreno St



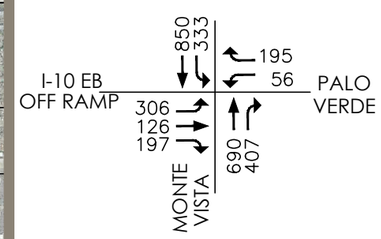
3. Monte Vista Ave & San Jose St



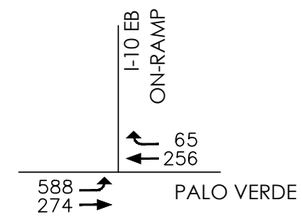
4. Monte Vista Ave & I-10 WB Ramps



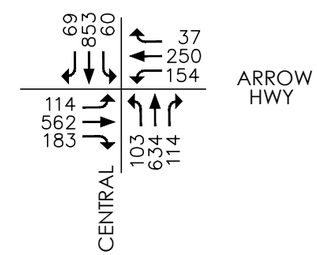
5. Monte Vista Ave & Palo Verde St



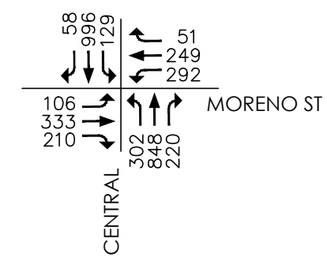
6. Palo Verde St & I-10 EB Ramp



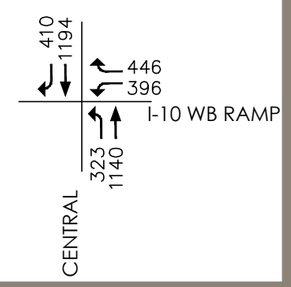
7. Central Ave & Arrow Hwy



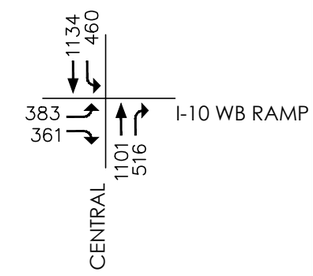
8. Central Ave & Moreno St



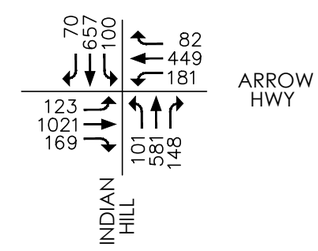
9. Central Avenue & I-10 WB Ramps



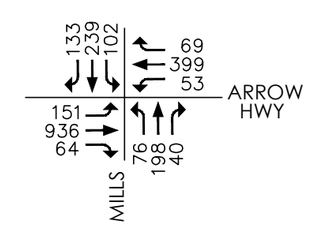
10. Central Avenue & I-10 EB Ramps



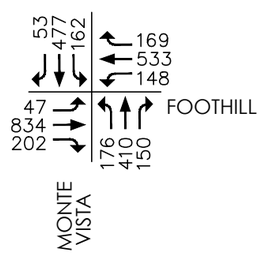
11. Indian Hill Blvd & Arrow Hwy



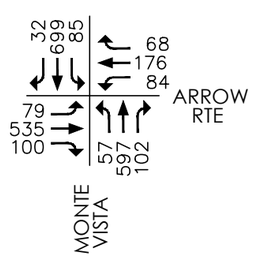
12. Mills Ave & Arrow Hwy



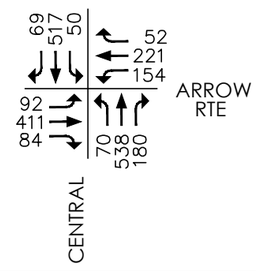
13. Monte Vista Ave & Foothill Blvd



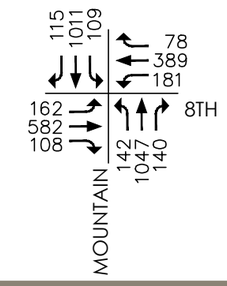
14. Monte Vista Ave & Arrow Rte



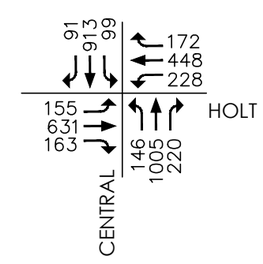
15. Central Ave & Arrow Rte



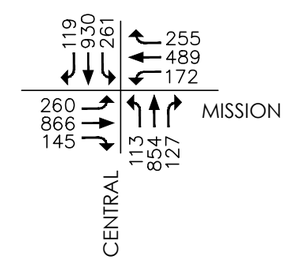
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161110.dwg

Stantec

N

Figure 7

PM Peak Hour Volumes - Existing Conditions

3.10

4.0 PROJECT DESCRIPTION

The proposed project includes the development of the entire NMDSP area which is approximately 150 acres in North Montclair. The plan envisions a walkable, vibrant town center that includes multiple uses and activities that take advantage of the area's major transit amenities. In comparison to the existing NMDSP, buildout of the proposed NMDSP will add up to an additional 2,688 units to allow for a maximum number of 5,888 residential units and an additional 782,285 square feet of non-residential uses to allow for a total of 1,681,285 square feet of non-residential use to the area. Although the exact project size is likely to change over time, this represents the maximum development allowed. Figure 8 illustrates the project site map. The project facilitates transit oriented development within the vicinity of based on the planned future Gold Line station.

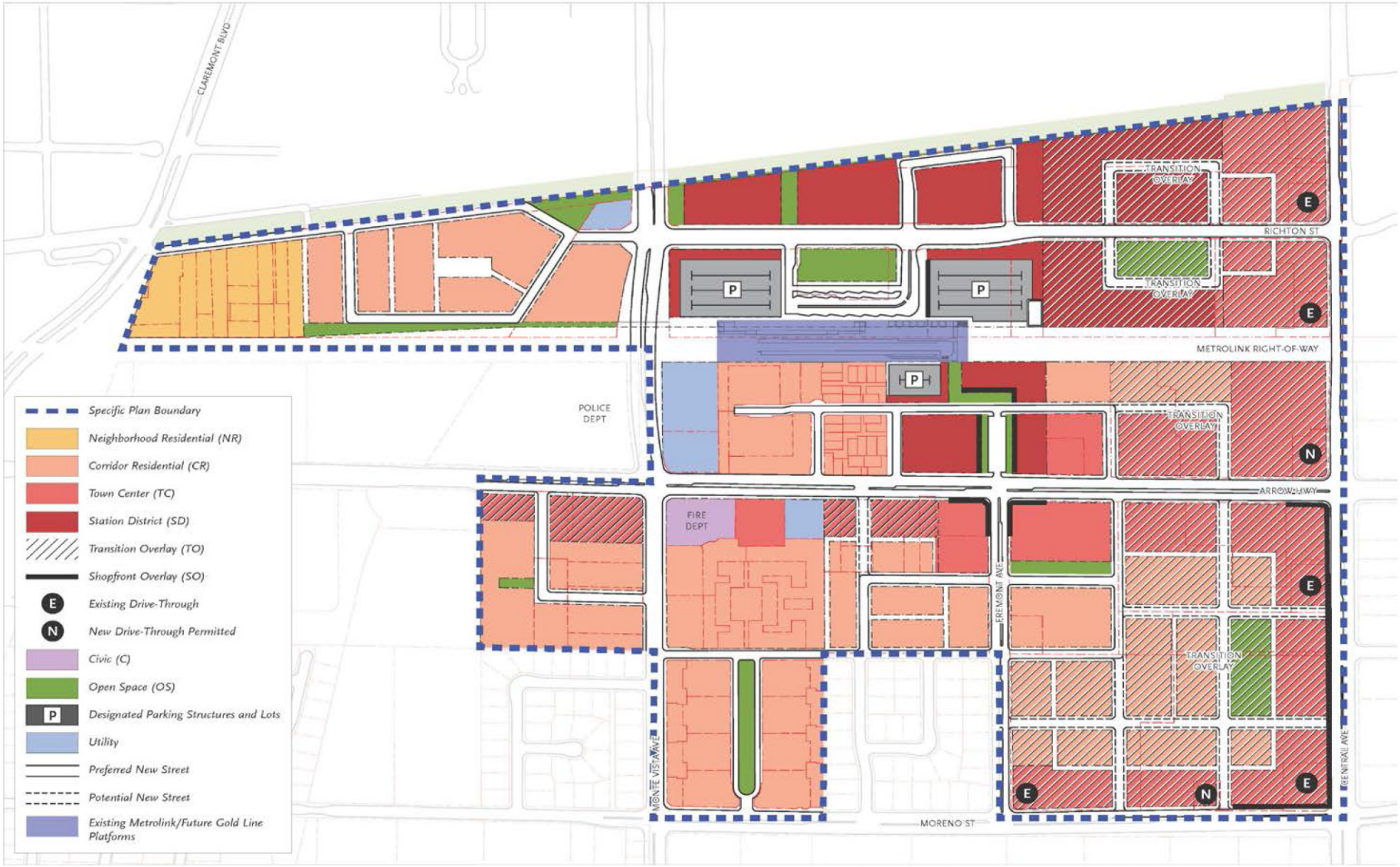
Table 4 summarizes the estimated trip generation for the proposed project using the trip rates from the Institute of Transportation Engineers' (ITE) 9th Edition "Trip Generation" Manual.

As shown, the proposed project would add 52,119 daily trips, with 4,527 trips occurring in the AM peak hour and 5,315 trips occurring in the PM peak hour. Note that certain existing land uses are assumed to be replaced by new development, which is accounted for in the trip generation estimate.

The trip distribution patterns for the proposed project were derived using the SBTAM traffic model and are illustrated in Figure 9. They represent the estimated distribution pattern of daily project generated trips on the study area roadway system. A trip distribution of 10% is assumed for internal trip and Transit oriented development (TOD) reduction. The land uses are converted into socioeconomic data before being input into the most current local model (SBCTA), and trips of different purposes (home-based-work, home-based-other, etc) are then generated from those socioeconomic data. The model determines the attraction zone of each trip production through its trip distribution module, consistent with the base SCAG model. Trips of all the different purposes are combined in the trip assignment stage when they are assigned to the network roadway system where routes may vary due to speed and congestion. Therefore, the model calculates the trip distribution pattern for the entire project.

AM and PM peak hour project only trips are calculated with respect to these daily trip distribution patterns, as are the inbound versus outbound proportion of those peak hour trips, and this is accounted for in the traffic analysis process.

Figure 10 illustrates project only trips during AM peak hour conditions, and Figure 11 shows the PM peak hour project-only tips.



v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161110.dwg

Stantec

N

Figure 8

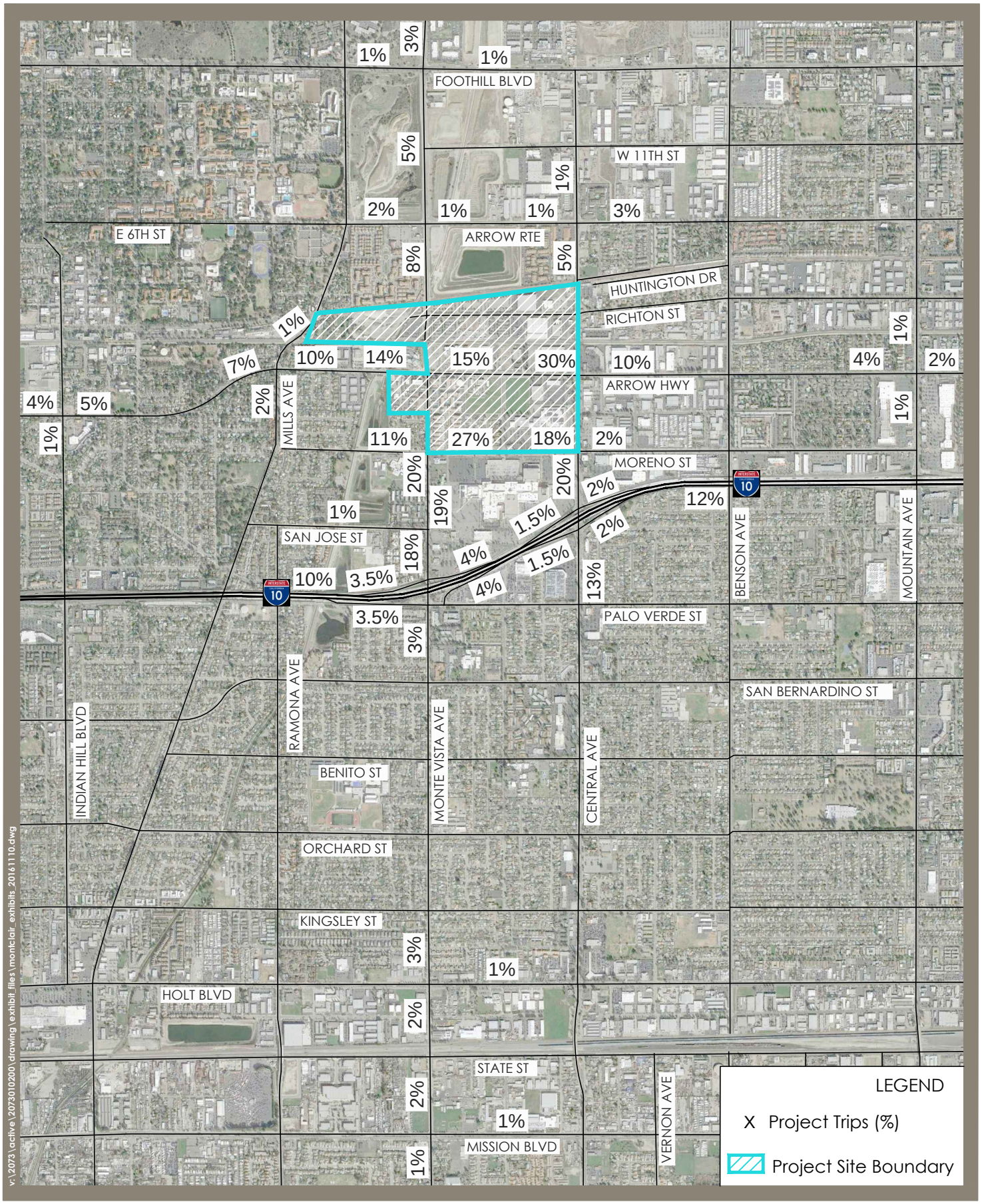
Site Map

4.2

Table 4 Trip Generation Summary

Land Use Type	Amount	Unit	AM Peak Hour			PM Peak Hour			ADT
			In	Out	Total	In	Out	Total	
Trip Rates									
Single-Family Detached Housing (210)		DU	0.19	0.56	0.75	0.63	0.37	1	9.52
Apartment (220)		DU	0.10	0.41	0.51	0.40	0.22	0.62	6.65
Condominium/Townhouse (230)		DU	0.07	0.37	0.44	0.35	0.17	0.52	5.81
General Office Building (710)		TSF	1.37	0.19	1.56	0.25	1.24	1.49	11.03
Shopping Center (820)		TSF	0.60	0.36	0.96	1.78	1.93	3.71	42.7
Services[1] (820)		TSF	0.60	0.36	0.96	1.78	1.93	3.71	42.7
Industrial Park (130)		TSF	0.67	0.15	0.82	0.18	0.67	0.85	6.83
Existing Conditions									
Single-Family Detached Housing (210)	18	DU	3	10	14	11	7	18	171
Apartment (220)	385	DU	39	157	196	155	84	239	2,560
Condominium/Townhouse (230)	25	DU	2	9	11	9	4	13	145
Total Residential	*428*	*DU*	*45*	*176*	*221*	*175*	*94*	*270*	*2,877*
Shopping Center (820)	266.001	TSF	158	97	255	474	513	987	11,358
Services[1] (820)	177.158	TSF	105	65	170	315	342	657	7,565
Industrial Park (130)	207.356	TSF	139	31	170	37	139	176	1,416
Total Non-Residential	*650.515*	*TSF*	*403*	*192*	*595*	*826*	*994*	*1,820*	*20,339*
Total (Residential & Non-Residential)			**448**	**369**	**816**	**1,001**	**1,089**	**2,090**	**23,216**
Project Buildout									
Single-Family Detached Housing (210)[2]	-38	DU	-7	-21	-29	-24	-14	-38	-362
Apartment (220)	4,676	DU	477	1,908	2,385	1,884	1,015	2,899	31,095
Condominium/Townhouse (230)	1,250	DU	94	457	550	436	215	650	7,263
Total Residential	*5,888*	*DU*	*563*	*2,343*	*2,906*	*2,296*	*1,215*	*3,511*	*37,996*
General Office Building (710)	1,322.695	TSF	1,816	248	2,063	335	1,636	1,971	14,589
Shopping Center (820)	306.682	TSF	183	112	294	546	592	1,138	13,095
Services[1] (820)	259.264	TSF	154	95	249	462	500	962	11,071
Industrial Park (130)[3]	-207.356	TSF	-139	-31	-170	-37	-139	-176	-1416
Total Non-Residential	*1,681.285*	*TSF*	*2,013*	*423*	*2,437*	*1,306*	*2,588*	*3,894*	*37,339*
Total (Residential & Non-Residential)			**2,577**	**2,766**	**5,343**	**3,602**	**3,803**	**7,405**	**75,335**
Difference (between Existing & Proposed)			**2,129**	**2,398**	**4,527**	**2,600**	**2,715**	**5,315**	**52,119**

Note:
[1] used same rates as Shopping Center
[2] The proposed NMDSP reduces the number of allowable single family units by 38 DU
[3] The proposed NMDSP reduces the amount of allowable industrial park uses by 207,356 TSF.



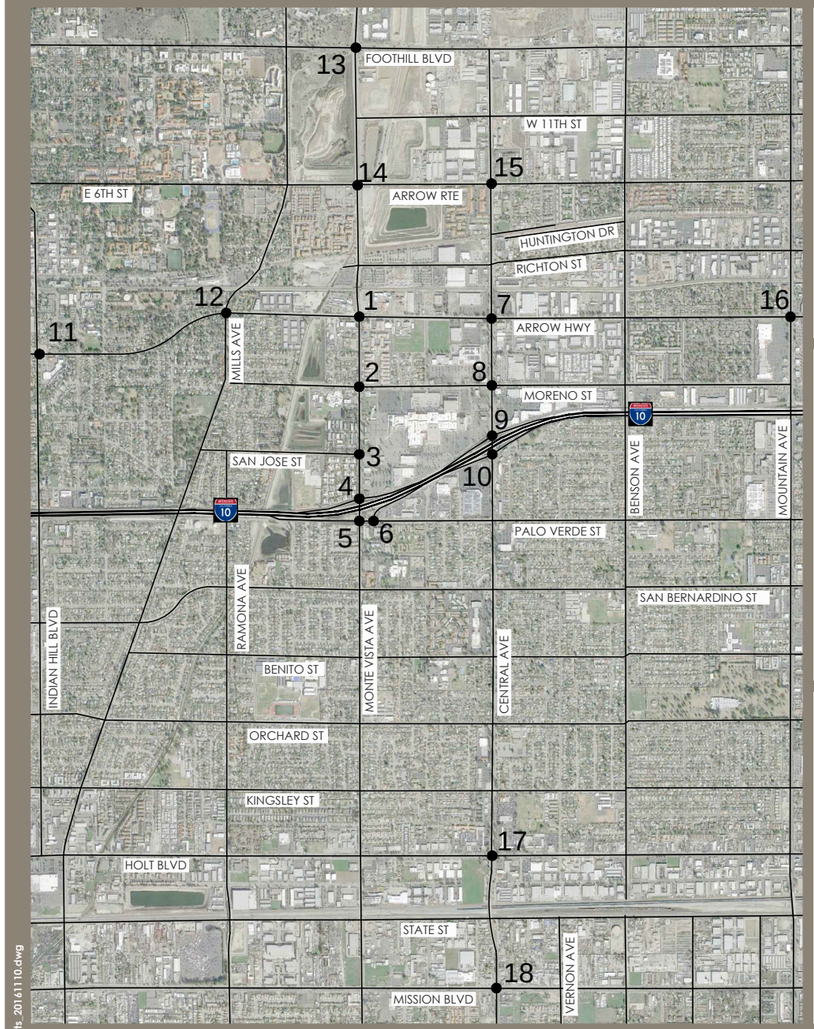
Stantec

N

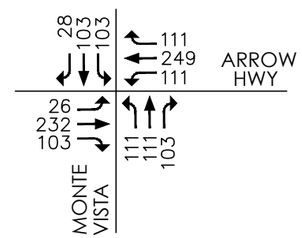
Figure 9

Project Trip Distribution

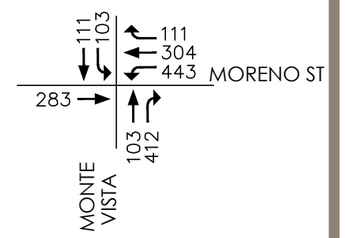
4.4



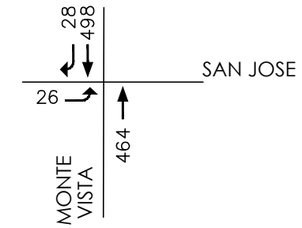
1.Monte Vista Ave & Arrow Hwy



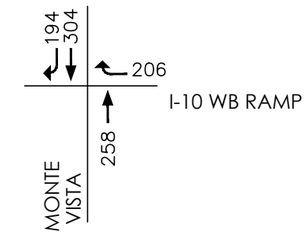
2. Monte Vista Ave & Moreno St



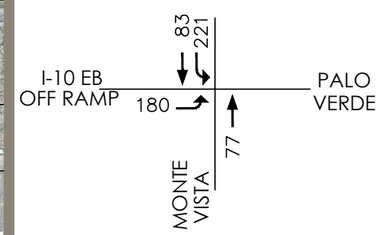
3. Monte Vista Ave & San Jose St



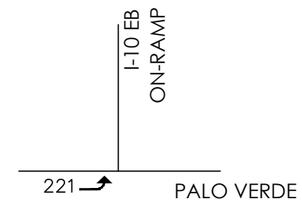
4. Monte Vista Ave & I-10 WB Ramps



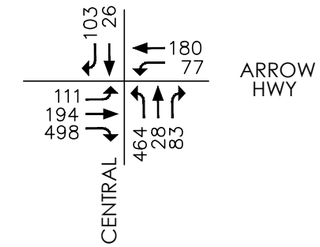
5. Monte Vista Ave & Palo Verde St



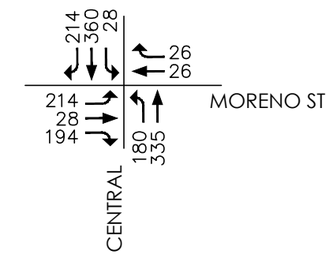
6. Palo Verde St & I-10 EB Ramp



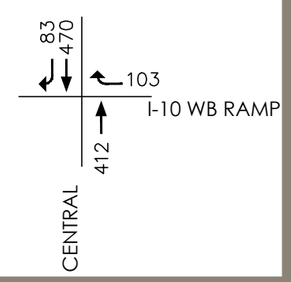
7. Central Ave & Arrow Hwy



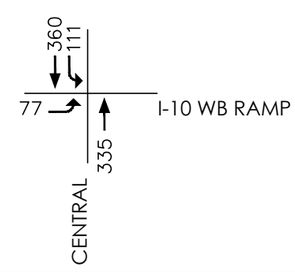
8. Central Ave & Moreno St



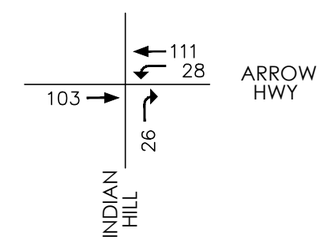
9. Central Avenue & I-10 WB Ramps



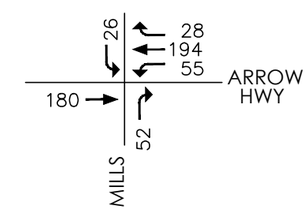
10. Central Avenue & I-10 EB Ramps



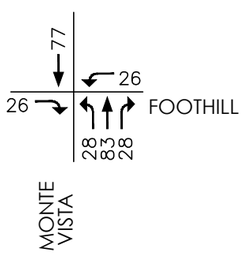
11. Indian Hill Blvd & Arrow Hwy



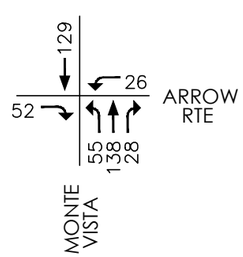
12. Mills Ave & Arrow Hwy



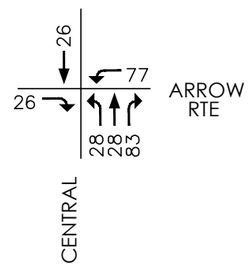
13. Monte Vista Ave & Foothill Blvd



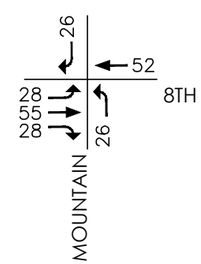
14. Monte Vista Ave & Arrow Rte



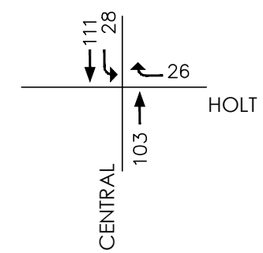
15. Central Ave & Arrow Rte



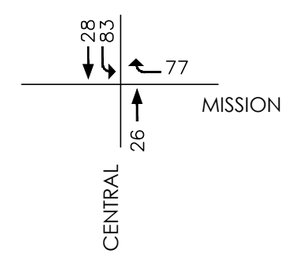
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161110.dwg

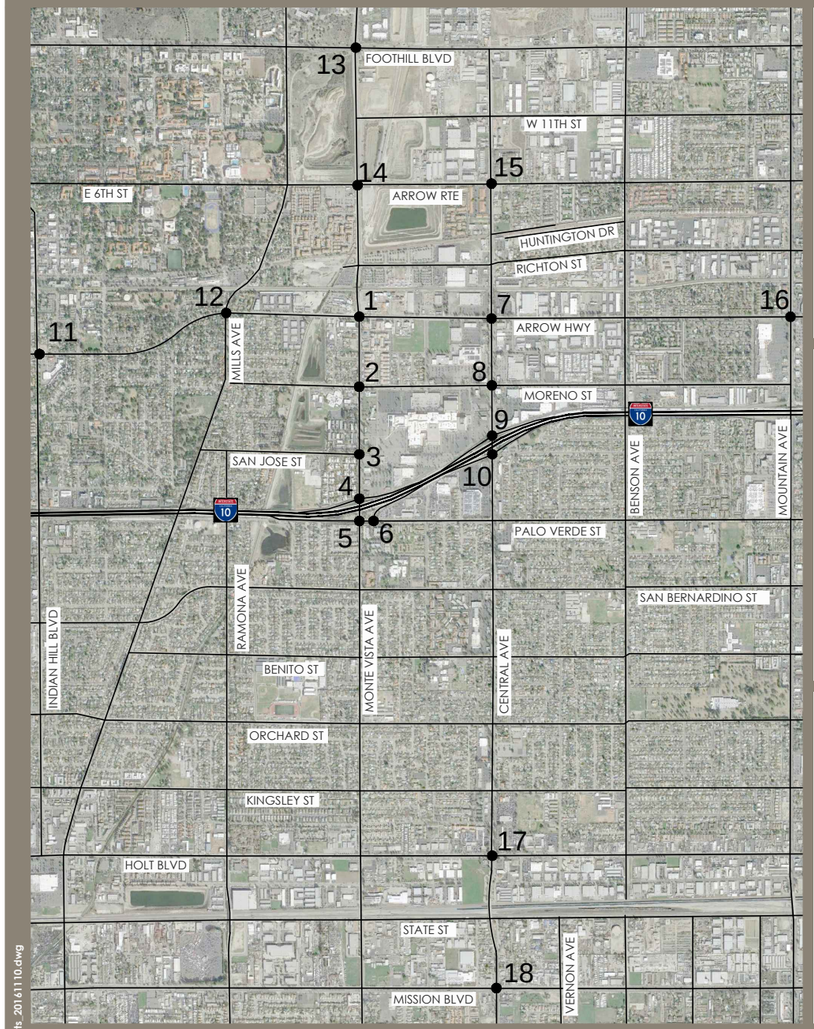
Stantec

N

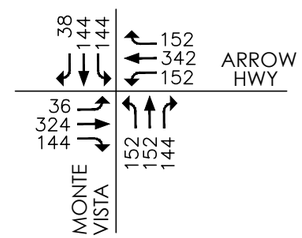
Figure 10

AM Peak Hour Volumes - Project Only Trips

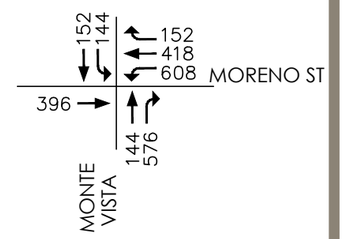
4.5



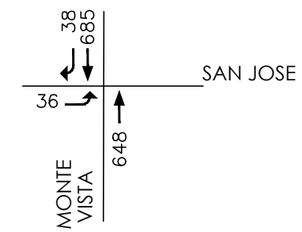
1.Monte Vista Ave & Arrow Hwy



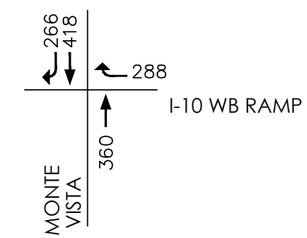
2. Monte Vista Ave & Moreno St



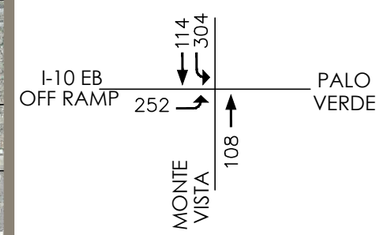
3. Monte Vista Ave & San Jose St



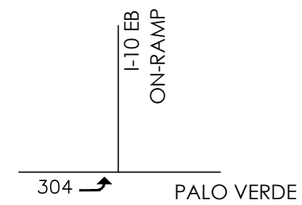
4. Monte Vista Ave & I-10 WB Ramps



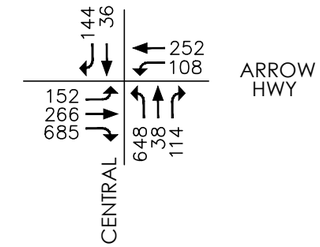
5. Monte Vista Ave & Palo Verde St



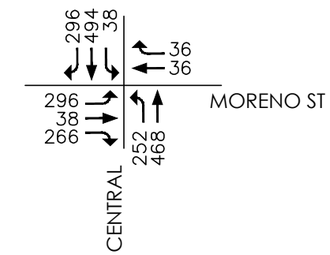
6. Palo Verde St & I-10 EB Ramp



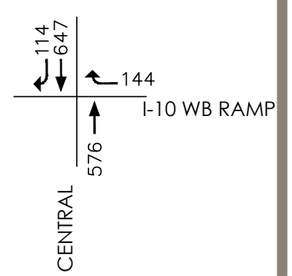
7. Central Ave & Arrow Hwy



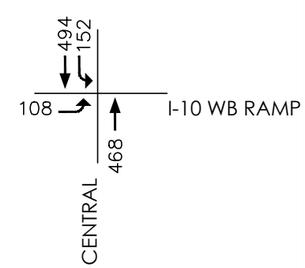
8. Central Ave & Moreno St



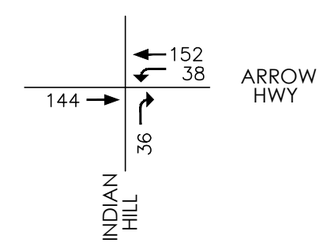
9. Central Avenue & I-10 WB Ramps



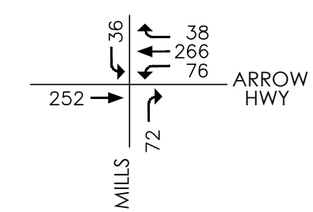
10. Central Avenue & I-10 EB Ramps



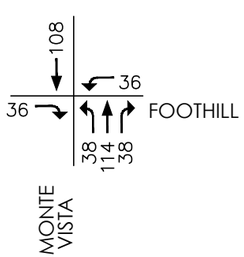
11. Indian Hill Blvd & Arrow Hwy



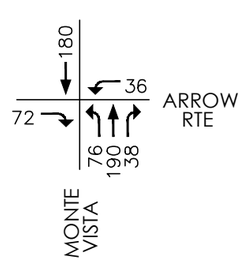
12. Mills Ave & Arrow Hwy



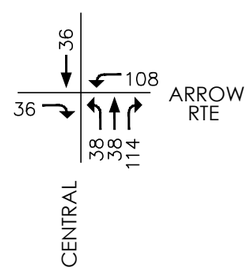
13. Monte Vista Ave & Foothill Blvd



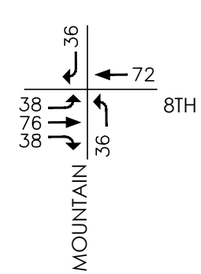
14. Monte Vista Ave & Arrow Rte



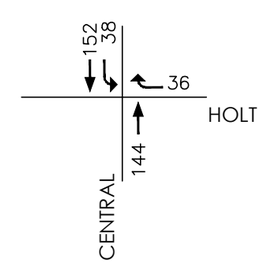
15. Central Ave & Arrow Rte



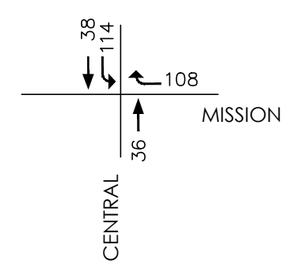
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161110.dwg

Stantec

N

Figure 11

PM Peak Hour Volumes - Project Only Trips

4.6

5.0 IMPACT ANALYSIS

This section discusses impacts on the study intersections. This includes the with-project intersection volumes under existing and long range build-out conditions. The results are presented using the methodologies and performance criteria described in Section 2.0. Project increases resulting in significant impacts, if any, are discussed and mitigation measures are identified if necessary.

5.1 EXISTING PLUS PROJECT ANALYSIS

The purpose of the existing plus project analysis is to comply with the California Environmental Quality Act (CEQA), which requires that the baseline for assessing environmental impacts is the existing condition. For the purpose of this traffic study, the existing-plus-project is a hypothetical situation as the methodology is based on the premise that the project is fully built and occupied within the same year the traffic counts were performed.

Existing plus project ADT volumes were prepared by adding traffic generated by the proposed project to existing ADT volumes based on the project trip distribution patterns presented earlier in this report. Figure 12 illustrates the ADT for existing plus project conditions.

Existing plus project peak hour intersection volumes were similarly prepared by adding the project-generated peak hour trips to the existing peak hour intersection volumes at the study intersections. Illustrations of existing plus project turning movement volumes can be found in Figure 13 for the AM peak hour and Figure 14 for the PM peak hour. The existing and existing plus project delay and level of service (LOS) results; the V/C and LOS for the LA county CMP intersections are summarized in Table 5 (HCM LOS and ICU worksheets can be found in Appendix A).

As shown, all intersections maintained by City of Montclair meet the City's (LOS D) performance criteria and operate at an LOS D or better except the following:

- Monte Vista Ave & Arrow Hwy – LOS E (PM peak with and without project)
- Monte Vista Ave & I-10 EB off-ramp/Palo Verde St – LOS E (PM peak with project)
- Central Ave & Arrow Hwy - LOS F (PM peak with project)
- Central Ave & Mission Blvd – LOS E (PM peak with project)

The non-CMP study intersections outside the City of Montclair meet the County's (LOS D) performance criteria and operate at LOS D or better except the following:

- Claremont Blvd/Mills Ave & Arrow Hwy – LOS E (PM peak hour with project)

The CMP intersections in the study area and outside the City of Montclair meet or exceed the CMP (LOS E) performance criteria.

As stated previously in Section 2.0, a significant impact is defined as an increase of 1.0 second or more in the average control delay at an intersection that reaches LOS D, E or F during the AM and PM peak hour. Based on this threshold, the proposed project results in a significant impact during the PM peak hour for the above mentioned 4 intersections as noted in Table 5. Mitigation measures, where feasible are identified in Section 6.0.

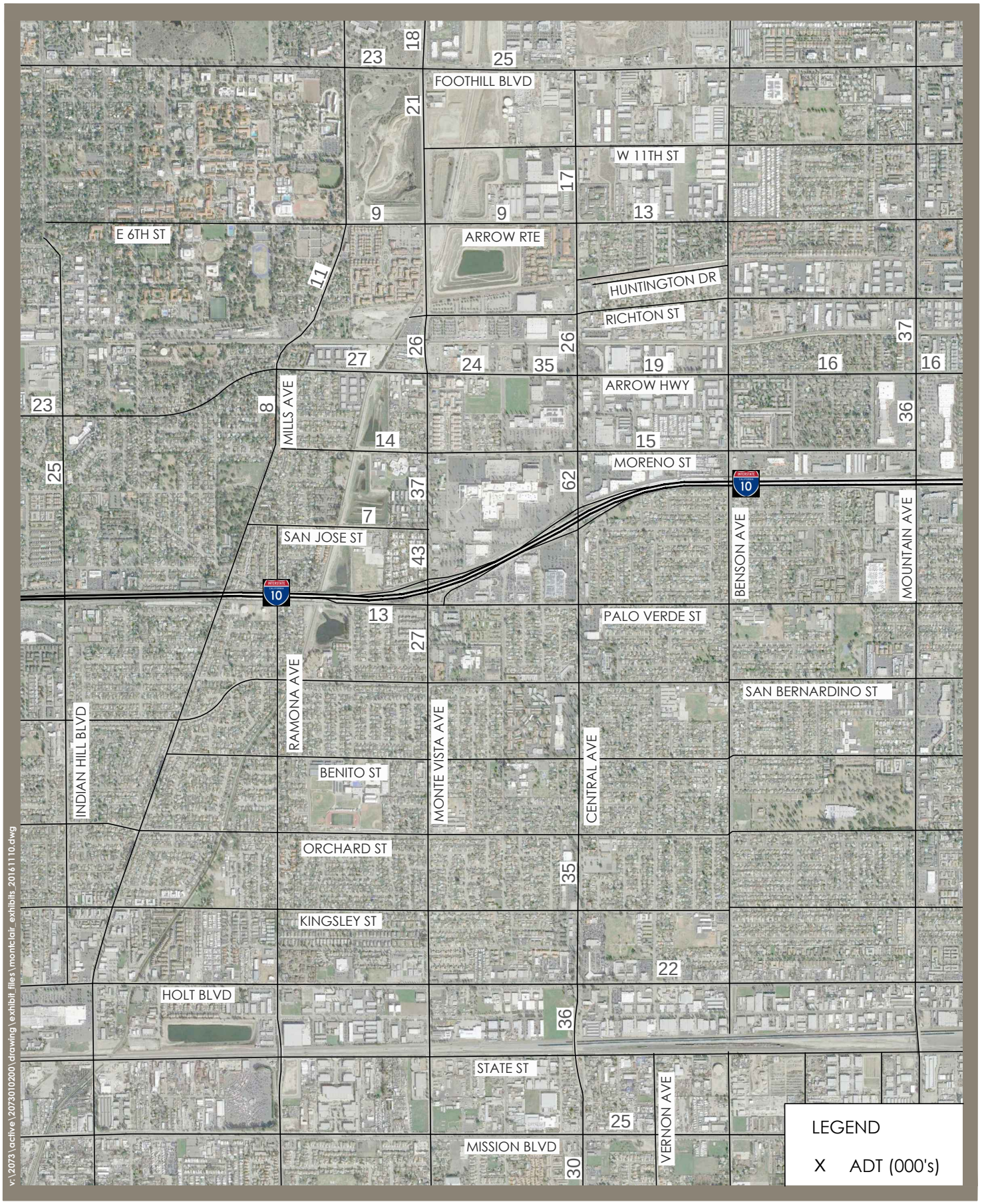
Table 5 Existing with and without Project - Intersection Delay and LOS Summary

Intersection	Jurisdiction	Existing No Project				Existing with Project				Increase	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
1. Monte Vista Ave & Arrow Hwy*	Montclair	25.5	C	**65.7**	**E**	34.0	C	**67.2**	**E**	8.5	**1.5**
2. Monte Vista Ave & Moreno St	Montclair	18.1	B	18.7	B	28.1	C	45.4	D	10.0	26.7
3. Monte Vista Ave & San Jose St	Montclair	25.4	C	28.0	C	22.2	C	29.6	C	-3.2	1.6
4. Monte Vista Ave & I-10 WB Ramps*	Montclair	16.0	B	32.3	C	18.4	B	35.5	D	2.4	3.2
5. Monte Vista Ave & I-10 EB off Ramp/Palo Verde St*	Montclair	34.4	C	35.1	D	42.3	D	**68.9**	**E**	7.9	**33.8**
6. Palo Verde St & I-10 EB On Ramp	Montclair	12.5	B	14.1	B	11.9	B	11.2	B	-0.6	-2.9
7. Central Ave & Arrow Hwy*	Montclair	34.2	C	28.3	C	53.0	D	**110.9**	**F**	18.8	**82.6**
8. Central Ave & Moreno St*	Montclair	22.5	C	30.9	C	25.4	C	51.2	D	2.9	20.3
9. Central Ave & I-10 WB Ramps*	Montclair	25.0	C	21.9	C	20.5	C	21.2	C	-4.5	-0.7
10. Central Ave & I-10 EB Ramps*	Montclair	19.3	B	28.7	C	20.8	C	28.8	C	1.5	0.1
11. Indian Hill Blvd & Arrow Hwy***	Claremont	44.9	D	46.9	D	55.5	E	59.2	E	10.6	12.3
12. Claremont Blvd/Mills Ave & Arrow Hwy***	Claremont	28.7	C	38.1	D	35.7	D	**66.6**	**E**	7.0	**28.5**
13. Monte Vista Ave & Foothill Blvd**	Upland	27.4	C	31.8	C	28.1	C	33.6	C	0.7	1.8
14. Monte Vista Ave & Arrow Route	Upland	20.0	B	23.1	C	21.5	C	28.3	C	1.5	5.2
15. Central Ave & Arrow Route	Upland	25.2	C	25.9	C	46.7	D	52.6	D	21.5	26.7
16. Mountain Ave & 8th Street**	Upland	48.3	D	43.6	D	56.7	E	57.7	E	8.4	14.1
17. Central Ave & Holt Blvd*	Montclair	27.3	C	31.6	C	28.5	C	35.4	D	1.2	3.8

18. Central Ave & Mission Blvd*	Montclair	45.7	D	54.1	D	49.4	D	**56.2**	**E**	3.7	**2.1**

Abbreviations: LOS – level of service
Note: The performance standard used are as follows:
* CMP intersections in Montclair – LOS D
** CMP intersections outside Montclair – LOS E
*** Los Angeles County CMP intersection, ICU calculations included below
Non CMP intersections in Montclair – LOS D
Non CMP intersections outside Montclair – LOS D

Intersection	Jurisdiction	Existing No Project				Existing + Project				Increase	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	AM	PM
11. Indian Hill Bl & Arrow Hwy***	LA County	0.73	C	0.82	D	0.78	C	0.90	D	0.05	0.08
12. Mills Ave & Arrow Hwy***	LA County	0.55	A	0.64	B	0.62	B	0.77	C	0.07	0.13



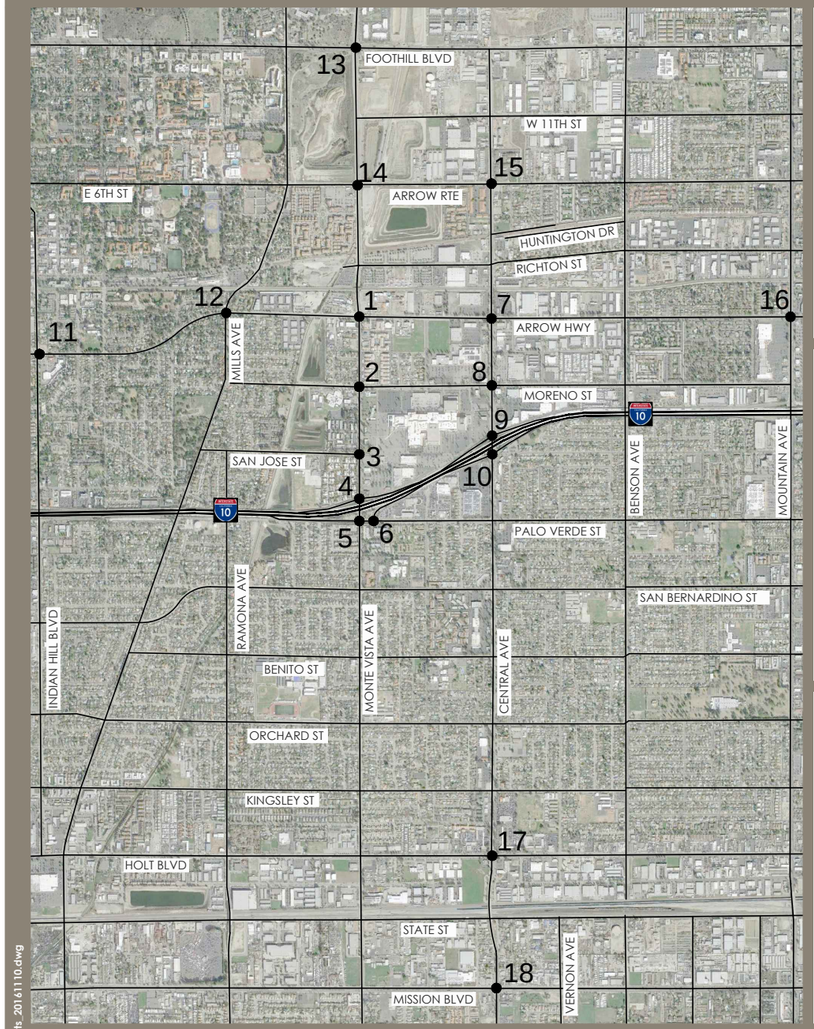
Stantec

N

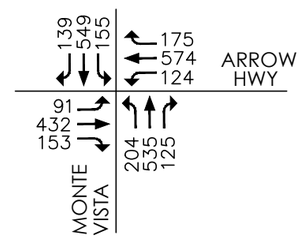
Figure 12

Existing Plus Project ADT Volumes - 000's

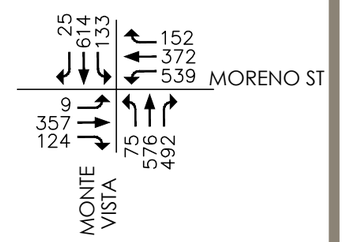
5.4



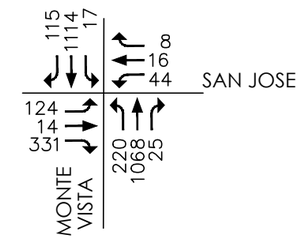
1.Monte Vista Ave & Arrow Hwy



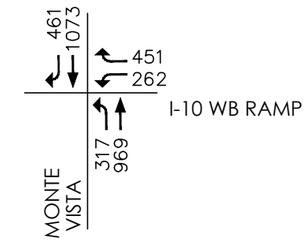
2. Monte Vista Ave & Moreno St



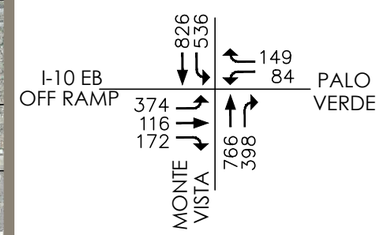
3. Monte Vista Ave & San Jose St



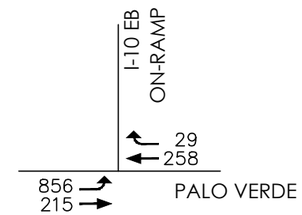
4. Monte Vista Ave & I-10 WB Ramps



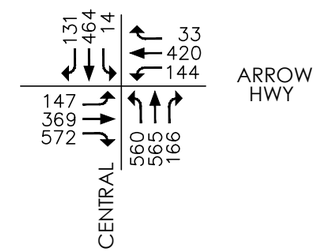
5. Monte Vista Ave & Palo Verde St



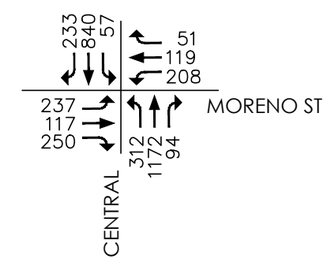
6. Palo Verde St & I-10 EB Ramp



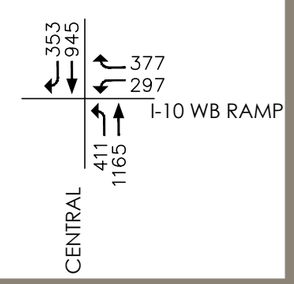
7. Central Ave & Arrow Hwy



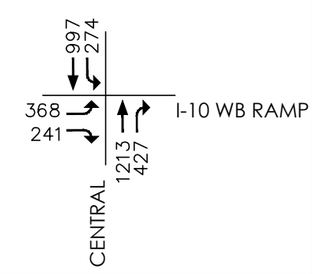
8. Central Ave & Moreno St



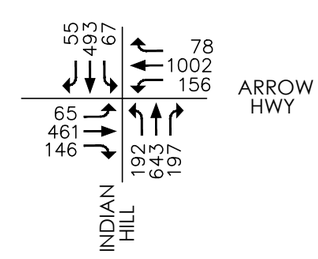
9. Central Avenue & I-10 WB Ramps



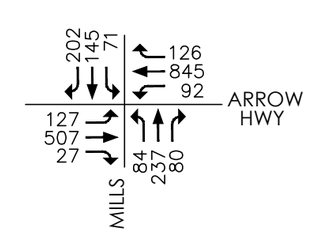
10. Central Avenue & I-10 EB Ramps



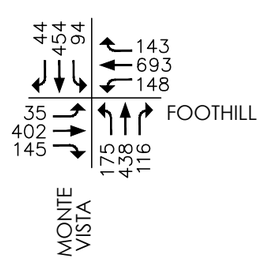
11. Indian Hill Blvd & Arrow Hwy



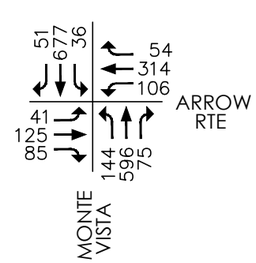
12. Mills Ave & Arrow Hwy



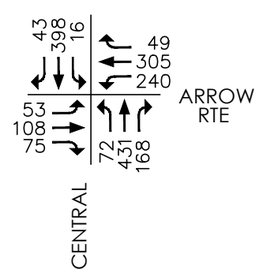
13. Monte Vista Ave & Foothill Blvd



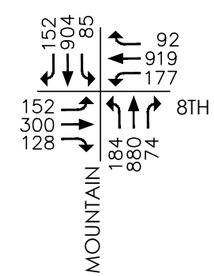
14. Monte Vista Ave & Arrow Rte



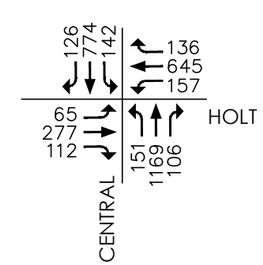
15. Central Ave & Arrow Rte



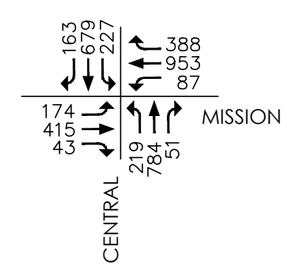
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161110.dwg

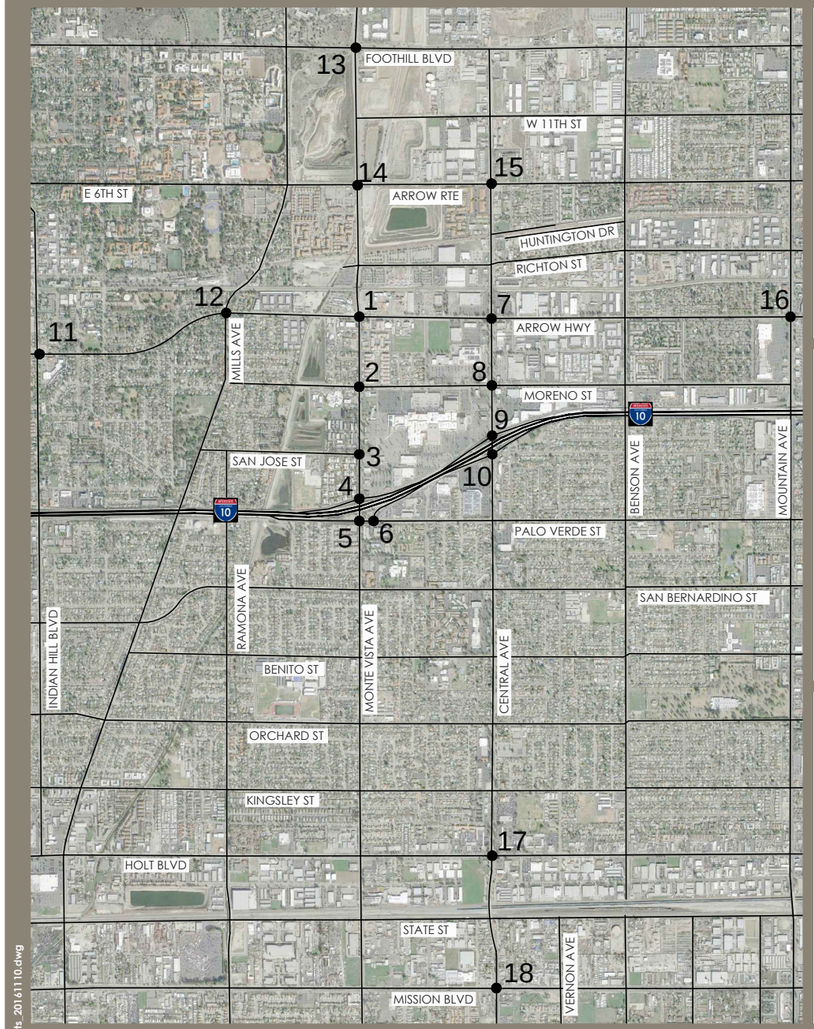
Stantec

N

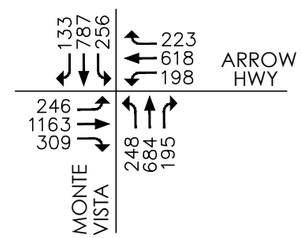
Figure 13

AM Peak Hour Volumes - Existing with Project Conditions

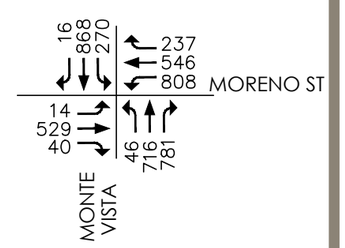
5.5



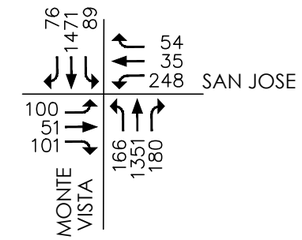
1.Monte Vista Ave & Arrow Hwy



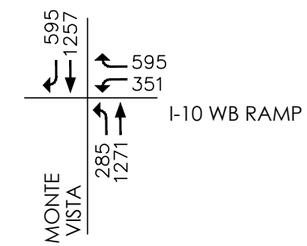
2. Monte Vista Ave & Moreno St



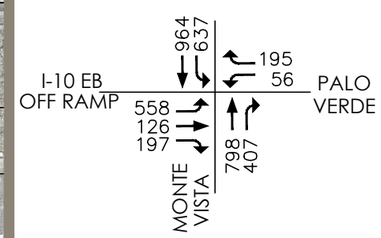
3. Monte Vista Ave & San Jose St



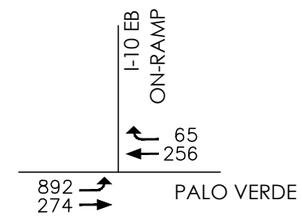
4. Monte Vista Ave & I-10 WB Ramps



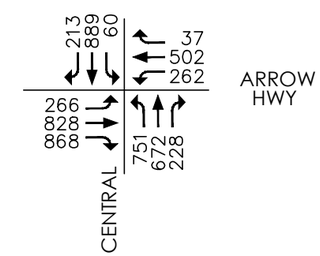
5. Monte Vista Ave & Palo Verde St



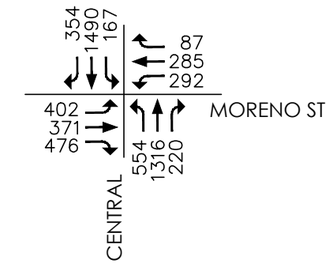
6. Palo Verde St & I-10 EB Ramp



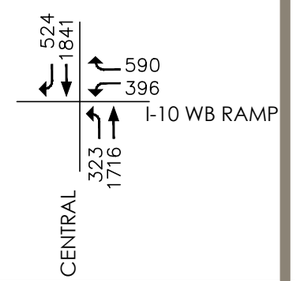
7. Central Ave & Arrow Hwy



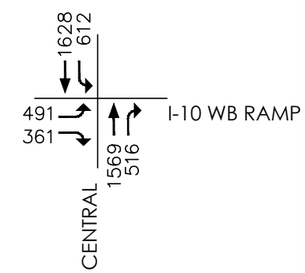
8. Central Ave & Moreno St



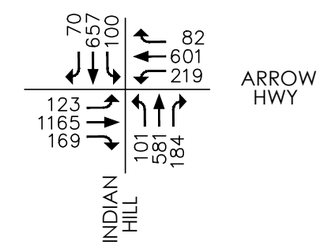
9. Central Avenue & I-10 WB Ramps



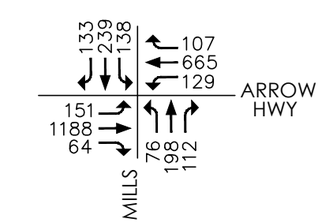
10. Central Avenue & I-10 EB Ramps



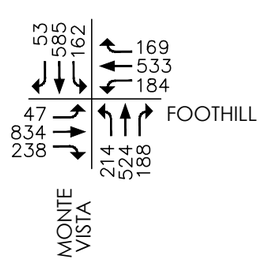
11. Indian Hill Blvd & Arrow Hwy



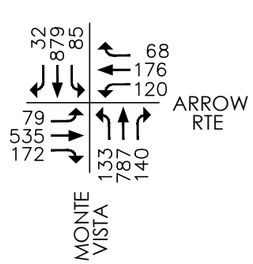
12. Mills Ave & Arrow Hwy



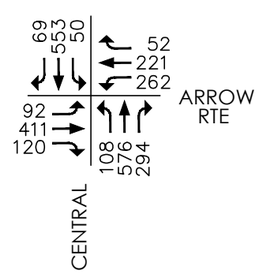
13. Monte Vista Ave & Foothill Blvd



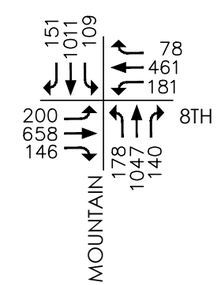
14. Monte Vista Ave & Arrow Rte



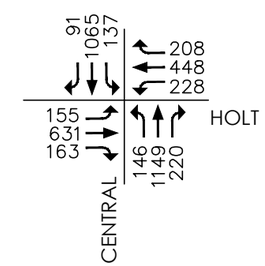
15. Central Ave & Arrow Rte



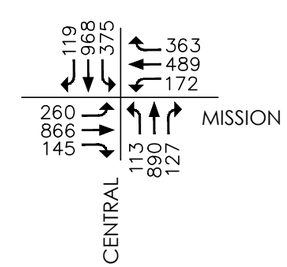
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161110.dwg

Stantec

N

Figure 14

PM Peak Hour Volumes - Existing with Project Conditions

5.6

5.2 LONG-RANGE (YEAR 2040) ANALYSIS

As noted in Section 2.0, the SBTAM is used to develop future year traffic volume forecasts for 2040 no-project and 2040 with-project conditions, which represents the traffic conditions assuming the full buildout of the City.

The current traffic model notes a buildout year of 2040, although the traffic forecasts represent the full buildout of the City, and are not based on a specific year. To develop the 2040 no-project condition forecasts, the year 2040 SBTAM ADT forecast data is refined by applying a post-processing methodology outlined in National Cooperative Highway Research Program (NCHRP) Report 255. Base year (existing condition) SBTAM data, existing condition traffic counts, and the year 2040 SBTAM forecasts are used in the post-processing procedure to derive the 2040 no-project ADT forecasts.

To derive year 2040 with-project forecasts, the arithmetic difference is taken between the 2040 SBTAM with-project model data and the 2040 SBTAM no-project model data to determine the incremental traffic change due to the project. That incremental difference is then applied to the post-processed 2040 no-project ADT forecast to produce the 2040 with-project condition ADT forecast. The future intersection turning movement volumes are then estimated for each scenario based on the forecasted growth of traffic through the intersection.

Long-Range no-project conditions ADT volumes are provided in Figure 15. The Long range no-project turning movement volumes are provided in Figure 16 for the AM peak hour and in Figure 17 for the PM peak hour.

Long-Range with project conditions ADT volumes are illustrated in Figure 18. Peak hour turning movement volumes corresponding to the Long range with-project conditions are illustrated in Figure 19 for the AM peak hour and in Figure 20 for the PM peak hour.

As stated previously in Section 2.0, a significant impact is defined as an increase of 1.0 second or more in the average control delay at an intersection that reaches LOS E or F during the AM and PM peak hour. The Long-Range no project and with project intersection delay and LOS results; V/C and LOS results for the LA County CMP intersections are summarized in Table 6. As shown, all intersections maintained by City of Montclair meet the City's (LOS D) performance criteria except the following:

- Monte Vista Ave & Arrow Hwy - LOS E (PM peak hour with and without project)
- Central Ave & Arrow Hwy - LOS E (PM peak hour with project)
- Central Ave & Holt Blvd - LOS E (PM peak hour with and without project)
- Central Ave & Mission Blvd - LOS E & F (AM & PM peak hour, with and without project)

The non-CMP study intersections outside the City of Montclair meet the County's (LOS D) performance criteria except the following:

- Claremont Blvd/Mills Ave & Arrow Hwy - LOS E (PM peak hour with and without project)
- Central Ave & Arrow Route - LOS E (AM & PM peak hour with project)

The CMP intersections in the study area and outside the City of Montclair meet the CMP performance criteria (LOS E) except the following:

- Indian Hill Blvd and Arrow Hwy - LOS F (PM peak hour with and without project)

Mitigation measures, where necessary, are identified in the following section.

Table 6 2040 with and without Project - Intersection Delay and LOS Summary

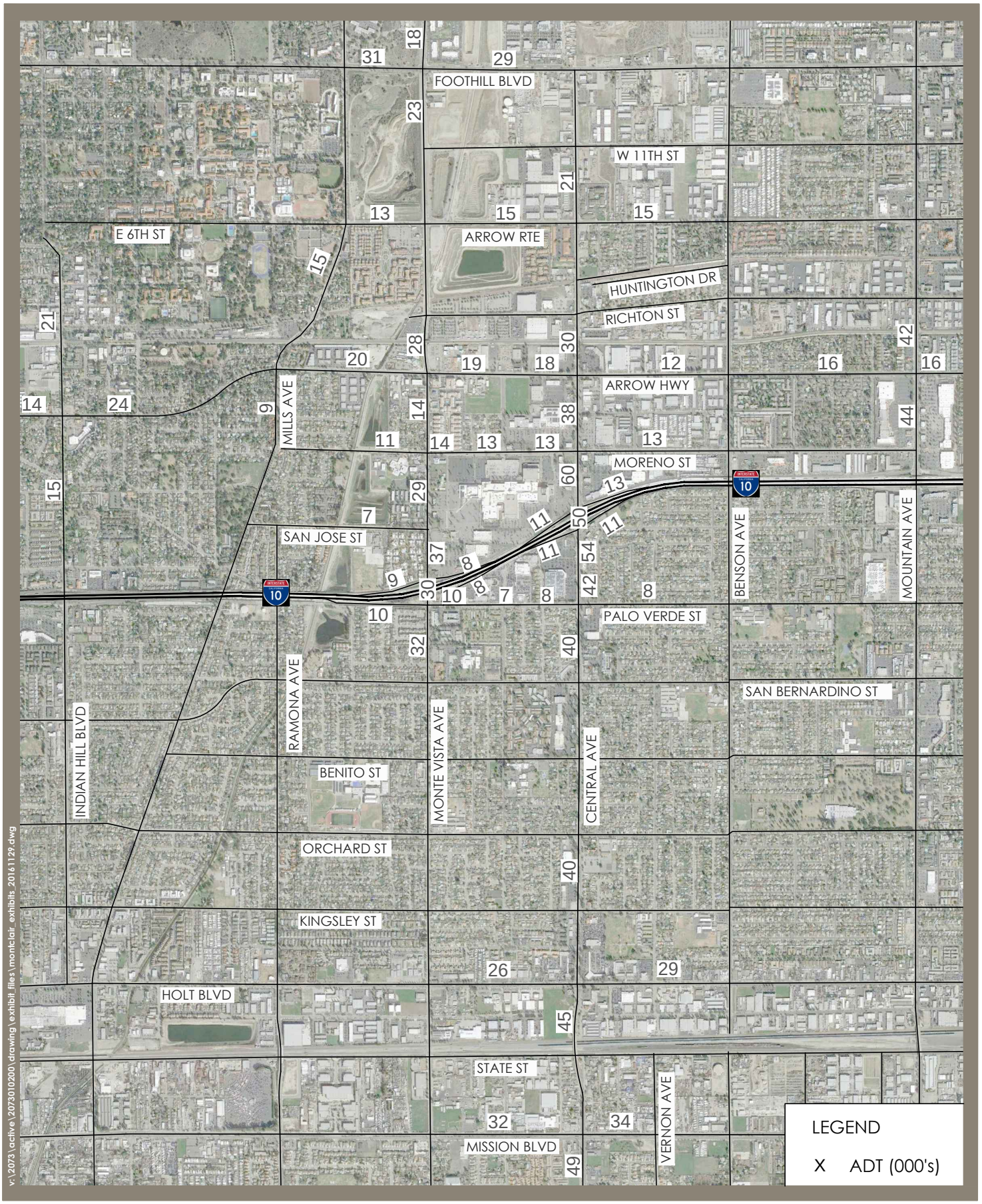
Intersection	Jurisdiction	2040 No Project				2040 with Project				Increase	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
1. Monte Vista Ave & Arrow Hwy*	Montclair	22.8	C	**55.5**	**E**	24.9	C	**79.5**	**E**	2.1	**24.0**
2. Monte Vista Ave & Moreno St	Montclair	21.8	C	36.0	D	22.4	C	33.9	C	0.6	-2.1
3. Monte Vista Ave & San Jose St	Montclair	33.1	C	27.4	C	28.9	C	26.3	C	-4.2	-1.1
4. Monte Vista Ave & I-10 WB Ramps*	Montclair	15.7	B	18.2	B	15.5	B	17.6	B	-0.2	-0.6
5. Monte Vista Ave & I-10 EB off Ramp/Palo Verde St*	Montclair	21.7	C	41.5	D	23.2	C	39.0	D	1.5	-2.5
6. Palo Verde St & I-10 EB On Ramp	Montclair	9.6	A	14.2	B	9.7	A	13.9	B	0.1	-0.3
7. Central Ave & Arrow Hwy*	Montclair	22.7	C	30.0	C	35.9	D	**59.6**	**E**	13.2	**29.6**
8. Central Ave & Moreno St*	Montclair	15.8	B	27.4	C	18.2	B	37.7	D	2.4	10.3
9. Central Ave & I-10 WB Ramps*	Montclair	19.9	B	29.3	C	19.1	B	21.6	C	-0.8	-7.7
10. Central Ave & I-10 EB Ramps*	Montclair	14.0	B	26.7	C	14.7	B	29.2	C	0.7	2.5
11. Indian Hill Blvd & Arrow Hwy***	Claremont	63.2	E	**95.1**	**F**	69.1	E	**102.4**	**F**	5.9	**7.3**
12. Claremont Blvd/Mills Ave & Arrow Hwy***	Claremont	47.2	D	**61.3**	**E**	51.6	D	**67.0**	**E**	4.4	**5.7**
13. Monte Vista Ave & Foothill Blvd**	Upland	33.6	C	42.8	D	37.9	D	49.1	D	4.3	6.3
14. Monte Vista Ave & Arrow Route	Upland	32.5	C	42.2	D	34.5	C	47.3	D	2.0	5.1
15. Central Ave & Arrow Route	Upland	45.7	D	46.4	D	**60.9**	**E**	**62.4**	**E**	**15.2**	**16.0**
16. Mountain Ave & 8th St**	Upland	66.2	E	64.5	E	79.4	E	72.9	E	13.2	8.4
17. Central Ave & Holt Blvd*	Montclair	41.7	D	**64.0**	**E**	44.7	D	**67.2**	**E**	3.0	**3.2**
18. Central Ave & Mission Blvd*	Montclair	**76.1**	**E**	**87.9**	**F**	**106.1**	**F**	**121.3**	**F**	**30.0**	**33.4**

Abbreviations: LOS – level of service

Note: The performance standard used are as follows:
* CMP intersections in Montclair – LOS D

** CMP intersections outside Montclair – LOS E
*** Los Angeles County CMP intersection, ICU calculations included below
Non CMP intersections in Montclair – LOS D
Non CMP intersections outside Montclair – LOS D

Intersection	Jurisdiction	2040 No Project				2040 with Project				Increase	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	AM	PM
11. Indian Hill Bl & Arrow Hwy	LA County	0.93	E	**1.10**	**F**	0.97	E	**1.13**	**F**	0.04	**0.03**
12. Mills Ave & Arrow Hwy	LA County	0.78	C	0.97	E	0.79	C	0.99	E	0.01	0.02



Stantec

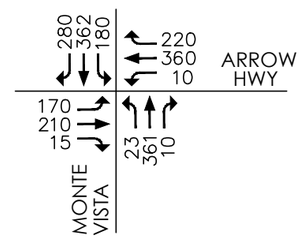
N

Figure 15

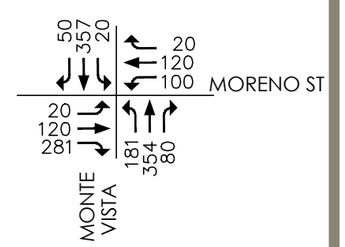
Long Range No Project ADT Volumes - 000's

5.10

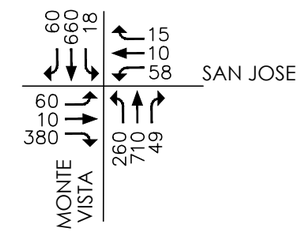
1.Monte Vista Ave & Arrow Hwy



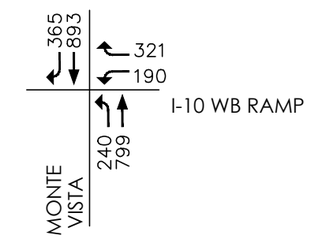
2. Monte Vista Ave & Moreno St



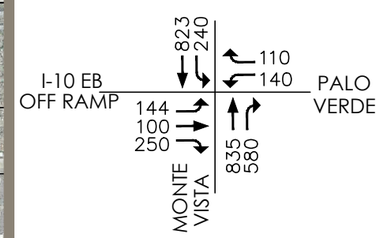
3. Monte Vista Ave & San Jose St



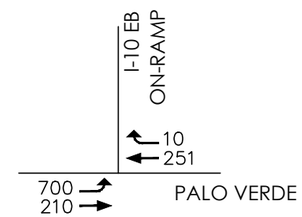
4. Monte Vista Ave & I-10 WB Ramps



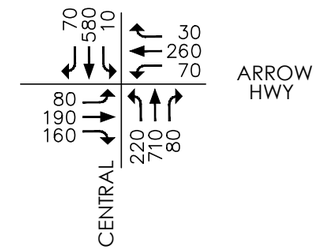
5. Monte Vista Ave & Palo Verde St



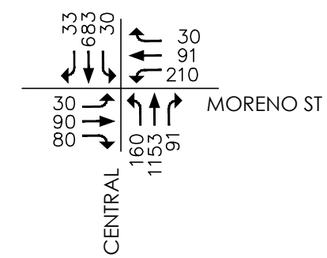
6. Palo Verde St & I-10 EB Ramp



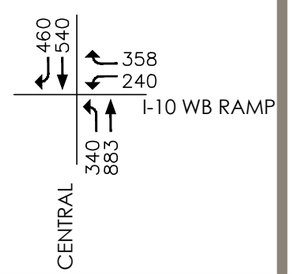
7. Central Ave & Arrow Hwy



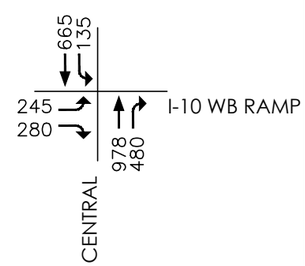
8. Central Ave & Moreno St



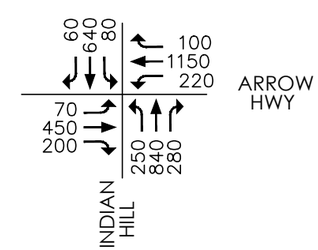
9. Central Avenue & I-10 WB Ramps



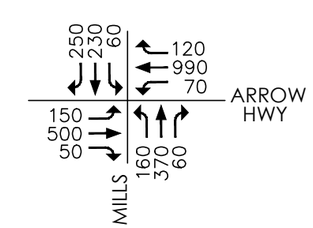
10. Central Avenue & I-10 EB Ramps



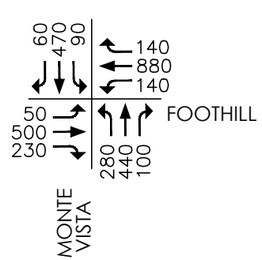
11. Indian Hill Blvd & Arrow Hwy



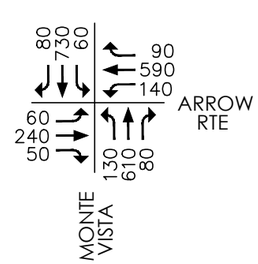
12. Mills Ave & Arrow Hwy



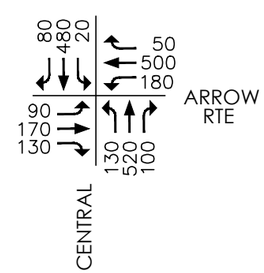
13. Monte Vista Ave & Foothill Blvd



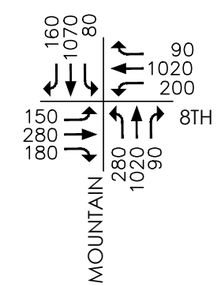
14. Monte Vista Ave & Arrow Rte



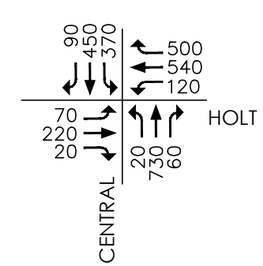
15. Central Ave & Arrow Rte



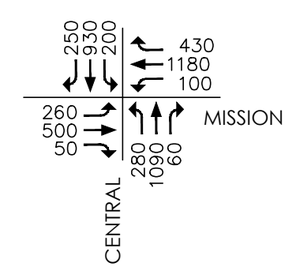
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161129.dwg

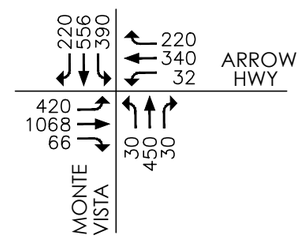
Stantec

N

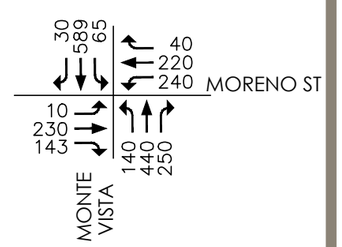
Figure 16

AM Peak Hour Volumes - Long Range No Project

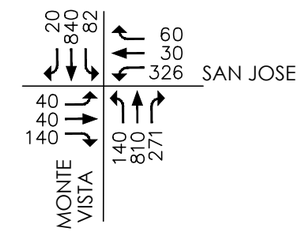
1.Monte Vista Ave & Arrow Hwy



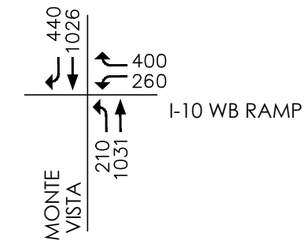
2. Monte Vista Ave & Moreno St



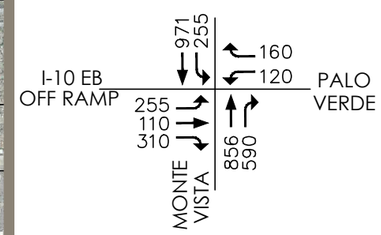
3. Monte Vista Ave & San Jose St



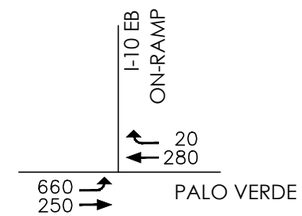
4. Monte Vista Ave & I-10 WB Ramps



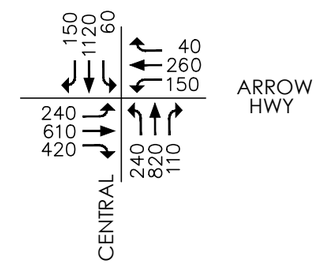
5. Monte Vista Ave & Palo Verde St



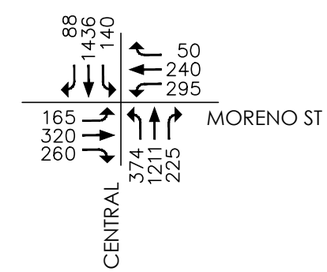
6. Palo Verde St & I-10 EB Ramp



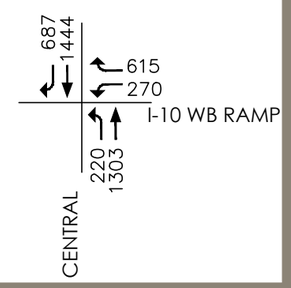
7. Central Ave & Arrow Hwy



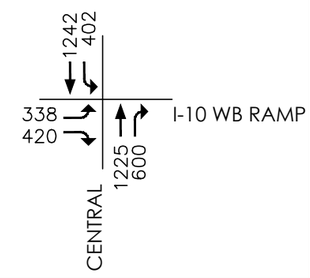
8. Central Ave & Moreno St



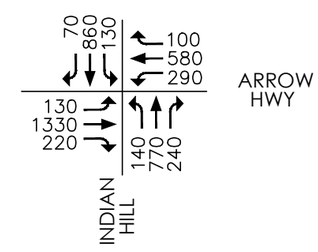
9. Central Avenue & I-10 WB Ramps



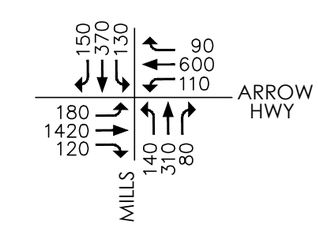
10. Central Avenue & I-10 EB Ramps



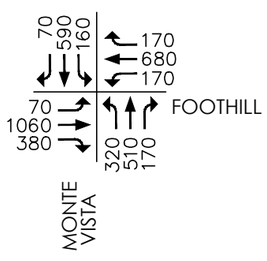
11. Indian Hill Blvd & Arrow Hwy



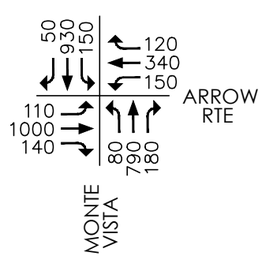
12. Mills Ave & Arrow Hwy



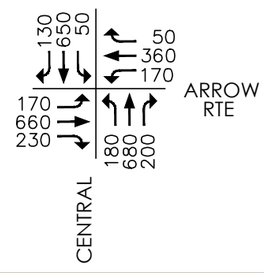
13. Monte Vista Ave & Foothill Blvd



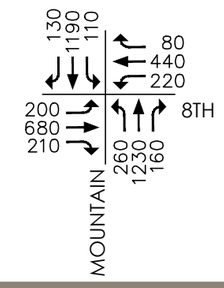
14. Monte Vista Ave & Arrow Rte



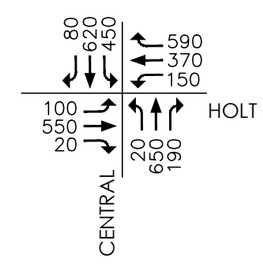
15. Central Ave & Arrow Rte



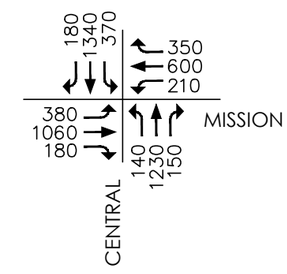
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



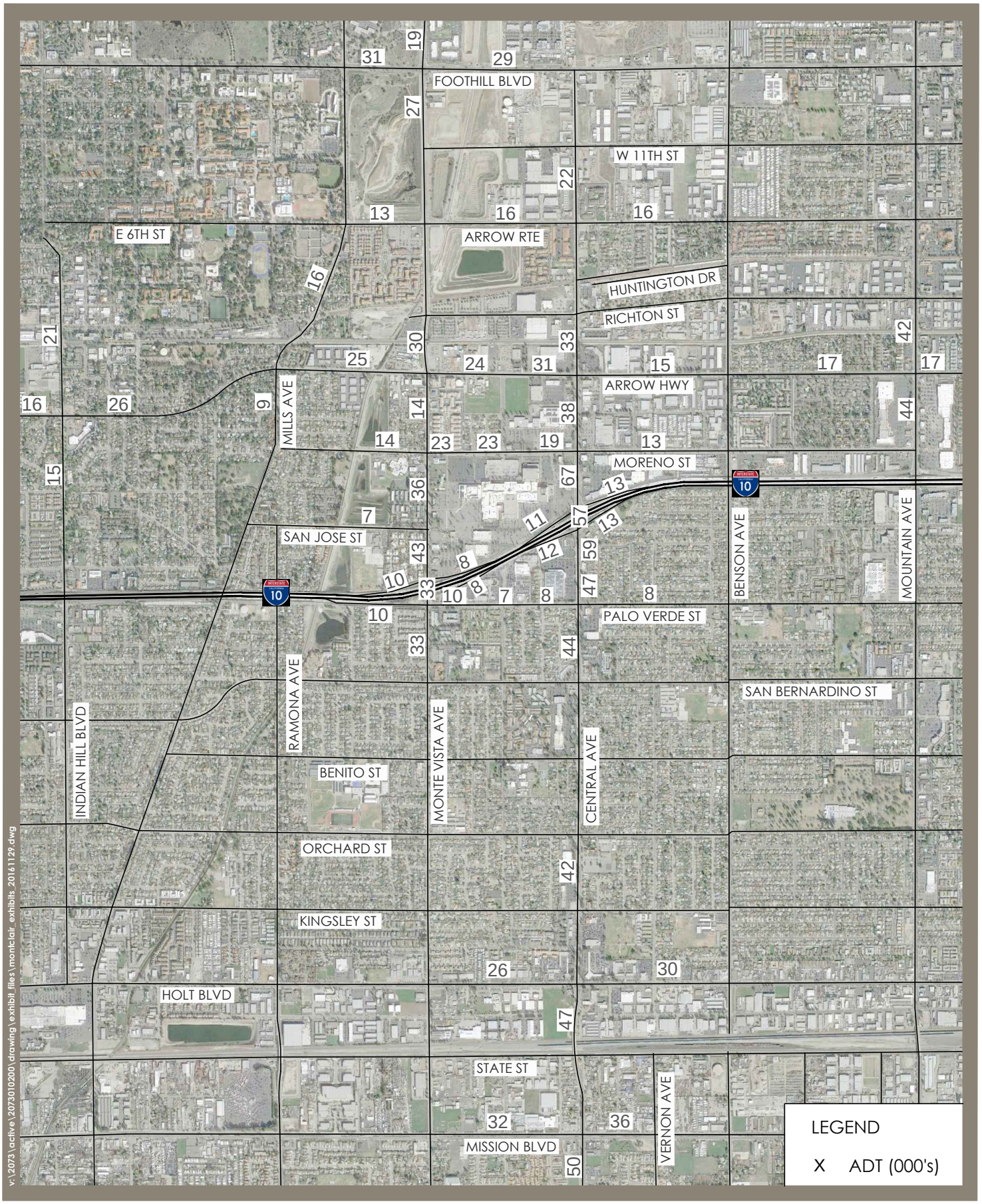
v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161129.dwg

Stantec

N

Figure 17

PM Peak Hour Volumes - Long Range No Project



Stantec

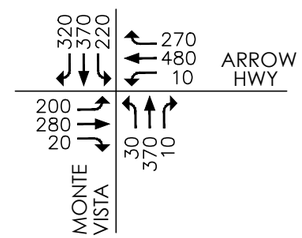
N

Figure 18

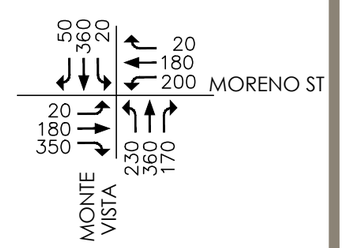
Long Range with Project ADT Volumes - 000's

5.13

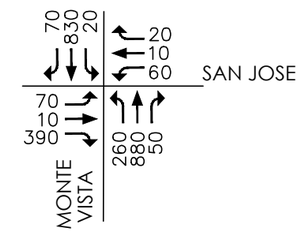
1.Monte Vista Ave & Arrow Hwy



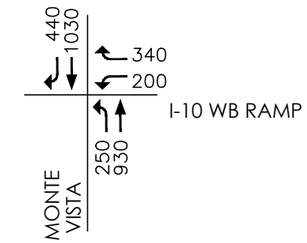
2. Monte Vista Ave & Moreno St



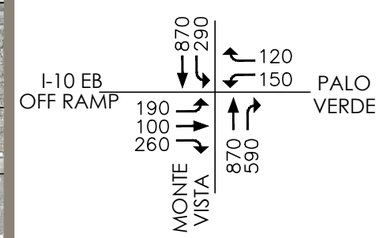
3. Monte Vista Ave & San Jose St



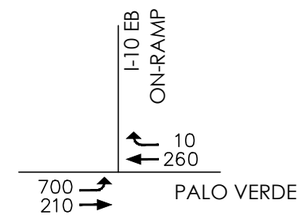
4. Monte Vista Ave & I-10 WB Ramps



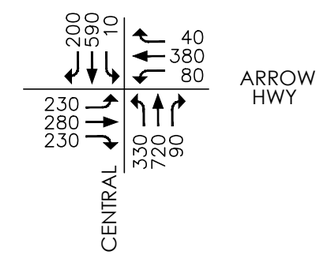
5. Monte Vista Ave & Palo Verde St



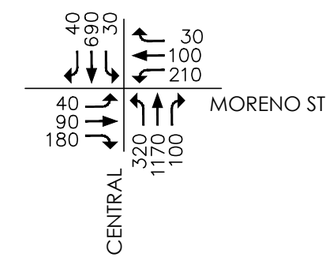
6. Palo Verde St & I-10 EB Ramp



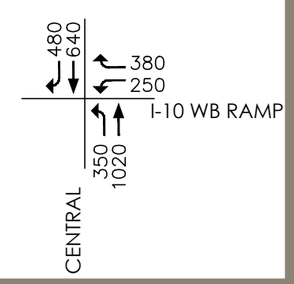
7. Central Ave & Arrow Hwy



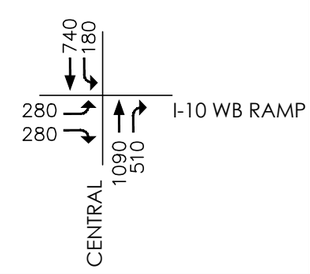
8. Central Ave & Moreno St



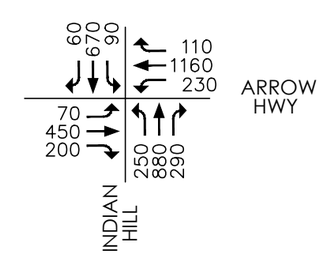
9. Central Avenue & I-10 WB Ramps



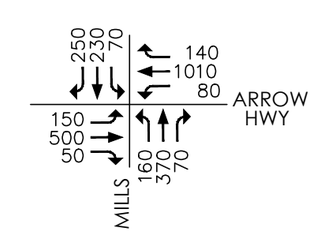
10. Central Avenue & I-10 EB Ramps



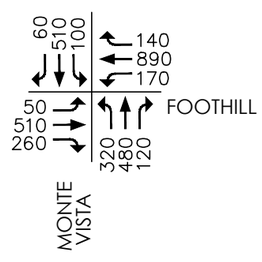
11. Indian Hill Blvd & Arrow Hwy



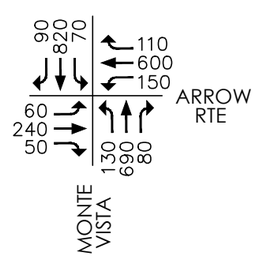
12. Mills Ave & Arrow Hwy



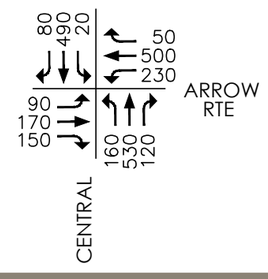
13. Monte Vista Ave & Foothill Blvd



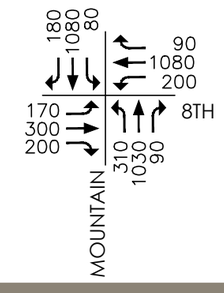
14. Monte Vista Ave & Arrow Rte



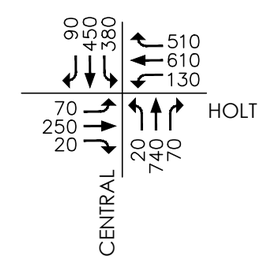
15. Central Ave & Arrow Rte



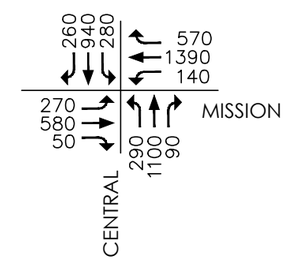
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



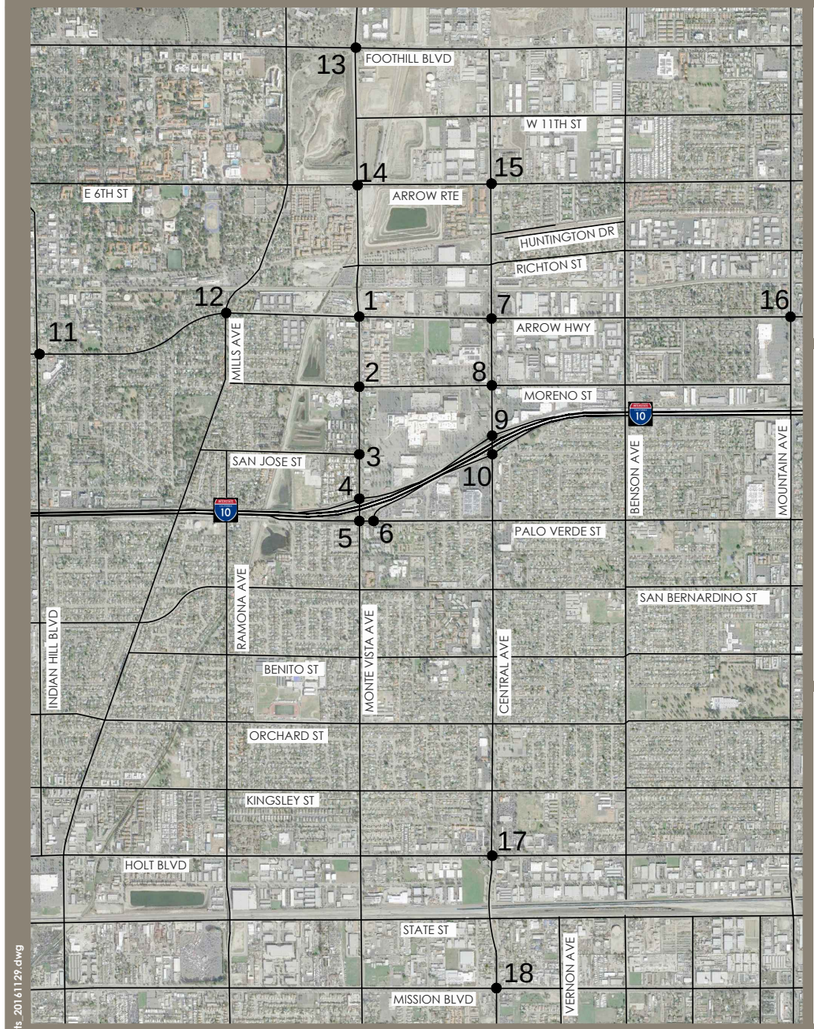
v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161129.dwg

Stantec

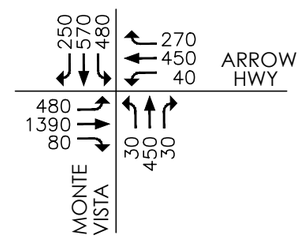
N

Figure 19

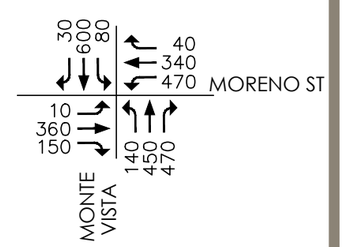
AM Peak Hour Volumes - Long Range with Project



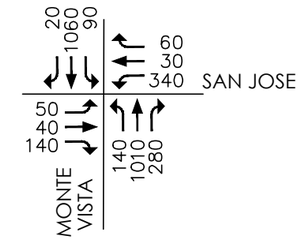
1.Monte Vista Ave & Arrow Hwy



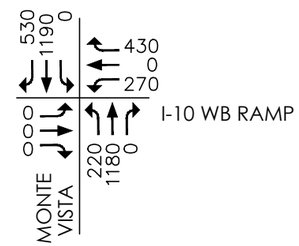
2. Monte Vista Ave & Moreno St



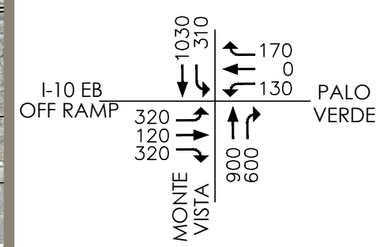
3. Monte Vista Ave & San Jose St



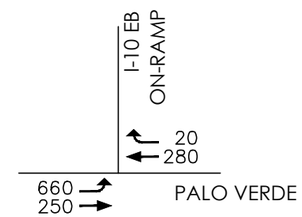
4. Monte Vista Ave & I-10 WB Ramps



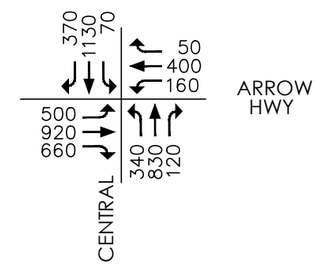
5. Monte Vista Ave & Palo Verde St



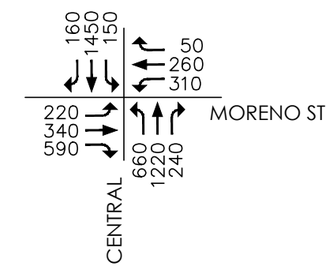
6. Palo Verde St & I-10 EB Ramp



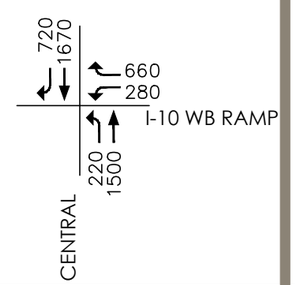
7. Central Ave & Arrow Hwy



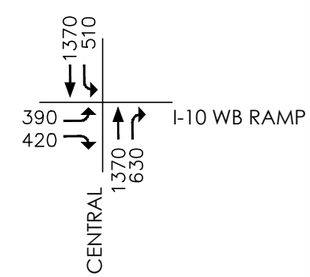
8. Central Ave & Moreno St



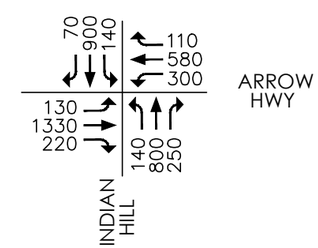
9. Central Avenue & I-10 WB Ramps



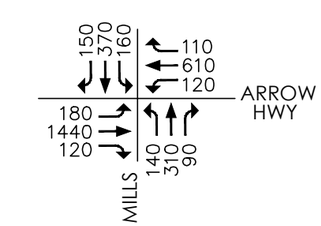
10. Central Avenue & I-10 EB Ramps



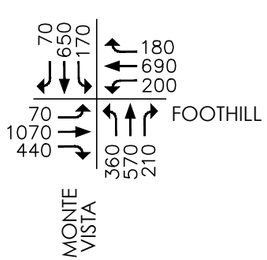
11. Indian Hill Blvd & Arrow Hwy



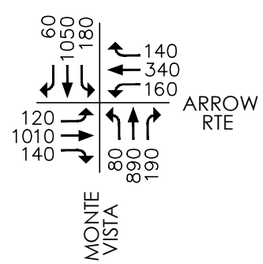
12. Mills Ave & Arrow Hwy



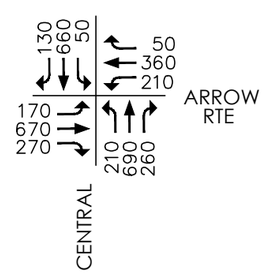
13. Monte Vista Ave & Foothill Blvd



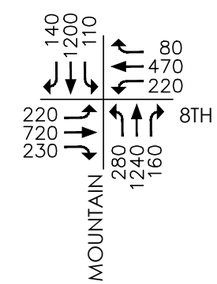
14. Monte Vista Ave & Arrow Rte



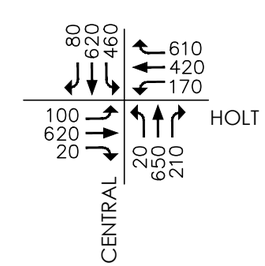
15. Central Ave & Arrow Rte



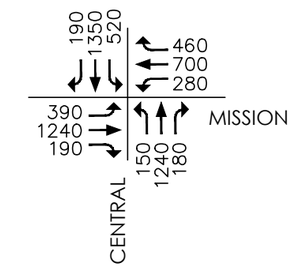
16. Mountain Ave & 8th St



17. Central Ave & Holt Blvd



18. Central Ave & Mission Blvd



v:\2073\active\207301020\drawing\exhibit_files\montclair_exhibits_20161129.dwg

Stantec

N

Figure 20

PM Peak Hour Volumes - Long Range with Project

6.0 MITIGATION MEASURES

Mitigation measures to address the project impacts and the resulting delay and LOS are described in Table 7 for existing conditions and Table 8 for Long-Range conditions.

For each of the intersections identified in Section 5.0 as significantly impacted by the project, mitigation measures have been identified where feasible. Mitigation is considered feasible if it can be implemented within the available right-of-way and without negatively affecting other modes of travel, such as walking, biking, or transit. In situations where mitigation measures are not feasible or do not fully mitigate the impacts of the project, the impact remains significant and unavoidable.

Table 7 Existing plus Project Intersection Mitigation Summary

Intersection	Existing no Project		Existing with Project		Existing with Project Mitigation		
	Delay	LOS	Delay	LOS	Delay	LOS	Description
1. Monte Vista Ave & Arrow Hwy*	(PM) 65.7	E	67.2	E	63.5	E	• Traffic signal modification to include westbound right-turn and southbound right-turn overlap phasing.
5. Monte Vista Ave & I-10 EB off Ramp/Palo Verde St*	(PM) 35.1	D	68.9	E	46.2	D	**•Not Fully Mitigated with proposed interchange work currently in design by SBCTA, Caltrans, and City.**
7. Central Ave & Arrow Hwy*	(PM) 28.3	C	110.9	F	87.0	F	• Traffic signal modification to include eastbound right-turn and westbound right-turn overlap phasing. **•Not Fully Mitigated**
18. Central Ave & Mission Blvd*	(PM) 54.1	D	56.2	E	53.1	D	•Traffic signal modification to include westbound right-turn overlap phasing •Increase Cycle Length to 140 sec

Table 8 2040 with Project Mitigation Summary

Intersection	2040 No Project		2040 with Project		2040 with Project Mitigation		
	Delay	LOS	Delay	LOS	Delay	LOS	Description
1. Monte Vista Ave & Arrow Hwy*	(PM) 55.5	E	79.5	E	73.9	E	• Traffic signal modification to include westbound right-turn and southbound right-turn overlap phasing. •**Not Fully Mitigated**
7. Central Ave & Arrow Hwy*	(PM) 30.0	C	59.6	E	45.6	D	• Traffic signal modification to include eastbound right-turn and westbound right-turn overlap phasing. •**Not Fully Mitigated**
15. Central Ave & Arrow Route	(AM) 45.7	D	60.9	E	40.7	D	• Traffic signal modification to include northbound right-turn overlap phasing. •Increase Cycle Length to 100 sec
	(PM) 46.4	D	62.4	E	50.4	D	•Traffic signal modification to include northbound right-turn overlap phasing. •Increase Cycle Length to 100 sec •Restripe to convert existing shared westbound thru/right turn lane to one dedicated westbound thru lane and shared westbound thru/right turn lane. •**Not Fully Mitigated**
17. Central Ave & Holt Blvd*	(PM) 64.0	E	67.2	E	41.2	D	• Traffic signal modification to include eastbound right-turn, westbound right-turn and southbound right-turn overlap phasing. • Increase Cycle Length to 110 sec.
18. Central Ave & Mission Blvd*	(AM) 76.1	E	106.1	F	103.8	F	•Traffic signal modification to include westbound right-turn overlap phasing •**Not Fully Mitigated**
	(PM) 87.9	F	121.3	F	119.4	F	

Intersection	2040 No Project		2040 with Project		2040 with Project Mitigation		
	V/C	LOS	V/C	LOS	V/C	LOS	Description
11. Indian Hill Blvd & Arrow Hwy*	(PM) 1.10	F	1.13	F	1.10	F	•Restripe to convert existing northbound (2nd) shared thru/right-turn lane to (2nd) dedicated through lane and a dedicated right turn lane. Note: requires 10' lanes •Traffic signal modification to include eastbound right-turn overlap phasing.

7.0 FREEWAY MAINLINE SEGMENTS

An evaluation of the proposed project results in increase of 11,466 daily trips to the I-10 Freeway with approximately 5,212 ADT west of Monte Vista Avenue and approximately 6,254 east of Central Avenue. As shown in the table below, the project will increase traffic by less than 3 percent to the mainline freeway segments that are adjacent to the project.

Table 9 I-10 Mainline Freeway Analysis

Location	Existing ADT Volumes	Project ADT Volumes	Existing with Project ADT Volumes	Percentage Increase
I-10 Freeway west of Monte Vista	254,000	5,212	259,212	2.0%
I-10 Freeway east of Central Ave	243,000	6,254	249,254	2.5%

Location	2040 ADT Volumes	Project ADT Volumes	2040 With Project ADT Volumes	Percentage Increase
I-10 Freeway west of Monte Vista	301,597	5,212	306,809	1.7%
I-10 Freeway east of Central Ave	300,431	6,254	306,685	2.0%

8.0 INTERSECTION CONTROL EVALUATION

This section addresses the evaluation of the installation of yield-control (roundabouts) at state highway intersections and interchanges. An evaluation of the roundabout concepts has been prepared with SIDRA software. Appendix C contains summary worksheets for the SIDRA analysis. The analysis indicates that the ramp intersections would operate at an LOS F based on a single-lane roundabout, as shown in Table 10 below except for the Palo Verde St and I-10 EB On-ramp intersection. This intersection operates at LOS C during existing conditions without project and would operate at LOS D during Long range with and without project conditions.

Table 10 Intersection Control Evaluation

Location	Existing				Existing with Project			
	AM		PM		AM		PM	
	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)
4. Monte Vista Ave & I-10 WB Ramps*	F	218.8	F	297.8	F	420.5	F	586.3
5. Monte Vista Ave & I-10 EB off Ramp/Palo Verde St*	F	228.4	F	280.5	F	384.3	F	504.1
6. Palo Verde St & I-10 EB On Ramp	C	20.3	C	21.1	F	53.6	F	79.5
9. Central Ave & I-10 WB Ramps*	F	180.4	F	503.6	F	386.1	F	789.6
10. Central Ave & I-10 EB Ramps*	F	266.2	F	533.7	F	456.3	F	811.1

Location	Long Range No Project				Long Range with Project			
	AM		PM		AM		PM	
	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Average Delay (sec)
4. Monte Vista Ave & I-10 WB Ramps*	F	249.1	F	346.3	F	327.8	F	443.0
5. Monte Vista Ave & I-10 EB off Ramp/Palo Verde St*	F	302.4	F	367.7	F	353.3	F	436.8
6. Palo Verde St & I-10 EB On Ramp	D	25.0	D	25.3	D	25.2	D	25.3
9. Central Ave & I-10 WB Ramps*	F	232.3	F	612.2	F	287.0	F	709.5
10. Central Ave & I-10 EB Ramps*	F	295.4	F	577.7	F	383.1	F	703.1

9.0 CONSTRUCTION – RELATED IMPACTS

This section addresses the construction-related impacts of the proposed project. It identifies the impacts of construction traffic, if any.

This project is not likely to be constructed all at one time, making it speculative to determine the exact number of trips for construction. However, the recently evaluated Montclair Plaza Expansion/Enhancement Project Traffic Study, prepared by Stantec for Dudek in February 2015 assumed up to 52 trucks and a maximum of 206 trips for 210,000 square feet of retail construction. This project consists of approximately 1,681,285 square feet of commercial uses, plus residential uses equivalent to another 925,000 square feet. This is a total of approximately 2.6 million square feet, approximately 10 times the size of the Mall project. To be conservative, we can assume that this project would generate up to 10 times as much traffic as the mall expansion would generate, or up to 1,854 trips (including PCEs) daily. However, the nature of a Specific Plan is to allow development to be completed over time for a project area, and the project will never be built all at once. This project is expected to be built over 10 to 20 years. It is therefore unlikely that more than 1/10th of the project would be under construction at any given time. That would put the construction traffic at any given time back to the levels estimated in the mall report, or up to 52 trucks and 206 trips per day.

Construction truck traffic is expected to travel to/from the project via the I-10 Freeway and Central Avenue and Monte Vista Avenue. A typical construction workday occurs from 7:00 AM to 5:00 PM, with many of the trips (particularly trucks) occurring outside the AM and PM peak hours. A maximum of 10 percent of the total trips are expected to occur during the conventional peak hours of the surrounding roadways, resulting in up to 21 trips (10% of the 206 noted above) in either the AM or the PM peak hour. The previously-noted mall study analyzed this level of traffic and found no impacts on the area intersections.

Appendix A SYNCHRO WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	200	50	13	325	64	93	424	22	52	446	111
Future Volume (vph)	65	200	50	13	325	64	93	424	22	52	446	111
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	2.5		1.0	2.5	2.5	1.0	2.0		1.0	2.0	2.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2949	3317		2949	3420	1530	1615	3395		1615	3420	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2949	3317		2949	3420	1530	1615	3395		1615	3420	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	211	53	14	342	67	98	446	23	55	469	117
RTOR Reduction (vph)	0	20	0	0	0	56	0	2	0	0	0	60
Lane Group Flow (vph)	68	244	0	14	342	11	98	467	0	55	469	57
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	8.4	24.1		2.7	18.4	18.4	26.6	78.6		8.6	60.6	60.6
Effective Green, g (s)	10.4	26.6		4.7	20.9	20.9	28.6	81.6		10.6	63.6	63.6
Actuated g/C Ratio	0.08	0.20		0.04	0.16	0.16	0.22	0.63		0.08	0.49	0.49
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	235	678		106	549	245	355	2131		131	1673	748
v/s Ratio Prot	0.02	c0.07		0.00	c0.10		c0.06	0.14		c0.03	c0.14	
v/s Ratio Perm						0.01						0.04
v/c Ratio	0.29	0.36		0.13	0.62	0.04	0.28	0.22		0.42	0.28	0.08
Uniform Delay, d1	56.3	44.4		60.7	50.9	46.1	42.1	10.4		56.8	19.7	17.6
Progression Factor	1.00	1.00		0.50	0.60	1.00	0.70	0.37		1.00	1.00	1.00
Incremental Delay, d2	0.7	0.3		0.6	2.2	0.1	1.9	0.2		2.2	0.4	0.2
Delay (s)	57.0	44.7		30.8	32.5	46.2	31.2	4.1		58.9	20.1	17.8
Level of Service	E	D		C	C	D	C	A		E	C	B
Approach Delay (s)		47.2			34.6			8.8			23.0	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	74	124	96	68	41	75	473	80	30	503	25
Future Volume (vph)	9	74	124	96	68	41	75	473	80	30	503	25
Ideal Flow (vphpl)	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	2.0	1.0	1.0	2.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	3098		2949	1800	1530	1615	3420	1530	1615	3396	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1615	3098		2949	1800	1530	1615	3420	1530	1615	3396	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	78	131	101	72	43	79	498	84	32	529	26
RTOR Reduction (vph)	0	117	0	0	0	31	0	0	24	0	1	0
Lane Group Flow (vph)	9	92	0	101	72	12	79	498	60	32	554	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	5	1	6	3	5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	1.4	11.4		9.8	19.8	33.3	7.9	79.3	89.1	13.5	84.9	
Effective Green, g (s)	3.4	13.4		11.8	21.8	37.3	9.9	82.3	93.1	15.5	87.9	
Actuated g/C Ratio	0.03	0.10		0.09	0.17	0.29	0.08	0.63	0.72	0.12	0.68	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	42	319		267	301	438	122	2165	1095	192	2296	
v/s Ratio Prot	0.01	c0.03		c0.03	0.04	0.00	c0.05	0.15	0.00	0.02	c0.16	
v/s Ratio Perm						0.00			0.03			
v/c Ratio	0.21	0.29		0.38	0.24	0.03	0.65	0.23	0.05	0.17	0.24	
Uniform Delay, d1	62.0	53.9		55.6	46.9	33.3	58.4	10.2	5.5	51.4	8.1	
Progression Factor	1.00	1.00		0.50	0.61	0.75	0.69	0.81	1.86	0.69	0.46	
Incremental Delay, d2	2.6	0.5		0.9	0.4	0.0	11.0	0.2	0.0	0.4	0.2	
Delay (s)	64.5	54.4		28.8	28.8	24.9	51.2	8.5	10.1	36.0	4.0	
Level of Service	E	D		C	C	C	D	A	B	D	A	
Approach Delay (s)		54.8			28.0			13.8			5.7	
Approach LOS		D			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	14	331	44	16	8	220	604	25	17	616	87
Future Volume (vph)	98	14	331	44	16	8	220	604	25	17	616	87
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		1.0	2.0	2.0	1.0	2.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	1800	1530	1470	3119		1615	3420	1530	1615	4822	
Flt Permitted	0.95	1.00	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1615	1800	1530	1470	3119		1615	3420	1530	1615	4822	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	103	15	348	46	17	8	232	636	26	18	648	92
RTOR Reduction (vph)	0	0	306	0	7	0	0	0	8	0	9	0
Lane Group Flow (vph)	103	15	42	23	41	0	232	636	18	18	731	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	13.8	13.8	13.8	6.5	6.5		22.5	88.9	88.9	2.8	69.2	
Effective Green, g (s)	15.8	15.8	15.8	8.5	8.5		24.5	91.9	91.9	4.8	72.2	
Actuated g/C Ratio	0.12	0.12	0.12	0.07	0.07		0.19	0.71	0.71	0.04	0.56	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	196	218	185	96	203		304	2417	1081	59	2678	
v/s Ratio Prot	c0.06	0.01		c0.02	0.01		c0.14	0.19		0.01	c0.15	
v/s Ratio Perm			0.03						0.01			
v/c Ratio	0.53	0.07	0.23	0.24	0.20		0.76	0.26	0.02	0.31	0.27	
Uniform Delay, d1	53.6	50.6	51.6	57.7	57.5		50.0	6.9	5.7	61.0	15.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.15	0.40	1.00	0.93	0.68	
Incremental Delay, d2	2.5	0.1	0.6	1.3	0.5		10.5	0.3	0.0	2.9	0.2	
Delay (s)	56.1	50.7	52.2	59.0	58.0		67.8	3.0	5.7	59.6	10.6	
Level of Service	E	D	D	E	E		E	A	A	E	B	
Approach Delay (s)		53.0			58.3			19.9			11.8	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	262	0	245	317	711	0	0	769	267
Future Volume (vph)	0	0	0	262	0	245	317	711	0	0	769	267
Ideal Flow (vphpl)	1900	1900	1900	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)				1.0		1.0	1.0	3.0			3.0	3.0
Lane Util. Factor				1.00		0.88	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1615		2693	1615	3420			3420	1530
Flt Permitted				0.95		1.00	0.29	1.00			1.00	1.00
Satd. Flow (perm)				1615		2693	489	3420			3420	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	276	0	258	334	748	0	0	809	281
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	109
Lane Group Flow (vph)	0	0	0	276	0	258	334	748	0	0	809	172
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm	pm+pt	NA			NA	Perm
Protected Phases							5	2			6	
Permitted Phases				8		8	2					6
Actuated Green, G (s)				26.7		26.7	95.3	95.3			77.4	77.4
Effective Green, g (s)				28.7		28.7	97.3	97.3			79.4	79.4
Actuated g/C Ratio				0.22		0.22	0.75	0.75			0.61	0.61
Clearance Time (s)				3.0		3.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				356		594	512	2559			2088	934
v/s Ratio Prot							c0.08	0.22			c0.24	
v/s Ratio Perm				c0.17		0.10	0.40					0.11
v/c Ratio				0.78		0.43	0.65	0.29			0.39	0.18
Uniform Delay, d1				47.6		43.7	6.8	5.3			12.9	11.1
Progression Factor				1.00		1.00	2.40	0.91			0.46	0.15
Incremental Delay, d2				10.1		0.5	2.5	0.2			0.5	0.4
Delay (s)				57.7		44.2	19.0	5.0			6.4	2.1
Level of Service				E		D	B	A			A	A
Approach Delay (s)		0.0			51.2			9.3			5.3	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	116	172	84	0	149	0	689	398	315	743	0
Future Volume (vph)	194	116	172	84	0	149	0	689	398	315	743	0
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	3.0	3.0		0.5		1.0		3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95	1.00	1.00	0.95	
Frt	1.00	0.91		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	1639		1615		1530		3420	1530	1615	3420	
Flt Permitted	0.95	1.00		0.95		1.00		1.00	1.00	0.21	1.00	
Satd. Flow (perm)	1615	1639		1615		1530		3420	1530	355	3420	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	204	122	181	88	0	157	0	725	419	332	782	0
RTOR Reduction (vph)	0	44	0	0	0	94	0	0	281	0	0	0
Lane Group Flow (vph)	204	259	0	88	0	63	0	725	138	332	782	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot		pm+ov		NA	Perm	pm+pt	NA	
Protected Phases	4	4		3		1		2		1	6	
Permitted Phases						3			2	6		
Actuated Green, G (s)	25.1	25.1		7.0		48.0		40.9	40.9	86.9	84.9	
Effective Green, g (s)	27.1	27.1		9.5		52.0		42.9	42.9	88.9	86.9	
Actuated g/C Ratio	0.21	0.21		0.07		0.40		0.33	0.33	0.68	0.67	
Clearance Time (s)	5.0	5.0		3.0		3.0		5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	336	341		118		623		1128	504	659	2286	
v/s Ratio Prot	0.13	c0.16		c0.05		0.03		c0.21		c0.17	0.23	
v/s Ratio Perm						0.01			0.09	0.18		
v/c Ratio	0.61	0.76		0.75		0.10		0.64	0.27	0.50	0.34	
Uniform Delay, d1	46.6	48.4		59.1		24.4		37.0	32.1	22.1	9.3	
Progression Factor	1.00	1.00		0.61		3.51		1.00	1.00	0.93	1.00	
Incremental Delay, d2	3.1	9.3		21.7		0.1		2.8	1.3	0.6	0.4	
Delay (s)	49.7	57.7		58.0		85.7		39.9	33.4	21.2	9.6	
Level of Service	D	E		E		F		D	C	C	A	
Approach Delay (s)		54.5			75.7			37.5			13.1	
Approach LOS		D			E			D			B	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	635	215	258	29	0	0
Future Volume (vph)	635	215	258	29	0	0
Ideal Flow (vphpl)	1600	1800	1800	1900	0	0
Total Lost time (s)	1.0	3.0	1.0			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	0.98			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	2949	3420	3368			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	2949	3420	3368			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	0%	0%
Adj. Flow (vph)	668	226	272	31	0	0
RTOR Reduction (vph)	0	0	6	0	0	0
Lane Group Flow (vph)	668	226	297	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	88.0	130.0	34.0			
Effective Green, g (s)	90.0	130.0	38.0			
Actuated g/C Ratio	0.69	1.00	0.29			
Clearance Time (s)	3.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	2041	3420	984			
v/s Ratio Prot	c0.23	0.07	c0.09			
v/s Ratio Perm						
v/c Ratio	0.33	0.07	0.30			
Uniform Delay, d1	8.0	0.0	35.7			
Progression Factor	0.73	1.00	1.00			
Incremental Delay, d2	0.1	0.0	0.8			
Delay (s)	5.9	0.0	36.5			
Level of Service	A	A	D			
Approach Delay (s)		4.4	36.5		0.0	
Approach LOS		A	D		A	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	175	74	67	240	33	96	537	83	14	438	28
Future Volume (vph)	36	175	74	67	240	33	96	537	83	14	438	28
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1615	3420	1530	1615	3420	1530	1615	4816		1615	4870	
Flt Permitted	0.56	1.00	1.00	0.64	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	944	3420	1530	1081	3420	1530	1615	4816		1615	4870	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	184	78	71	253	35	101	565	87	15	461	29
RTOR Reduction (vph)	0	0	69	0	0	30	0	9	0	0	4	0
Lane Group Flow (vph)	38	184	9	71	253	5	101	643	0	15	486	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	12.8	12.8	12.8	17.0	15.0	15.0	32.6	90.8		2.6	60.8	
Effective Green, g (s)	14.8	14.8	14.8	19.0	17.0	17.0	34.6	92.8		4.6	62.8	
Actuated g/C Ratio	0.11	0.11	0.11	0.15	0.13	0.13	0.27	0.71		0.04	0.48	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	146	389	174	198	447	200	429	3437		57	2352	
v/s Ratio Prot	0.02	c0.05		0.03	c0.07		c0.06	0.13		0.01	c0.10	
v/s Ratio Perm	0.01		0.01	0.03		0.00						
v/c Ratio	0.26	0.47	0.05	0.36	0.57	0.02	0.24	0.19		0.26	0.21	
Uniform Delay, d1	52.3	53.9	51.3	50.7	53.0	49.3	37.3	6.1		61.0	19.3	
Progression Factor	0.50	0.50	6.32	1.00	1.00	1.00	0.76	0.37		1.00	1.00	
Incremental Delay, d2	0.3	0.9	0.1	0.4	1.6	0.0	0.1	0.1		0.9	0.2	
Delay (s)	26.6	28.1	324.6	51.1	54.7	49.3	28.3	2.4		61.9	19.5	
Level of Service	C	C	F	D	D	D	C	A		E	B	
Approach Delay (s)		105.0			53.5			5.9			20.8	
Approach LOS		F			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	89	56	208	93	25	132	837	94	29	480	19
Future Volume (veh/h)	23	89	56	208	93	25	132	837	94	29	480	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Adj Flow Rate, veh/h	24	94	59	219	98	26	139	881	99	31	505	20
Adj No. of Lanes	2	2	1	2	2	0	2	3	0	2	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	276	268	120	309	199	51	239	2001	224	915	3348	132
Arrive On Green	0.03	0.03	0.03	0.10	0.07	0.07	0.16	0.89	0.88	0.31	0.69	0.68
Sat Flow, veh/h	2956	3420	1530	2956	2696	692	2956	4485	502	2956	4851	191
Grp Volume(v), veh/h	24	94	59	219	61	63	139	643	337	31	340	185
Grp Sat Flow(s),veh/h/ln	1478	1710	1530	1478	1710	1678	1478	1638	1711	1478	1638	1766
Q Serve(g_s), s	1.0	3.5	4.9	9.3	4.4	4.7	5.7	4.5	4.7	1.0	4.7	4.7
Cycle Q Clear(g_c), s	1.0	3.5	4.9	9.3	4.4	4.7	5.7	4.5	4.7	1.0	4.7	4.7
Prop In Lane	1.00		1.00	1.00		0.41	1.00		0.29	1.00		0.11
Lane Grp Cap(c), veh/h	276	268	120	309	127	124	239	1462	764	915	2261	1219
V/C Ratio(X)	0.09	0.35	0.49	0.71	0.48	0.51	0.58	0.44	0.44	0.03	0.15	0.15
Avail Cap(c_a), veh/h	432	1039	465	387	493	484	512	1462	764	915	2261	1219
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98
Uniform Delay (d), s/veh	57.6	60.1	60.8	56.3	57.8	58.0	52.5	4.1	4.3	31.3	7.0	7.0
Incr Delay (d2), s/veh	0.1	0.7	2.9	4.4	2.8	3.2	2.2	0.9	1.8	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.7	2.2	4.0	2.2	2.3	2.4	2.0	2.5	0.4	2.1	2.4
LnGrp Delay(d),s/veh	57.7	60.8	63.7	60.6	60.6	61.2	54.7	5.1	6.1	31.3	7.1	7.2
LnGrp LOS	E	E	E	E	E	E	D	A	A	C	A	A
Approach Vol, veh/h		177			343			1119			556	
Approach Delay, s/veh		61.3			60.7			11.5			8.5	
Approach LOS		E			E			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	42.7	60.0	14.6	12.7	11.0	91.7	15.2	12.1
Change Period (Y+Rc), s	5.0	* 5	3.0	5.0	3.0	5.0	5.0	* 5
Max Green Setting (Gmax), s	7.0	* 55	15.0	37.0	20.0	42.0	17.0	* 35
Max Q Clear Time (g_c+I1), s	3.0	6.7	11.3	6.9	7.7	6.7	3.0	6.7
Green Ext Time (p_c), s	0.1	5.0	0.3	0.7	0.4	2.4	0.5	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	297	0	274	411	753	0	0	475	270
Future Volume (vph)	0	0	0	297	0	274	411	753	0	0	475	270
Ideal Flow (vphpl)	1900	1900	1900	1700	1800	1800	1600	1800	1800	1900	1800	1800
Total Lost time (s)				3.0	3.0	3.0	1.0	3.0			3.0	3.0
Lane Util. Factor				0.95	0.91	0.95	0.97	0.91			0.86	1.00
Frt				1.00	0.93	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1534	1481	1454	2949	4914			6192	1530
Flt Permitted				0.95	0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1534	1481	1454	2949	4914			6192	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	313	0	288	433	793	0	0	500	284
RTOR Reduction (vph)	0	0	0	0	47	153	0	0	0	0	0	147
Lane Group Flow (vph)	0	0	0	207	157	37	433	793	0	0	500	137
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				23.4	23.4	23.4	33.0	96.6			60.6	60.6
Effective Green, g (s)				25.4	25.4	25.4	35.0	98.6			62.6	62.6
Actuated g/C Ratio				0.20	0.20	0.20	0.27	0.76			0.48	0.48
Clearance Time (s)				5.0	5.0	5.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				299	289	284	793	3727			2981	736
v/s Ratio Prot							c0.15	c0.16			0.08	
v/s Ratio Perm				c0.13	0.11	0.03						0.09
v/c Ratio				0.69	0.54	0.13	0.55	0.21			0.17	0.19
Uniform Delay, d1				48.7	47.1	43.2	40.7	4.5			19.0	19.2
Progression Factor				1.00	1.00	1.00	0.91	0.49			0.82	1.70
Incremental Delay, d2				6.8	2.1	0.2	0.8	0.1			0.1	0.5
Delay (s)				55.4	49.1	43.4	37.6	2.3			15.8	33.1
Level of Service				E	D	D	D	A			B	C
Approach Delay (s)		0.0			49.5			14.8			22.0	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	291	0	241	0	0	0	0	878	427	163	637	0
Future Volume (vph)	291	0	241	0	0	0	0	878	427	163	637	0
Ideal Flow (vphpl)	1700	1800	1800	1900	1900	1900	1900	1800	1800	1600	1800	1800
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	1.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	0.97	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1534	1624	1530					6192	1530	2949	4914	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1534	1624	1530					6192	1530	2949	4914	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%
Adj. Flow (vph)	306	0	254	0	0	0	0	924	449	172	671	0
RTOR Reduction (vph)	0	0	213	0	0	0	0	0	110	0	0	0
Lane Group Flow (vph)	153	153	41	0	0	0	0	924	339	172	671	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	18.8	18.8	18.8					85.3	85.3	12.9	101.2	
Effective Green, g (s)	20.8	20.8	20.8					87.3	87.3	14.9	103.2	
Actuated g/C Ratio	0.16	0.16	0.16					0.67	0.67	0.11	0.79	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	245	259	244					4158	1027	338	3900	
v/s Ratio Prot								0.15		c0.06	0.14	
v/s Ratio Perm	c0.10	0.09	0.03						c0.22			
v/c Ratio	0.62	0.59	0.17					0.22	0.33	0.51	0.17	
Uniform Delay, d1	51.0	50.7	47.1					8.2	9.0	54.1	3.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.32	0.06	
Incremental Delay, d2	4.9	3.6	0.3					0.1	0.9	1.2	0.1	
Delay (s)	55.8	54.2	47.4					8.4	9.9	72.3	0.3	
Level of Service	E	D	D					A	A	E	A	
Approach Delay (s)		51.6			0.0			8.9			15.0	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	358	146	128	891	78	192	643	171	67	493	55
Future Volume (vph)	65	358	146	128	891	78	192	643	171	67	493	55
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	1404	2938		1404	2880		1404	2929	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	1404	2938		1404	2880		1404	2929	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	377	154	135	938	82	202	677	180	71	519	58
RTOR Reduction (vph)	0	0	100	0	7	0	0	26	0	0	9	0
Lane Group Flow (vph)	68	377	54	135	1013	0	202	831	0	71	568	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	5.4	29.0	29.0	7.0	30.6		8.0	31.3		5.4	28.7	
Effective Green, g (s)	7.4	31.0	31.0	9.0	32.6		10.0	33.3		7.4	30.7	
Actuated g/C Ratio	0.08	0.35	0.35	0.10	0.37		0.11	0.38		0.08	0.35	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	1039	464	142	1079		158	1081		117	1013	
v/s Ratio Prot	0.05	0.13		c0.10	c0.34		c0.14	c0.29		0.05	c0.19	
v/s Ratio Perm			0.04									
v/c Ratio	0.58	0.36	0.12	0.95	0.94		1.28	0.77		0.61	0.56	
Uniform Delay, d1	39.2	21.5	19.6	39.6	27.1		39.4	24.3		39.2	23.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.2	0.2	0.1	60.4	14.8		165.0	5.3		8.6	2.2	
Delay (s)	46.3	21.7	19.7	100.0	41.9		204.4	29.6		47.9	25.8	
Level of Service	D	C	B	F	D		F	C		D	C	
Approach Delay (s)		24.0			48.7			62.9			28.2	
Approach LOS		C			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	88.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	327	27	37	651	98	84	237	28	45	145	202
Future Volume (vph)	127	327	27	37	651	98	84	237	28	45	145	202
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1404	2940		1404	2916		1404	2927		1404	1565	1330
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1404	2940		1404	2916		1404	2927		1404	1565	1330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	134	344	28	39	685	103	88	249	29	47	153	213
RTOR Reduction (vph)	0	6	0	0	13	0	0	9	0	0	0	138
Lane Group Flow (vph)	134	366	0	39	775	0	88	269	0	47	153	75
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	9.8	35.3		3.9	29.4		5.3	31.4		3.9	30.0	30.0
Effective Green, g (s)	11.8	37.3		5.9	31.4		7.3	33.4		5.9	32.0	32.0
Actuated g/C Ratio	0.13	0.41		0.07	0.35		0.08	0.37		0.07	0.35	0.35
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	183	1211		91	1011		113	1080		91	553	470
v/s Ratio Prot	c0.10	0.12		0.03	c0.27		c0.06	0.09		0.03	c0.10	
v/s Ratio Perm												0.06
v/c Ratio	0.73	0.30		0.43	0.77		0.78	0.25		0.52	0.28	0.16
Uniform Delay, d1	37.8	17.9		40.7	26.3		40.8	19.8		40.9	21.0	20.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.0	0.1		3.2	3.5		27.9	0.6		4.9	1.2	0.7
Delay (s)	51.9	18.0		43.9	29.8		68.7	20.4		45.8	22.2	20.8
Level of Service	D	B		D	C		E	C		D	C	C
Approach Delay (s)		27.0			30.5			32.0			24.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	402	119	122	693	143	147	355	88	94	377	44
Future Volume (vph)	35	402	119	122	693	143	147	355	88	94	377	44
Ideal Flow (vphpl)	1700	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	2564	2974	1330	2564	2974	1330	2564	4206	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	2564	2974	1330	2564	2974	1330	2564	4206	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	423	125	128	729	151	155	374	93	99	397	46
RTOR Reduction (vph)	0	0	88	0	0	99	0	0	52	0	12	0
Lane Group Flow (vph)	37	423	37	128	729	52	155	374	41	99	431	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	3.8	27.0	27.0	7.8	31.0	31.0	8.8	40.6	40.6	5.4	37.2	
Effective Green, g (s)	5.8	29.0	29.0	9.8	33.0	33.0	10.8	42.6	42.6	7.4	39.2	
Actuated g/C Ratio	0.06	0.30	0.30	0.10	0.34	0.34	0.11	0.44	0.44	0.08	0.40	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	84	890	398	259	1013	453	286	1308	585	196	1703	
v/s Ratio Prot	0.03	c0.14		0.05	c0.25		c0.06	c0.13		c0.04	0.10	
v/s Ratio Perm			0.03			0.04			0.03			
v/c Ratio	0.44	0.48	0.09	0.49	0.72	0.12	0.54	0.29	0.07	0.51	0.25	
Uniform Delay, d1	43.9	27.7	24.4	41.2	27.9	21.9	40.7	17.4	15.7	42.9	19.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.7	0.4	0.1	1.5	2.5	0.1	2.1	0.6	0.2	2.0	0.4	
Delay (s)	47.6	28.1	24.5	42.6	30.3	22.0	42.8	17.9	15.9	45.0	19.5	
Level of Service	D	C	C	D	C	C	D	B	B	D	B	
Approach Delay (s)		28.6			30.7			23.8			24.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	96.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	125	33	80	314	54	89	458	47	36	548	51
Future Volume (vph)	41	125	33	80	314	54	89	458	47	36	548	51
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1600	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2880		1404	1565	1330	2564	4214		1404	4218	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2880		1404	1565	1330	2564	4214		1404	4218	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	43	132	35	84	331	57	94	482	49	38	577	54
RTOR Reduction (vph)	0	25	0	0	0	39	0	10	0	0	9	0
Lane Group Flow (vph)	43	142	0	84	331	18	94	521	0	38	622	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.7	18.5		6.0	20.8	20.8	5.2	29.6		3.7	28.1	
Effective Green, g (s)	5.7	20.5		8.0	22.8	22.8	7.2	31.6		5.7	30.1	
Actuated g/C Ratio	0.08	0.28		0.11	0.31	0.31	0.10	0.43		0.08	0.41	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	800		152	483	410	250	1804		108	1720	
v/s Ratio Prot	c0.03	0.05		0.06	c0.21		c0.04	0.12		0.03	c0.15	
v/s Ratio Perm						0.01						
v/c Ratio	0.40	0.18		0.55	0.69	0.04	0.38	0.29		0.35	0.36	
Uniform Delay, d1	32.4	20.2		31.2	22.4	17.9	31.2	13.8		32.3	15.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.1		4.3	4.0	0.0	1.0	0.4		2.0	0.6	
Delay (s)	34.8	20.3		35.5	26.4	17.9	32.1	14.2		34.3	15.8	
Level of Service	C	C		D	C	B	C	B		C	B	
Approach Delay (s)		23.3			27.0			16.9			16.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	108	49	163	305	49	44	403	85	16	372	43
Future Volume (vph)	53	108	49	163	305	49	44	403	85	16	372	43
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1404	2834		1404	1532		1404	2974	1330	1404	2928	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1404	2834		1404	1532		1404	2974	1330	1404	2928	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	114	52	172	321	52	46	424	89	17	392	45
RTOR Reduction (vph)	0	38	0	0	7	0	0	0	48	0	9	0
Lane Group Flow (vph)	56	128	0	172	366	0	46	424	41	17	428	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	3.6	17.9		8.3	22.6		3.6	32.7	32.7	1.2	30.3	
Effective Green, g (s)	5.6	19.9		10.3	24.6		5.6	34.7	34.7	3.2	32.3	
Actuated g/C Ratio	0.07	0.26		0.14	0.32		0.07	0.46	0.46	0.04	0.42	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	103	741		190	495		103	1356	606	59	1242	
v/s Ratio Prot	c0.04	0.05		c0.12	c0.24		c0.03	0.14		0.01	c0.15	
v/s Ratio Perm									0.03			
v/c Ratio	0.54	0.17		0.91	0.74		0.45	0.31	0.07	0.29	0.34	
Uniform Delay, d1	34.0	21.7		32.4	22.9		33.8	13.1	11.6	35.3	14.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.8	0.1		39.5	5.7		3.1	0.6	0.2	2.7	0.8	
Delay (s)	39.8	21.8		71.9	28.6		36.8	13.7	11.8	38.0	15.5	
Level of Service	D	C		E	C		D	B	B	D	B	
Approach Delay (s)		26.4			42.3			15.3			16.4	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	245	100	177	867	92	158	880	74	85	904	126
Future Volume (vph)	124	245	100	177	867	92	158	880	74	85	904	126
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2845		1404	2931		1404	4223		1404	4194	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2845		1404	2931		1404	4223		1404	4194	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	131	258	105	186	913	97	166	926	78	89	952	133
RTOR Reduction (vph)	0	50	0	0	9	0	0	10	0	0	20	0
Lane Group Flow (vph)	131	313	0	186	1001	0	166	994	0	89	1065	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	32.1		7.0	32.1		7.0	29.1		5.5	27.6	
Effective Green, g (s)	9.0	34.1		9.0	34.1		9.0	31.1		7.5	29.6	
Actuated g/C Ratio	0.10	0.38		0.10	0.38		0.10	0.35		0.08	0.33	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	140	1081		140	1114		140	1464		117	1383	
v/s Ratio Prot	0.09	0.11		c0.13	c0.34		c0.12	0.24		0.06	c0.25	
v/s Ratio Perm												
v/c Ratio	0.94	0.29		1.33	0.90		1.19	0.68		0.76	0.77	
Uniform Delay, d1	40.1	19.4		40.4	26.2		40.4	25.0		40.2	27.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	56.4	0.1		188.6	9.7		134.6	2.6		24.8	4.2	
Delay (s)	96.4	19.5		229.0	35.9		174.9	27.6		65.0	31.2	
Level of Service	F	B		F	D		F	C		E	C	
Approach Delay (s)		39.9			65.9			48.5			33.7	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	48.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	89.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	277	112	157	645	110	151	1066	106	114	663	126
Future Volume (vph)	65	277	112	157	645	110	151	1066	106	114	663	126
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2564	2974	1330	2564	2974	1330	2564	4215		2564	2974	1330
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2564	2974	1330	2564	2974	1330	2564	4215		2564	2974	1330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	292	118	165	679	116	159	1122	112	120	698	133
RTOR Reduction (vph)	0	0	83	0	0	79	0	10	0	0	0	80
Lane Group Flow (vph)	68	292	35	165	679	37	159	1224	0	120	698	53
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	5.4	24.9	24.9	8.0	27.5	27.5	8.0	35.4		7.0	34.4	34.4
Effective Green, g (s)	7.4	26.9	26.9	10.0	29.5	29.5	10.0	37.4		9.0	36.4	36.4
Actuated g/C Ratio	0.08	0.29	0.29	0.11	0.32	0.32	0.11	0.41		0.10	0.40	0.40
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	207	876	391	280	960	429	280	1726		252	1185	530
v/s Ratio Prot	0.03	c0.10		0.06	c0.23		0.06	c0.29		0.05	c0.23	
v/s Ratio Perm			0.03			0.03						0.04
v/c Ratio	0.33	0.33	0.09	0.59	0.71	0.09	0.57	0.71		0.48	0.59	0.10
Uniform Delay, d1	39.6	25.2	23.3	38.7	27.1	21.5	38.6	22.4		38.9	21.6	17.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	0.2	0.1	3.2	2.4	0.1	2.6	2.5		1.4	2.2	0.4
Delay (s)	40.5	25.4	23.4	41.9	29.5	21.6	41.2	24.9		40.3	23.7	17.6
Level of Service	D	C	C	D	C	C	D	C		D	C	B
Approach Delay (s)		27.1			30.7			26.8			25.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	91.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	415	43	87	953	311	219	758	51	144	651	163
Future Volume (vph)	174	415	43	87	953	311	219	758	51	144	651	163
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2564	4213		2564	2974	1330	2564	2946		2564	2884	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2564	4213		2564	2974	1330	2564	2946		2564	2884	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	183	437	45	92	1003	327	231	798	54	152	685	172
RTOR Reduction (vph)	0	10	0	0	0	144	0	4	0	0	18	0
Lane Group Flow (vph)	183	472	0	92	1003	183	231	848	0	152	839	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	7.0	41.1		6.9	41.0	41.0	9.0	48.0		8.0	47.0	
Effective Green, g (s)	9.0	43.1		8.9	43.0	43.0	11.0	50.0		10.0	49.0	
Actuated g/C Ratio	0.08	0.36		0.07	0.36	0.36	0.09	0.42		0.08	0.41	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	192	1513		190	1065	476	235	1227		213	1177	
v/s Ratio Prot	c0.07	0.11		0.04	c0.34		c0.09	0.29		0.06	c0.29	
v/s Ratio Perm						0.14						
v/c Ratio	0.95	0.31		0.48	0.94	0.38	0.98	0.69		0.71	0.71	
Uniform Delay, d1	55.3	27.7		53.3	37.3	28.6	54.4	28.7		53.6	29.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	51.2	0.1		1.9	15.5	0.5	53.6	3.2		10.8	3.7	
Delay (s)	106.5	27.9		55.3	52.8	29.2	108.0	31.9		64.4	33.3	
Level of Service	F	C		E	D	C	F	C		E	C	
Approach Delay (s)		49.5			47.5			48.1			38.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	839	165	46	276	71	96	532	51	112	643	95
Future Volume (vph)	210	839	165	46	276	71	96	532	51	112	643	95
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	2.5		1.0	2.5	2.5	1.0	2.0		1.0	2.0	2.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2949	3336		2949	3420	1530	1615	3375		1615	3420	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2949	3336		2949	3420	1530	1615	3375		1615	3420	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	221	883	174	48	291	75	101	560	54	118	677	100
RTOR Reduction (vph)	0	12	0	0	0	51	0	5	0	0	0	70
Lane Group Flow (vph)	221	1045	0	48	291	24	101	609	0	118	677	30
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	14.6	50.9		6.1	42.4	42.4	28.6	46.0		21.0	38.4	38.4
Effective Green, g (s)	16.6	53.4		8.1	44.9	44.9	30.6	49.0		23.0	41.4	41.4
Actuated g/C Ratio	0.12	0.38		0.06	0.32	0.32	0.22	0.35		0.16	0.30	0.30
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	349	1272		170	1096	490	352	1181		265	1011	452
v/s Ratio Prot	c0.07	c0.31		0.02	0.09		0.06	c0.18		0.07	c0.20	
v/s Ratio Perm						0.02						0.02
v/c Ratio	0.63	0.82		0.28	0.27	0.05	0.29	0.52		0.45	0.67	0.07
Uniform Delay, d1	58.8	39.0		63.2	35.3	32.8	45.6	36.1		52.7	43.3	35.4
Progression Factor	1.00	1.00		0.87	1.11	30.54	0.81	0.97		1.00	1.00	1.00
Incremental Delay, d2	3.7	4.4		0.9	0.1	0.0	2.0	1.6		1.2	3.5	0.3
Delay (s)	62.5	43.4		55.6	39.4	1002.3	39.1	36.7		53.9	46.8	35.7
Level of Service	E	D		E	D	F	D	D		D	D	D
Approach Delay (s)		46.7			215.7			37.0			46.5	
Approach LOS		D			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	65.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	133	40	200	128	85	46	572	205	126	716	16
Future Volume (vph)	14	133	40	200	128	85	46	572	205	126	716	16
Ideal Flow (vphpl)	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	2.0	1.0	1.0	2.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	3302		2949	1800	1530	1615	3420	1530	1615	3409	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1615	3302		2949	1800	1530	1615	3420	1530	1615	3409	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	140	42	211	135	89	48	602	216	133	754	17
RTOR Reduction (vph)	0	23	0	0	0	59	0	0	63	0	1	0
Lane Group Flow (vph)	15	159	0	211	135	30	48	602	153	133	770	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	5	1	6	3	5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	2.8	12.0		17.2	26.4	43.2	5.6	78.0	95.2	16.8	89.2	
Effective Green, g (s)	4.8	14.0		19.2	28.4	47.2	7.6	81.0	99.2	18.8	92.2	
Actuated g/C Ratio	0.03	0.10		0.14	0.20	0.34	0.05	0.58	0.71	0.13	0.66	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	55	330		404	365	515	87	1978	1084	216	2245	
v/s Ratio Prot	0.01	c0.05		c0.07	0.07	0.01	c0.03	0.18	0.02	c0.08	c0.23	
v/s Ratio Perm						0.01			0.08			
v/c Ratio	0.27	0.48		0.52	0.37	0.06	0.55	0.30	0.14	0.62	0.34	
Uniform Delay, d1	65.9	59.6		56.1	48.1	31.4	64.5	15.1	6.6	57.2	10.5	
Progression Factor	1.00	1.00		0.53	0.42	1.30	0.90	0.47	1.07	1.06	0.25	
Incremental Delay, d2	2.7	1.1		1.1	0.6	0.0	7.1	0.4	0.1	3.9	0.3	
Delay (s)	68.6	60.7		30.7	20.5	40.9	64.9	7.5	7.1	64.7	2.9	
Level of Service	E	E		C	C	D	E	A	A	E	A	
Approach Delay (s)		61.3			29.7			10.6			12.0	
Approach LOS		E			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	51	101	248	35	54	166	703	180	89	786	38
Future Volume (vph)	64	51	101	248	35	54	166	703	180	89	786	38
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		1.0	2.0	2.0	1.0	2.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	1800	1530	1470	3062		1615	3420	1530	1615	4880	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1615	1800	1530	1470	3062		1615	3420	1530	1615	4880	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	67	54	106	261	37	57	175	740	189	94	827	40
RTOR Reduction (vph)	0	0	96	0	26	0	0	0	73	0	3	0
Lane Group Flow (vph)	67	54	10	133	196	0	175	740	116	94	864	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	11.2	11.2	11.2	18.0	18.0		15.7	83.1	83.1	9.7	77.1	
Effective Green, g (s)	13.2	13.2	13.2	20.0	20.0		17.7	86.1	86.1	11.7	80.1	
Actuated g/C Ratio	0.09	0.09	0.09	0.14	0.14		0.13	0.61	0.61	0.08	0.57	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	152	169	144	210	437		204	2103	940	134	2792	
v/s Ratio Prot	c0.04	0.03		c0.09	0.06		c0.11	c0.22		0.06	0.18	
v/s Ratio Perm			0.01						0.08			
v/c Ratio	0.44	0.32	0.07	0.63	0.45		0.86	0.35	0.12	0.70	0.31	
Uniform Delay, d1	59.9	59.2	57.8	56.5	55.0		59.9	13.2	11.2	62.5	15.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.09	0.92	1.13	0.85	0.39	
Incremental Delay, d2	2.0	1.1	0.2	6.1	0.7		26.7	0.4	0.3	14.8	0.3	
Delay (s)	61.9	60.3	58.0	62.7	55.7		91.7	12.6	12.9	67.9	6.4	
Level of Service	E	E	E	E	E		F	B	B	E	A	
Approach Delay (s)		59.7			58.3			25.2			12.4	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	351	0	307	285	911	0	0	839	329
Future Volume (vph)	0	0	0	351	0	307	285	911	0	0	839	329
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)				1.0		1.0	1.0	3.0			3.0	3.0
Lane Util. Factor				1.00		0.88	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1615		2693	1615	3420			3420	1530
Flt Permitted				0.95		1.00	0.22	1.00			1.00	1.00
Satd. Flow (perm)				1615		2693	379	3420			3420	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	369	0	323	300	959	0	0	883	346
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	177
Lane Group Flow (vph)	0	0	0	369	0	323	300	959	0	0	883	169
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm	pm+pt	NA			NA	Perm
Protected Phases							5	2			6	
Permitted Phases				8		8	2					6
Actuated Green, G (s)				35.6		35.6	98.4	96.4			66.4	66.4
Effective Green, g (s)				37.6		37.6	100.4	98.4			68.4	68.4
Actuated g/C Ratio				0.27		0.27	0.72	0.70			0.49	0.49
Clearance Time (s)				3.0		3.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				433		723	527	2403			1670	747
v/s Ratio Prot							c0.12	0.28			0.26	
v/s Ratio Perm				c0.23		0.12	c0.29					0.11
v/c Ratio				0.85		0.45	0.57	0.40			0.53	0.23
Uniform Delay, d1				48.6		42.6	24.9	8.6			24.7	20.6
Progression Factor				1.00		1.00	0.90	1.06			1.11	3.33
Incremental Delay, d2				14.9		0.4	1.2	0.4			1.2	0.7
Delay (s)				63.4		43.0	23.6	9.5			28.5	69.3
Level of Service				E		D	C	A			C	E
Approach Delay (s)		0.0			53.9			12.9			40.0	
Approach LOS		A			D			B			D	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	306	126	197	56	0	195	0	690	407	333	850	0
Future Volume (vph)	306	126	197	56	0	195	0	690	407	333	850	0
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	3.0	3.0		0.5		1.0		3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95	1.00	1.00	0.95	
Frt	1.00	0.91		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	1636		1615		1530		3420	1530	1615	3420	
Flt Permitted	0.95	1.00		0.95		1.00		1.00	1.00	0.25	1.00	
Satd. Flow (perm)	1615	1636		1615		1530		3420	1530	426	3420	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	322	133	207	59	0	205	0	726	428	351	895	0
RTOR Reduction (vph)	0	43	0	0	0	124	0	0	245	0	0	0
Lane Group Flow (vph)	322	297	0	59	0	81	0	726	183	351	895	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot		pm+ov		NA	Perm	pm+pt	NA	
Protected Phases	4	4		3		1		2		1	6	
Permitted Phases						3			2	6		
Actuated Green, G (s)	33.3	33.3		5.6		33.9		56.8	56.8	88.1	88.1	
Effective Green, g (s)	35.3	35.3		8.1		37.9		58.8	58.8	90.1	90.1	
Actuated g/C Ratio	0.25	0.25		0.06		0.27		0.42	0.42	0.64	0.64	
Clearance Time (s)	5.0	5.0		3.0		3.0		5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	407	412		93		414		1436	642	531	2201	
v/s Ratio Prot	c0.20	0.18		c0.04		0.04		c0.21		c0.14	0.26	
v/s Ratio Perm						0.01			0.12	0.28		
v/c Ratio	0.79	0.72		0.63		0.20		0.51	0.28	0.66	0.41	
Uniform Delay, d1	48.9	47.8		64.5		39.3		29.9	26.7	14.5	12.0	
Progression Factor	1.00	1.00		0.71		4.37		1.00	1.00	0.61	0.19	
Incremental Delay, d2	10.1	5.9		12.8		0.2		1.3	1.1	2.5	0.5	
Delay (s)	59.0	53.8		58.4		171.8		31.2	27.9	11.3	2.7	
Level of Service	E	D		E		F		C	C	B	A	
Approach Delay (s)		56.3			146.5			29.9			5.1	
Approach LOS		E			F			C			A	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	588	274	256	65	0	0
Future Volume (vph)	588	274	256	65	0	0
Ideal Flow (vphpl)	1600	1800	1800	1800	0	0
Total Lost time (s)	1.0	3.0	1.0			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	0.97			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	2949	3420	3316			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	2949	3420	3316			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	0%	0%
Adj. Flow (vph)	619	288	269	68	0	0
RTOR Reduction (vph)	0	0	16	0	0	0
Lane Group Flow (vph)	619	288	321	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	95.0	140.0	37.0			
Effective Green, g (s)	97.0	140.0	41.0			
Actuated g/C Ratio	0.69	1.00	0.29			
Clearance Time (s)	3.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	2043	3420	971			
v/s Ratio Prot	c0.21	0.08	c0.10			
v/s Ratio Perm						
v/c Ratio	0.30	0.08	0.33			
Uniform Delay, d1	8.4	0.0	38.8			
Progression Factor	0.80	1.00	1.00			
Incremental Delay, d2	0.1	0.0	0.9			
Delay (s)	6.8	0.0	39.7			
Level of Service	A	A	D			
Approach Delay (s)		4.6	39.7		0.0	
Approach LOS		A	D		A	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	562	183	154	250	37	103	634	114	60	853	69
Future Volume (vph)	114	562	183	154	250	37	103	634	114	60	853	69
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1615	3420	1530	1615	3420	1530	1615	4802		1615	4859	
Flt Permitted	0.49	1.00	1.00	0.17	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	826	3420	1530	283	3420	1530	1615	4802		1615	4859	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	120	592	193	162	263	39	108	667	120	63	898	73
RTOR Reduction (vph)	0	0	112	0	0	30	0	16	0	0	6	0
Lane Group Flow (vph)	120	592	81	162	263	9	108	771	0	63	965	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	38.9	30.2	30.2	39.5	30.5	30.5	42.6	77.6		7.2	42.2	
Effective Green, g (s)	42.9	32.2	32.2	43.5	32.5	32.5	44.6	79.6		9.2	44.2	
Actuated g/C Ratio	0.31	0.23	0.23	0.31	0.23	0.23	0.32	0.57		0.07	0.32	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	313	786	351	192	793	355	514	2730		106	1534	
v/s Ratio Prot	0.03	c0.17		c0.07	0.08		0.07	c0.16		0.04	c0.20	
v/s Ratio Perm	0.09		0.05	0.20		0.01						
v/c Ratio	0.38	0.75	0.23	0.84	0.33	0.03	0.21	0.28		0.59	0.63	
Uniform Delay, d1	36.5	50.2	43.8	38.8	44.7	41.5	34.8	15.5		63.6	40.9	
Progression Factor	0.33	0.43	0.22	1.00	1.00	1.00	0.63	0.25		1.00	1.00	
Incremental Delay, d2	0.2	2.9	0.2	26.2	0.2	0.0	0.1	0.2		5.8	2.0	
Delay (s)	12.1	24.6	9.9	65.0	45.0	41.5	22.0	4.1		69.4	42.9	
Level of Service	B	C	A	E	D	D	C	A		E	D	
Approach Delay (s)		19.8			51.7			6.2			44.5	
Approach LOS		B			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	333	210	292	249	51	302	848	220	129	996	58
Future Volume (vph)	106	333	210	292	249	51	302	848	220	129	996	58
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.0		0.5	2.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2949	3420	1530	2949	3332		2949	4762		2949	4873	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2949	3420	1530	2949	3332		2949	4762		2949	4873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	112	351	221	307	262	54	318	893	232	136	1048	61
RTOR Reduction (vph)	0	0	185	0	13	0	0	28	0	0	4	0
Lane Group Flow (vph)	112	351	36	307	303	0	318	1097	0	136	1105	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	10.7	20.1	20.1	20.3	29.7		20.1	72.4		11.2	63.5	
Effective Green, g (s)	12.7	22.6	22.6	22.3	32.2		22.6	75.4		13.7	66.5	
Actuated g/C Ratio	0.09	0.16	0.16	0.16	0.23		0.16	0.54		0.10	0.48	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	267	552	246	469	766		476	2564		288	2314	
v/s Ratio Prot	0.04	c0.10		c0.10	0.09		c0.11	0.23		0.05	c0.23	
v/s Ratio Perm			0.02									
v/c Ratio	0.42	0.64	0.15	0.65	0.40		0.67	0.43		0.47	0.48	
Uniform Delay, d1	60.2	54.9	50.4	55.2	45.7		55.2	19.4		59.7	25.0	
Progression Factor	1.03	0.90	1.11	1.00	1.00		1.37	0.38		1.24	0.31	
Incremental Delay, d2	1.1	2.4	0.3	3.3	0.3		3.3	0.5		1.0	0.6	
Delay (s)	63.2	52.0	56.2	58.5	46.0		79.1	7.8		75.2	8.2	
Level of Service	E	D	E	E	D		E	A		E	A	
Approach Delay (s)		55.2			52.2			23.5			15.5	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	396	0	446	323	1140	0	0	1194	410
Future Volume (vph)	0	0	0	396	0	446	323	1140	0	0	1194	410
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)				3.0	3.0	3.0	1.0	3.0			3.0	3.0
Lane Util. Factor				0.95	0.91	0.95	0.97	0.91			0.86	1.00
Frt				1.00	0.90	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1534	1455	1454	2949	4914			6192	1530
Flt Permitted				0.95	0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1534	1455	1454	2949	4914			6192	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	417	0	469	340	1200	0	0	1257	432
RTOR Reduction (vph)	0	0	0	0	51	54	0	0	0	0	0	207
Lane Group Flow (vph)	0	0	0	309	245	227	340	1200	0	0	1257	225
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				35.3	35.3	35.3	20.8	94.7			70.9	70.9
Effective Green, g (s)				37.3	37.3	37.3	22.8	96.7			72.9	72.9
Actuated g/C Ratio				0.27	0.27	0.27	0.16	0.69			0.52	0.52
Clearance Time (s)				5.0	5.0	5.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				408	387	387	480	3394			3224	796
v/s Ratio Prot							c0.12	0.24			c0.20	
v/s Ratio Perm				c0.20	0.17	0.16						0.15
v/c Ratio				0.76	0.63	0.59	0.71	0.35			0.39	0.28
Uniform Delay, d1				47.2	45.3	44.7	55.5	8.9			20.2	18.9
Progression Factor				1.00	1.00	1.00	0.88	0.60			0.57	0.71
Incremental Delay, d2				7.8	3.4	2.3	4.4	0.3			0.3	0.8
Delay (s)				55.0	48.7	46.9	53.0	5.6			11.8	14.2
Level of Service				E	D	D	D	A			B	B
Approach Delay (s)		0.0			50.3			16.1			12.4	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	383	0	361	0	0	0	0	1101	516	460	1134	0
Future Volume (vph)	383	0	361	0	0	0	0	1101	516	460	1134	0
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1600	1800	1800
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	1.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	0.97	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1534	1624	1530					6192	1530	2949	4914	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1534	1624	1530					6192	1530	2949	4914	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%
Adj. Flow (vph)	403	0	380	0	0	0	0	1159	543	484	1194	0
RTOR Reduction (vph)	0	0	76	0	0	0	0	0	144	0	0	0
Lane Group Flow (vph)	201	202	304	0	0	0	0	1159	399	484	1194	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	32.0	32.0	32.0					60.0	60.0	35.0	98.0	
Effective Green, g (s)	34.0	34.0	34.0					62.0	62.0	37.0	100.0	
Actuated g/C Ratio	0.24	0.24	0.24					0.44	0.44	0.26	0.71	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	372	394	371					2742	677	779	3510	
v/s Ratio Prot								0.19		c0.16	0.24	
v/s Ratio Perm	0.13	0.12	c0.20						c0.26			
v/c Ratio	0.54	0.51	0.82					0.42	0.59	0.62	0.34	
Uniform Delay, d1	46.2	45.8	50.1					26.7	29.4	45.3	7.5	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.85	0.80	
Incremental Delay, d2	1.6	1.1	13.1					0.5	3.7	1.4	0.2	
Delay (s)	47.8	47.0	63.2					27.2	33.1	39.8	6.3	
Level of Service	D	D	E					C	C	D	A	
Approach Delay (s)		55.0			0.0			29.1			15.9	
Approach LOS		E			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	1021	169	181	449	82	101	581	148	100	657	70
Future Volume (vph)	123	1021	169	181	449	82	101	581	148	100	657	70
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	1404	2905		1404	2883		1404	2931	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	1404	2905		1404	2883		1404	2931	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	129	1075	178	191	473	86	106	612	156	105	692	74
RTOR Reduction (vph)	0	0	113	0	17	0	0	25	0	0	9	0
Lane Group Flow (vph)	129	1075	65	191	542	0	106	743	0	105	757	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	7.0	31.0	31.0	8.0	32.0		7.0	28.0		7.0	28.0	
Effective Green, g (s)	9.0	33.0	33.0	10.0	34.0		9.0	30.0		9.0	30.0	
Actuated g/C Ratio	0.10	0.37	0.37	0.11	0.38		0.10	0.33		0.10	0.33	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	140	1090	487	156	1097		140	961		140	977	
v/s Ratio Prot	0.09	c0.36		c0.14	0.19		0.08	c0.26		0.07	c0.26	
v/s Ratio Perm			0.05									
v/c Ratio	0.92	0.99	0.13	1.22	0.49		0.76	0.77		0.75	0.78	
Uniform Delay, d1	40.1	28.3	19.0	40.0	21.4		39.4	26.9		39.4	27.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	52.8	23.7	0.1	144.9	0.4		20.6	6.0		20.0	6.0	
Delay (s)	92.9	52.0	19.1	184.9	21.8		60.0	33.0		59.4	33.0	
Level of Service	F	D	B	F	C		E	C		E	C	
Approach Delay (s)		51.6			63.3			36.2			36.1	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	936	64	53	399	69	76	198	40	102	239	133
Future Volume (vph)	151	936	64	53	399	69	76	198	40	102	239	133
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1404	2946		1404	2908		1404	2899		1404	1565	1330
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1404	2946		1404	2908		1404	2899		1404	1565	1330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	159	985	67	56	420	73	80	208	42	107	252	140
RTOR Reduction (vph)	0	6	0	0	16	0	0	17	0	0	0	88
Lane Group Flow (vph)	159	1046	0	56	477	0	80	233	0	107	252	52
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	9.0	33.8		5.4	30.2		5.4	30.9		7.0	32.5	32.5
Effective Green, g (s)	11.0	35.8		7.4	32.2		7.4	32.9		9.0	34.5	34.5
Actuated g/C Ratio	0.12	0.38		0.08	0.35		0.08	0.35		0.10	0.37	0.37
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	165	1132		111	1005		111	1024		135	579	492
v/s Ratio Prot	c0.11	c0.36		0.04	c0.16		c0.06	0.08		c0.08	c0.16	
v/s Ratio Perm												0.04
v/c Ratio	0.96	0.92		0.50	0.47		0.72	0.23		0.79	0.44	0.11
Uniform Delay, d1	40.9	27.4		41.1	23.8		41.8	21.2		41.1	22.0	19.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	58.9	12.4		3.6	0.4		20.4	0.5		26.4	2.4	0.4
Delay (s)	99.7	39.8		44.7	24.2		62.3	21.7		67.6	24.4	19.6
Level of Service	F	D		D	C		E	C		E	C	B
Approach Delay (s)		47.7			26.3			31.5			32.3	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	93.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	834	202	148	533	169	176	410	150	162	477	53
Future Volume (vph)	47	834	202	148	533	169	176	410	150	162	477	53
Ideal Flow (vphpl)	1700	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	2564	2974	1330	2564	2974	1330	2564	4209	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	2564	2974	1330	2564	2974	1330	2564	4209	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	49	878	213	156	561	178	185	432	158	171	502	56
RTOR Reduction (vph)	0	0	81	0	0	110	0	0	98	0	12	0
Lane Group Flow (vph)	49	878	132	156	561	68	185	432	60	171	546	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	5.5	37.2	37.2	7.0	38.7	38.7	9.0	38.1	38.1	8.0	37.1	
Effective Green, g (s)	7.5	39.2	39.2	9.0	40.7	40.7	11.0	40.1	40.1	10.0	39.1	
Actuated g/C Ratio	0.07	0.37	0.37	0.08	0.38	0.38	0.10	0.38	0.38	0.09	0.37	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	99	1096	490	217	1138	509	265	1121	501	241	1548	
v/s Ratio Prot	0.03	c0.30		c0.06	0.19		c0.07	c0.15		c0.07	0.13	
v/s Ratio Perm			0.10			0.05			0.04			
v/c Ratio	0.49	0.80	0.27	0.72	0.49	0.13	0.70	0.39	0.12	0.71	0.35	
Uniform Delay, d1	47.6	30.1	23.5	47.4	25.0	21.3	46.0	24.1	21.6	46.7	24.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.9	4.3	0.3	10.8	0.3	0.1	7.8	1.0	0.5	9.2	0.6	
Delay (s)	51.4	34.3	23.8	58.2	25.3	21.5	53.8	25.1	22.1	55.9	25.0	
Level of Service	D	C	C	E	C	C	D	C	C	E	C	
Approach Delay (s)		33.1			30.3			31.4			32.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	106.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	535	100	84	176	68	57	597	102	85	699	32
Future Volume (vph)	79	535	100	84	176	68	57	597	102	85	699	32
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1600	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2904		1404	1565	1330	2564	4180		1404	4245	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2904		1404	1565	1330	2564	4180		1404	4245	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	83	563	105	88	185	72	60	628	107	89	736	34
RTOR Reduction (vph)	0	19	0	0	0	49	0	22	0	0	4	0
Lane Group Flow (vph)	83	649	0	88	185	23	60	713	0	89	766	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	5.2	22.8		5.2	22.8	22.8	5.1	28.2		5.2	28.3	
Effective Green, g (s)	7.2	24.8		7.2	24.8	24.8	7.1	30.2		7.2	30.3	
Actuated g/C Ratio	0.09	0.32		0.09	0.32	0.32	0.09	0.39		0.09	0.39	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	130	930		130	501	426	235	1630		130	1661	
v/s Ratio Prot	0.06	c0.22		c0.06	0.12		0.02	c0.17		c0.06	0.18	
v/s Ratio Perm						0.02						
v/c Ratio	0.64	0.70		0.68	0.37	0.05	0.26	0.44		0.68	0.46	
Uniform Delay, d1	33.8	23.0		34.0	20.3	18.2	32.7	17.4		34.0	17.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.9	2.3		13.1	0.5	0.1	0.6	0.9		13.9	0.9	
Delay (s)	43.7	25.3		47.1	20.7	18.2	33.3	18.2		47.9	18.4	
Level of Service	D	C		D	C	B	C	B		D	B	
Approach Delay (s)		27.4			26.9			19.3			21.5	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	411	84	154	221	52	70	538	180	50	517	69
Future Volume (vph)	92	411	84	154	221	52	70	538	180	50	517	69
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1404	2899		1404	1520		1404	2974	1330	1404	2921	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1404	2899		1404	1520		1404	2974	1330	1404	2921	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	433	88	162	233	55	74	566	189	53	544	73
RTOR Reduction (vph)	0	22	0	0	10	0	0	0	110	0	11	0
Lane Group Flow (vph)	97	499	0	162	278	0	74	566	79	53	606	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	5.3	19.0		8.1	21.8		5.3	30.4	30.4	3.9	29.0	
Effective Green, g (s)	7.3	21.0		10.1	23.8		7.3	32.4	32.4	5.9	31.0	
Actuated g/C Ratio	0.09	0.27		0.13	0.31		0.09	0.42	0.42	0.08	0.40	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	132	786		183	467		132	1244	556	107	1169	
v/s Ratio Prot	0.07	0.17		c0.12	c0.18		c0.05	0.19		0.04	c0.21	
v/s Ratio Perm									0.06			
v/c Ratio	0.73	0.64		0.89	0.59		0.56	0.45	0.14	0.50	0.52	
Uniform Delay, d1	34.1	24.8		33.1	22.7		33.5	16.2	13.9	34.3	17.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	19.0	1.7		36.1	2.0		5.4	1.2	0.5	3.6	1.6	
Delay (s)	53.1	26.5		69.2	24.7		38.9	17.4	14.4	37.9	19.2	
Level of Service	D	C		E	C		D	B	B	D	B	
Approach Delay (s)		30.7			40.7			18.6			20.7	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	582	108	181	389	78	142	1047	140	109	1011	115
Future Volume (vph)	162	582	108	181	389	78	142	1047	140	109	1011	115
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	0.97		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2904		1404	2899		1404	4198		1404	4208	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2904		1404	2899		1404	4198		1404	4208	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	171	613	114	191	409	82	149	1102	147	115	1064	121
RTOR Reduction (vph)	0	19	0	0	20	0	0	18	0	0	15	0
Lane Group Flow (vph)	171	708	0	191	471	0	149	1231	0	115	1170	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	25.6		7.0	25.6		7.0	27.1		7.0	27.1	
Effective Green, g (s)	9.0	27.6		9.0	27.6		9.0	29.1		9.0	29.1	
Actuated g/C Ratio	0.11	0.33		0.11	0.33		0.11	0.35		0.11	0.35	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	969		152	967		152	1477		152	1480	
v/s Ratio Prot	0.12	c0.24		c0.14	0.16		c0.11	c0.29		0.08	0.28	
v/s Ratio Perm												
v/c Ratio	1.12	0.73		1.26	0.49		0.98	0.83		0.76	0.79	
Uniform Delay, d1	36.9	24.3		36.9	21.9		36.8	24.6		35.8	24.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	110.5	2.9		157.9	0.4		66.8	5.7		19.1	4.4	
Delay (s)	147.4	27.1		194.7	22.3		103.6	30.2		54.9	28.5	
Level of Service	F	C		F	C		F	C		D	C	
Approach Delay (s)		50.0			70.6			38.1			30.8	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	43.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	82.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	631	163	228	448	172	146	1005	220	99	913	91
Future Volume (vph)	155	631	163	228	448	172	146	1005	220	99	913	91
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2564	2974	1330	2564	2974	1330	2564	4158		2564	2974	1330
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2564	2974	1330	2564	2974	1330	2564	4158		2564	2974	1330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	163	664	172	240	472	181	154	1058	232	104	961	96
RTOR Reduction (vph)	0	0	108	0	0	123	0	30	0	0	0	58
Lane Group Flow (vph)	163	664	64	240	472	58	154	1260	0	104	961	38
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	7.0	27.1	27.1	8.0	28.1	28.1	7.7	37.4		5.5	35.2	35.2
Effective Green, g (s)	9.0	29.1	29.1	10.0	30.1	30.1	9.7	39.4		7.5	37.2	37.2
Actuated g/C Ratio	0.10	0.31	0.31	0.11	0.32	0.32	0.10	0.42		0.08	0.40	0.40
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	245	920	411	272	952	425	264	1742		204	1176	526
v/s Ratio Prot	0.06	c0.22		c0.09	0.16		0.06	c0.30		0.04	c0.32	
v/s Ratio Perm			0.05			0.04						0.03
v/c Ratio	0.67	0.72	0.16	0.88	0.50	0.14	0.58	0.72		0.51	0.82	0.07
Uniform Delay, d1	41.0	28.9	23.5	41.4	25.8	22.7	40.2	22.8		41.5	25.4	17.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.7	2.8	0.2	26.7	0.4	0.1	3.3	2.6		2.0	6.4	0.3
Delay (s)	47.7	31.7	23.7	68.1	26.2	22.9	43.5	25.4		43.5	31.7	17.9
Level of Service	D	C	C	E	C	C	D	C		D	C	B
Approach Delay (s)		32.9			36.8			27.3			31.6	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	866	145	172	489	255	113	854	127	261	930	119
Future Volume (vph)	260	866	145	172	489	255	113	854	127	261	930	119
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2564	4181		2564	2974	1330	2564	2916		2564	2923	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2564	4181		2564	2974	1330	2564	2916		2564	2923	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	274	912	153	181	515	268	119	899	134	275	979	125
RTOR Reduction (vph)	0	20	0	0	0	131	0	10	0	0	8	0
Lane Group Flow (vph)	274	1045	0	181	515	137	119	1023	0	275	1096	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	8.0	35.0		8.0	35.0	35.0	7.0	47.1		8.0	48.1	
Effective Green, g (s)	10.0	37.0		10.0	37.0	37.0	9.0	49.1		10.0	50.1	
Actuated g/C Ratio	0.09	0.32		0.09	0.32	0.32	0.08	0.43		0.09	0.44	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	224	1355		224	964	431	202	1254		224	1283	
v/s Ratio Prot	c0.11	c0.25		0.07	0.17		0.05	c0.35		c0.11	c0.37	
v/s Ratio Perm						0.10						
v/c Ratio	1.22	0.77		0.81	0.53	0.32	0.59	0.82		1.23	0.85	
Uniform Delay, d1	52.0	34.7		51.1	31.5	29.0	50.8	28.5		52.0	28.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	133.6	2.8		18.9	0.6	0.4	4.3	5.9		135.3	7.4	
Delay (s)	185.6	37.5		70.0	32.1	29.5	55.1	34.5		187.3	36.1	
Level of Service	F	D		E	C	C	E	C		F	D	
Approach Delay (s)		67.8			38.5			36.6			66.3	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	54.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	114.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	432	153	124	574	175	204	535	125	155	549	139
Future Volume (vph)	91	432	153	124	574	175	204	535	125	155	549	139
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	2.5		1.0	2.5	2.5	1.0	2.0		1.0	2.0	2.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2949	3286		2949	3420	1530	1615	3323		1615	3420	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2949	3286		2949	3420	1530	1615	3323		1615	3420	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	96	455	161	131	604	184	215	563	132	163	578	146
RTOR Reduction (vph)	0	29	0	0	0	139	0	14	0	0	0	87
Lane Group Flow (vph)	96	587	0	131	604	45	215	681	0	163	578	59
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	9.2	30.2		8.0	29.0	29.0	26.0	58.3		17.5	49.8	49.8
Effective Green, g (s)	11.2	32.7		10.0	31.5	31.5	28.0	61.3		19.5	52.8	52.8
Actuated g/C Ratio	0.09	0.25		0.08	0.24	0.24	0.22	0.47		0.15	0.41	0.41
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	254	826		226	828	370	347	1566		242	1389	621
v/s Ratio Prot	0.03	c0.18		0.04	c0.18		c0.13	0.21		c0.10	c0.17	
v/s Ratio Perm						0.03						0.04
v/c Ratio	0.38	0.71		0.58	0.73	0.12	0.62	0.44		0.67	0.42	0.10
Uniform Delay, d1	56.1	44.3		58.0	45.3	38.4	46.2	22.8		52.2	27.6	23.8
Progression Factor	1.00	1.00		0.65	0.73	1.75	0.61	0.32		1.00	1.00	1.00
Incremental Delay, d2	0.9	2.9		2.0	1.8	0.1	7.7	0.8		7.2	0.9	0.3
Delay (s)	57.1	47.2		39.9	35.0	67.4	36.0	8.2		59.4	28.5	24.2
Level of Service	E	D		D	D	E	D	A		E	C	C
Approach Delay (s)		48.6			42.2			14.7			33.5	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	357	124	539	372	152	74	576	492	133	614	25
Future Volume (vph)	9	357	124	539	372	152	74	576	492	133	614	25
Ideal Flow (vphpl)	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	2.0	1.0	1.0	2.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	3287		2949	1800	1530	1615	3420	1530	1615	3400	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1615	3287		2949	1800	1530	1615	3420	1530	1615	3400	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	376	131	567	392	160	78	606	518	140	646	26
RTOR Reduction (vph)	0	27	0	0	0	69	0	0	81	0	2	0
Lane Group Flow (vph)	9	480	0	567	392	91	78	606	437	140	670	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	5	1	6	3	5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	1.4	26.4		28.6	53.6	69.7	7.9	42.9	71.5	16.1	51.1	
Effective Green, g (s)	3.4	28.4		30.6	55.6	73.7	9.9	45.9	75.5	18.1	54.1	
Actuated g/C Ratio	0.03	0.22		0.24	0.43	0.57	0.08	0.35	0.58	0.14	0.42	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	42	718		694	769	867	122	1207	888	224	1414	
v/s Ratio Prot	0.01	c0.15		c0.19	0.22	0.01	0.05	c0.18	0.12	c0.09	c0.20	
v/s Ratio Perm						0.04			0.17			
v/c Ratio	0.21	0.67		0.82	0.51	0.10	0.64	0.50	0.49	0.62	0.47	
Uniform Delay, d1	62.0	46.5		47.0	27.2	13.0	58.3	33.1	16.0	52.8	27.6	
Progression Factor	1.00	1.00		0.81	0.76	0.83	0.62	0.72	0.86	0.75	0.45	
Incremental Delay, d2	2.6	2.4		7.2	0.5	0.1	9.6	1.4	0.4	4.8	1.0	
Delay (s)	64.5	48.9		45.2	21.2	10.8	45.9	25.1	14.2	44.2	13.4	
Level of Service	E	D		D	C	B	D	C	B	D	B	
Approach Delay (s)		49.1			31.9			21.8			18.7	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	14	331	44	16	8	220	1068	25	17	1114	115
Future Volume (vph)	124	14	331	44	16	8	220	1068	25	17	1114	115
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		1.0	2.0	2.0	1.0	2.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	1800	1530	1470	3119		1615	3420	1530	1615	4845	
Flt Permitted	0.95	1.00	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1615	1800	1530	1470	3119		1615	3420	1530	1615	4845	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	131	15	348	46	17	8	232	1124	26	18	1173	121
RTOR Reduction (vph)	0	0	300	0	7	0	0	0	8	0	6	0
Lane Group Flow (vph)	131	15	48	23	41	0	232	1124	18	18	1288	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	16.0	16.0	16.0	6.5	6.5		22.5	86.7	86.7	2.8	67.0	
Effective Green, g (s)	18.0	18.0	18.0	8.5	8.5		24.5	89.7	89.7	4.8	70.0	
Actuated g/C Ratio	0.14	0.14	0.14	0.07	0.07		0.19	0.69	0.69	0.04	0.54	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	223	249	211	96	203		304	2359	1055	59	2608	
v/s Ratio Prot	c0.08	0.01		c0.02	0.01		c0.14	0.33		0.01	c0.27	
v/s Ratio Perm			0.03						0.01			
v/c Ratio	0.59	0.06	0.23	0.24	0.20		0.76	0.48	0.02	0.31	0.49	
Uniform Delay, d1	52.5	48.7	49.8	57.7	57.5		50.0	9.3	6.3	61.0	18.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.12	0.46	1.00	1.04	0.81	
Incremental Delay, d2	3.9	0.1	0.6	1.3	0.5		9.7	0.6	0.0	2.3	0.5	
Delay (s)	56.4	48.8	50.4	59.0	58.0		65.7	4.9	6.3	65.9	15.8	
Level of Service	E	D	D	E	E		E	A	A	E	B	
Approach Delay (s)		51.9			58.3			15.1			16.5	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	262	0	451	317	969	0	0	1073	461
Future Volume (vph)	0	0	0	262	0	451	317	969	0	0	1073	461
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)				1.0		1.0	1.0	3.0			3.0	3.0
Lane Util. Factor				1.00		0.88	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1615		2693	1615	3420			3420	1530
Flt Permitted				0.95		1.00	0.16	1.00			1.00	1.00
Satd. Flow (perm)				1615		2693	266	3420			3420	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	276	0	475	334	1020	0	0	1129	485
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	204
Lane Group Flow (vph)	0	0	0	276	0	475	334	1020	0	0	1129	281
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm	pm+pt	NA			NA	Perm
Protected Phases							5	2			6	
Permitted Phases				8		8	2					6
Actuated Green, G (s)				28.0		28.0	94.0	94.0			68.8	68.8
Effective Green, g (s)				30.0		30.0	96.0	96.0			70.8	70.8
Actuated g/C Ratio				0.23		0.23	0.74	0.74			0.54	0.54
Clearance Time (s)				3.0		3.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				372		621	447	2525			1862	833
v/s Ratio Prot							c0.14	0.30			c0.33	
v/s Ratio Perm				0.17		c0.18	0.41					0.18
v/c Ratio				0.74		0.76	0.75	0.40			0.61	0.34
Uniform Delay, d1				46.4		46.7	20.6	6.3			20.1	16.5
Progression Factor				1.00		1.00	1.14	0.86			0.41	0.28
Incremental Delay, d2				7.8		5.6	3.9	0.3			1.3	1.0
Delay (s)				54.2		52.3	27.5	5.7			9.6	5.6
Level of Service				D		D	C	A			A	A
Approach Delay (s)		0.0			53.0			11.1			8.4	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	374	116	172	84	0	149	0	766	398	536	826	0
Future Volume (vph)	374	116	172	84	0	149	0	766	398	536	826	0
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	3.0	3.0		0.5		1.0		3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95	1.00	1.00	0.95	
Frt	1.00	0.91		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	1639		1615		1530		3420	1530	1615	3420	
Flt Permitted	0.95	1.00		0.95		1.00		1.00	1.00	0.11	1.00	
Satd. Flow (perm)	1615	1639		1615		1530		3420	1530	194	3420	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	394	122	181	88	0	157	0	806	419	564	869	0
RTOR Reduction (vph)	0	41	0	0	0	53	0	0	299	0	0	0
Lane Group Flow (vph)	394	262	0	88	0	104	0	806	120	564	869	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot		pm+ov		NA	Perm	pm+pt	NA	
Protected Phases	4	4		3		1		2		1	6	
Permitted Phases						3			2	6		
Actuated Green, G (s)	32.2	32.2		7.0		48.0		33.8	33.8	79.8	77.8	
Effective Green, g (s)	34.2	34.2		9.5		52.0		35.8	35.8	81.8	79.8	
Actuated g/C Ratio	0.26	0.26		0.07		0.40		0.28	0.28	0.63	0.61	
Clearance Time (s)	5.0	5.0		3.0		3.0		5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	424	431		118		623		941	421	592	2099	
v/s Ratio Prot	c0.24	0.16		c0.05		0.05		0.24		c0.32	0.25	
v/s Ratio Perm						0.01			0.08	c0.28		
v/c Ratio	0.93	0.61		0.75		0.17		0.86	0.29	0.95	0.41	
Uniform Delay, d1	46.7	42.0		59.1		25.1		44.7	37.0	36.1	13.0	
Progression Factor	1.00	1.00		0.61		1.66		1.00	1.00	0.76	0.84	
Incremental Delay, d2	26.5	2.4		21.7		0.1		9.9	1.7	22.1	0.5	
Delay (s)	73.2	44.4		58.0		41.8		54.6	38.8	49.7	11.5	
Level of Service	E	D		E		D		D	D	D	B	
Approach Delay (s)		60.7			47.6			49.2			26.5	
Approach LOS		E			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	42.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	856	215	258	29	0	0
Future Volume (vph)	856	215	258	29	0	0
Ideal Flow (vphpl)	1600	1800	1800	1800	0	0
Total Lost time (s)	1.0	3.0	1.0			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	0.98			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	2949	3420	3368			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	2949	3420	3368			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	0%	0%
Adj. Flow (vph)	901	226	272	31	0	0
RTOR Reduction (vph)	0	0	6	0	0	0
Lane Group Flow (vph)	901	226	297	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	88.0	130.0	34.0			
Effective Green, g (s)	90.0	130.0	38.0			
Actuated g/C Ratio	0.69	1.00	0.29			
Clearance Time (s)	3.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	2041	3420	984			
v/s Ratio Prot	c0.31	0.07	c0.09			
v/s Ratio Perm						
v/c Ratio	0.44	0.07	0.30			
Uniform Delay, d1	8.9	0.0	35.7			
Progression Factor	0.74	1.00	1.00			
Incremental Delay, d2	0.1	0.0	0.8			
Delay (s)	6.6	0.0	36.5			
Level of Service	A	A	D			
Approach Delay (s)		5.3	36.5		0.0	
Approach LOS		A	D		A	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	369	572	144	420	33	560	565	166	14	464	131
Future Volume (vph)	147	369	572	144	420	33	560	565	166	14	464	131
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1615	3420	1530	1615	3420	1530	1615	4746		1615	4752	
Flt Permitted	0.25	1.00	1.00	0.51	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	420	3420	1530	868	3420	1530	1615	4746		1615	4752	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	155	388	602	152	442	35	589	595	175	15	488	138
RTOR Reduction (vph)	0	0	464	0	0	28	0	30	0	0	35	0
Lane Group Flow (vph)	155	388	138	152	442	7	589	740	0	15	591	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	23.2	23.2	23.2	25.8	23.8	23.8	38.8	80.4		2.8	44.4	
Effective Green, g (s)	25.2	25.2	25.2	27.8	25.8	25.8	40.8	82.4		4.8	46.4	
Actuated g/C Ratio	0.19	0.19	0.19	0.21	0.20	0.20	0.31	0.63		0.04	0.36	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	164	662	296	240	678	303	506	3008		59	1696	
v/s Ratio Prot	c0.07	c0.11		0.05	c0.13		c0.36	0.16		0.01	c0.12	
v/s Ratio Perm	0.12		0.09	0.09		0.00						
v/c Ratio	0.95	0.59	0.47	0.63	0.65	0.02	1.16	0.25		0.25	0.35	
Uniform Delay, d1	49.4	47.7	46.5	47.7	48.0	42.0	44.6	10.3		60.9	30.7	
Progression Factor	0.74	0.74	1.36	1.00	1.00	1.00	0.92	0.36		1.00	1.00	
Incremental Delay, d2	51.6	1.3	1.1	4.0	2.3	0.0	92.4	0.2		0.8	0.6	
Delay (s)	88.2	36.6	64.2	51.7	50.2	42.0	133.2	3.9		61.7	31.3	
Level of Service	F	D	E	D	D	D	F	A		E	C	
Approach Delay (s)		58.1			50.1			59.9			32.0	
Approach LOS		E			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	53.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	117	250	208	119	51	312	1172	94	57	840	233
Future Volume (vph)	237	117	250	208	119	51	312	1172	94	57	840	233
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.0		0.5	2.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2949	3420	1530	2949	3265		2949	4859		2949	4754	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2949	3420	1530	2949	3265		2949	4859		2949	4754	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	249	123	263	219	125	54	328	1234	99	60	884	245
RTOR Reduction (vph)	0	0	232	0	48	0	0	5	0	0	27	0
Lane Group Flow (vph)	249	123	31	219	131	0	328	1328	0	60	1102	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	16.2	13.0	13.0	13.7	10.5		19.6	81.7		5.6	67.7	
Effective Green, g (s)	18.2	15.5	15.5	15.7	13.0		22.1	84.7		8.1	70.7	
Actuated g/C Ratio	0.14	0.12	0.12	0.12	0.10		0.17	0.65		0.06	0.54	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	412	407	182	356	326		501	3165		183	2585	
v/s Ratio Prot	c0.08	0.04		c0.07	0.04		c0.11	c0.27		0.02	c0.23	
v/s Ratio Perm			0.02									
v/c Ratio	0.60	0.30	0.17	0.62	0.40		0.65	0.42		0.33	0.43	
Uniform Delay, d1	52.5	52.3	51.5	54.3	54.9		50.4	10.9		58.3	17.6	
Progression Factor	0.86	0.86	1.03	1.00	1.00		1.06	0.65		0.95	0.63	
Incremental Delay, d2	2.1	0.4	0.4	3.1	0.8		2.9	0.4		0.9	0.4	
Delay (s)	47.5	45.2	53.4	57.4	55.7		56.1	7.4		56.1	11.5	
Level of Service	D	D	D	E	E		E	A		E	B	
Approach Delay (s)		49.5			56.6			17.0			13.7	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	297	0	377	411	1165	0	0	945	353
Future Volume (vph)	0	0	0	297	0	377	411	1165	0	0	945	353
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1600	1800	1800	1700	1800	1800
Total Lost time (s)				3.0	3.0	3.0	1.0	3.0			3.0	3.0
Lane Util. Factor				0.95	0.91	0.95	0.97	0.91			0.86	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1534	1443	1454	2949	4914			6192	1530
Flt Permitted				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1534	1443	1454	2949	4914			6192	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	313	0	397	433	1226	0	0	995	372
RTOR Reduction (vph)	0	0	0	0	64	64	0	0	0	0	0	203
Lane Group Flow (vph)	0	0	0	244	172	166	433	1226	0	0	995	169
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				27.0	27.0	27.0	33.0	93.0			57.0	57.0
Effective Green, g (s)				29.0	29.0	29.0	35.0	95.0			59.0	59.0
Actuated g/C Ratio				0.22	0.22	0.22	0.27	0.73			0.45	0.45
Clearance Time (s)				5.0	5.0	5.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				342	321	324	793	3591			2810	694
v/s Ratio Prot							c0.15	0.25			c0.16	
v/s Ratio Perm				c0.16	0.12	0.11						0.11
v/c Ratio				0.71	0.54	0.51	0.55	0.34			0.35	0.24
Uniform Delay, d1				46.7	44.6	44.3	40.7	6.3			23.1	21.8
Progression Factor				1.00	1.00	1.00	0.88	0.32			0.71	0.80
Incremental Delay, d2				6.9	1.7	1.4	0.7	0.2			0.3	0.8
Delay (s)				53.6	46.3	45.7	36.4	2.2			16.8	18.1
Level of Service				D	D	D	D	A			B	B
Approach Delay (s)		0.0			48.6			11.2			17.1	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	0	241	0	0	0	0	1213	427	274	997	0
Future Volume (vph)	368	0	241	0	0	0	0	1213	427	274	997	0
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1600	1800	1800
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	1.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	0.97	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1534	1624	1530					6192	1530	2949	4914	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1534	1624	1530					6192	1530	2949	4914	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%
Adj. Flow (vph)	387	0	254	0	0	0	0	1277	449	288	1049	0
RTOR Reduction (vph)	0	0	112	0	0	0	0	0	96	0	0	0
Lane Group Flow (vph)	193	194	142	0	0	0	0	1277	353	288	1049	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	22.3	22.3	22.3					76.8	76.8	17.9	97.7	
Effective Green, g (s)	24.3	24.3	24.3					78.8	78.8	19.9	99.7	
Actuated g/C Ratio	0.19	0.19	0.19					0.61	0.61	0.15	0.77	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	286	303	285					3753	927	451	3768	
v/s Ratio Prot								0.21		c0.10	0.21	
v/s Ratio Perm	c0.13	0.12	0.09						c0.23			
v/c Ratio	0.67	0.64	0.50					0.34	0.38	0.64	0.28	
Uniform Delay, d1	49.2	48.8	47.4					12.7	13.1	51.7	4.5	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.30	0.04	
Incremental Delay, d2	6.2	4.6	1.4					0.2	1.2	2.8	0.2	
Delay (s)	55.3	53.4	48.7					12.9	14.3	70.0	0.3	
Level of Service	E	D	D					B	B	E	A	
Approach Delay (s)		52.1			0.0			13.3			15.3	
Approach LOS		D			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	461	146	156	1002	78	192	643	197	67	493	55
Future Volume (vph)	65	461	146	156	1002	78	192	643	197	67	493	55
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	1404	2942		1404	2869		1404	2929	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	1404	2942		1404	2869		1404	2929	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	485	154	164	1055	82	202	677	207	71	519	58
RTOR Reduction (vph)	0	0	100	0	6	0	0	31	0	0	9	0
Lane Group Flow (vph)	68	485	54	164	1131	0	202	853	0	71	568	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	5.5	29.6	29.6	7.0	31.1		8.0	31.3		5.5	28.8	
Effective Green, g (s)	7.5	31.6	31.6	9.0	33.1		10.0	33.3		7.5	30.8	
Actuated g/C Ratio	0.08	0.35	0.35	0.10	0.37		0.11	0.37		0.08	0.34	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	1051	470	141	1089		157	1068		117	1009	
v/s Ratio Prot	0.05	0.16		c0.12	c0.38		c0.14	c0.30		0.05	c0.19	
v/s Ratio Perm			0.04									
v/c Ratio	0.58	0.46	0.12	1.16	1.04		1.29	0.80		0.61	0.56	
Uniform Delay, d1	39.4	22.3	19.5	40.2	28.2		39.7	25.1		39.5	23.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.2	0.3	0.1	126.3	37.7		168.4	6.3		8.6	2.3	
Delay (s)	46.6	22.6	19.6	166.5	65.9		208.1	31.3		48.1	26.1	
Level of Service	D	C	B	F	E		F	C		D	C	
Approach Delay (s)		24.3			78.5			64.2			28.5	
Approach LOS		C			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	55.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	89.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	507	27	92	845	126	84	237	80	71	145	202
Future Volume (vph)	127	507	27	92	845	126	84	237	80	71	145	202
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1404	2952		1404	2916		1404	2861		1404	1565	1330
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1404	2952		1404	2916		1404	2861		1404	1565	1330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	134	534	28	97	889	133	88	249	84	75	153	213
RTOR Reduction (vph)	0	4	0	0	13	0	0	35	0	0	0	140
Lane Group Flow (vph)	134	558	0	97	1010	0	88	298	0	75	153	73
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	9.0	35.9		6.2	33.1		5.4	30.1		5.4	30.1	30.1
Effective Green, g (s)	11.0	37.9		8.2	35.1		7.4	32.1		7.4	32.1	32.1
Actuated g/C Ratio	0.12	0.40		0.09	0.38		0.08	0.34		0.08	0.34	0.34
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	165	1195		123	1093		111	981		111	536	456
v/s Ratio Prot	c0.10	0.19		0.07	c0.35		c0.06	c0.10		0.05	0.10	
v/s Ratio Perm												0.05
v/c Ratio	0.81	0.47		0.79	0.92		0.79	0.30		0.68	0.29	0.16
Uniform Delay, d1	40.3	20.4		41.9	28.0		42.3	22.6		41.9	22.4	21.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	25.3	0.3		27.6	12.7		31.0	0.8		15.1	1.3	0.8
Delay (s)	65.6	20.7		69.4	40.7		73.4	23.4		57.0	23.7	22.1
Level of Service	E	C		E	D		E	C		E	C	C
Approach Delay (s)		29.4			43.1			33.8			28.6	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	93.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	402	145	148	693	143	175	438	116	94	454	44
Future Volume (vph)	35	402	145	148	693	143	175	438	116	94	454	44
Ideal Flow (vphpl)	1700	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	2564	2974	1330	2564	2974	1330	2564	4217	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	2564	2974	1330	2564	2974	1330	2564	4217	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	423	153	156	729	151	184	461	122	99	478	46
RTOR Reduction (vph)	0	0	90	0	0	99	0	0	67	0	9	0
Lane Group Flow (vph)	37	423	63	156	729	52	184	461	55	99	515	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	3.8	27.5	27.5	7.1	30.8	30.8	9.0	41.8	41.8	5.4	38.2	
Effective Green, g (s)	5.8	29.5	29.5	9.1	32.8	32.8	11.0	43.8	43.8	7.4	40.2	
Actuated g/C Ratio	0.06	0.30	0.30	0.09	0.34	0.34	0.11	0.45	0.45	0.08	0.41	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	83	897	401	238	997	446	288	1331	595	194	1733	
v/s Ratio Prot	0.03	c0.14		0.06	c0.25		c0.07	c0.16		c0.04	0.12	
v/s Ratio Perm			0.05			0.04			0.04			
v/c Ratio	0.45	0.47	0.16	0.66	0.73	0.12	0.64	0.35	0.09	0.51	0.30	
Uniform Delay, d1	44.4	27.8	25.0	42.8	28.6	22.5	41.5	17.6	15.5	43.5	19.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.8	0.4	0.2	6.4	2.8	0.1	4.6	0.7	0.3	2.3	0.4	
Delay (s)	48.2	28.2	25.2	49.2	31.4	22.6	46.1	18.4	15.9	45.7	19.8	
Level of Service	D	C	C	D	C	C	D	B	B	D	B	
Approach Delay (s)		28.7			32.8			24.6			23.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	97.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	125	85	106	314	54	144	596	75	36	677	51
Future Volume (vph)	41	125	85	106	314	54	144	596	75	36	677	51
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1600	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2794		1404	1565	1330	2564	4201		1404	4228	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2794		1404	1565	1330	2564	4201		1404	4228	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	43	132	89	112	331	57	152	627	79	38	713	54
RTOR Reduction (vph)	0	66	0	0	0	39	0	14	0	0	8	0
Lane Group Flow (vph)	43	155	0	112	331	18	152	692	0	38	759	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	3.8	18.0		8.1	22.3	22.3	7.1	31.1		3.8	27.8	
Effective Green, g (s)	5.8	20.0		10.1	24.3	24.3	9.1	33.1		5.8	29.8	
Actuated g/C Ratio	0.08	0.26		0.13	0.32	0.32	0.12	0.43		0.08	0.39	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	105	725		184	493	419	303	1805		105	1636	
v/s Ratio Prot	c0.03	0.06		0.08	c0.21		c0.06	0.16		0.03	c0.18	
v/s Ratio Perm						0.01						
v/c Ratio	0.41	0.21		0.61	0.67	0.04	0.50	0.38		0.36	0.46	
Uniform Delay, d1	34.0	22.3		31.6	22.9	18.3	31.8	15.0		33.8	17.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.1		5.6	3.6	0.0	1.3	0.6		2.1	0.9	
Delay (s)	36.6	22.5		37.2	26.5	18.3	33.1	15.6		36.0	18.6	
Level of Service	D	C		D	C	B	C	B		D	B	
Approach Delay (s)		24.8			27.9			18.7			19.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	108	75	240	305	49	72	431	168	16	398	43
Future Volume (vph)	53	108	75	240	305	49	72	431	168	16	398	43
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1404	2791		1404	1532		1404	2974	1330	1404	2931	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1404	2791		1404	1532		1404	2974	1330	1404	2931	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	114	79	253	321	52	76	454	177	17	419	45
RTOR Reduction (vph)	0	59	0	0	7	0	0	0	94	0	9	0
Lane Group Flow (vph)	56	134	0	253	366	0	76	454	83	17	455	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	3.7	17.9		8.3	22.5		5.3	34.7	34.7	1.2	30.6	
Effective Green, g (s)	5.7	19.9		10.3	24.5		7.3	36.7	36.7	3.2	32.6	
Actuated g/C Ratio	0.07	0.25		0.13	0.31		0.09	0.47	0.47	0.04	0.42	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	711		185	480		131	1397	624	57	1223	
v/s Ratio Prot	c0.04	0.05		c0.18	c0.24		c0.05	0.15		0.01	c0.16	
v/s Ratio Perm									0.06			
v/c Ratio	0.55	0.19		1.37	0.76		0.58	0.32	0.13	0.30	0.37	
Uniform Delay, d1	35.0	22.8		33.9	24.2		33.9	13.0	11.7	36.4	15.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.9	0.1		196.0	7.1		6.4	0.6	0.4	2.9	0.9	
Delay (s)	40.9	22.9		229.9	31.2		40.3	13.6	12.1	39.3	16.6	
Level of Service	D	C		F	C		D	B	B	D	B	
Approach Delay (s)		27.0			111.5			16.1			17.4	
Approach LOS		C			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	300	128	177	919	92	184	880	74	85	904	152
Future Volume (vph)	152	300	128	177	919	92	184	880	74	85	904	152
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2840		1404	2933		1404	4223		1404	4181	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2840		1404	2933		1404	4223		1404	4181	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	160	316	135	186	967	97	194	926	78	89	952	160
RTOR Reduction (vph)	0	53	0	0	9	0	0	11	0	0	26	0
Lane Group Flow (vph)	160	398	0	186	1055	0	194	993	0	89	1086	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	32.9		7.0	32.9		7.0	29.0		5.6	27.6	
Effective Green, g (s)	9.0	34.9		9.0	34.9		9.0	31.0		7.6	29.6	
Actuated g/C Ratio	0.10	0.39		0.10	0.39		0.10	0.34		0.08	0.33	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	139	1095		139	1131		139	1446		117	1367	
v/s Ratio Prot	0.11	0.14		c0.13	c0.36		c0.14	0.24		0.06	c0.26	
v/s Ratio Perm												
v/c Ratio	1.15	0.36		1.34	0.93		1.40	0.69		0.76	0.79	
Uniform Delay, d1	40.8	19.9		40.8	26.7		40.8	25.6		40.6	27.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	122.7	0.2		192.6	13.6		215.8	2.7		24.8	4.8	
Delay (s)	163.4	20.1		233.4	40.3		256.5	28.3		65.4	32.5	
Level of Service	F	C		F	D		F	C		E	C	
Approach Delay (s)		57.6			69.0			65.2			35.0	
Approach LOS		E			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	56.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	277	112	157	645	136	151	1169	106	142	774	126
Future Volume (vph)	65	277	112	157	645	136	151	1169	106	142	774	126
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2564	2974	1330	2564	2974	1330	2564	4220		2564	2974	1330
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2564	2974	1330	2564	2974	1330	2564	4220		2564	2974	1330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	292	118	165	679	143	159	1231	112	149	815	133
RTOR Reduction (vph)	0	0	82	0	0	97	0	9	0	0	0	78
Lane Group Flow (vph)	68	292	36	165	679	46	159	1334	0	149	815	55
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	5.4	26.1	26.1	7.1	27.8	27.8	7.1	36.4		7.1	36.4	36.4
Effective Green, g (s)	7.4	28.1	28.1	9.1	29.8	29.8	9.1	38.4		9.1	38.4	38.4
Actuated g/C Ratio	0.08	0.30	0.30	0.10	0.32	0.32	0.10	0.41		0.10	0.41	0.41
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	204	901	403	251	956	427	251	1748		251	1231	550
v/s Ratio Prot	0.03	c0.10		0.06	c0.23		0.06	c0.32		0.06	c0.27	
v/s Ratio Perm			0.03			0.03						0.04
v/c Ratio	0.33	0.32	0.09	0.66	0.71	0.11	0.63	0.76		0.59	0.66	0.10
Uniform Delay, d1	40.3	25.0	23.1	40.3	27.7	22.1	40.2	23.3		40.0	21.9	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.2	0.1	6.1	2.5	0.1	5.1	3.2		3.7	2.8	0.4
Delay (s)	41.3	25.2	23.2	46.4	30.2	22.2	45.3	26.5		43.8	24.7	17.0
Level of Service	D	C	C	D	C	C	D	C		D	C	B
Approach Delay (s)		27.0			31.7			28.5			26.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	92.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	415	43	87	953	388	219	184	51	227	679	163
Future Volume (vph)	174	415	43	87	953	388	219	184	51	227	679	163
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2564	4213		2564	2974	1330	2564	2877		2564	2887	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2564	4213		2564	2974	1330	2564	2877		2564	2887	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	183	437	45	92	1003	408	231	194	54	239	715	172
RTOR Reduction (vph)	0	10	0	0	0	200	0	21	0	0	18	0
Lane Group Flow (vph)	183	472	0	92	1003	208	231	227	0	239	869	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	7.0	41.1		6.9	41.0	41.0	9.0	46.0		10.0	47.0	
Effective Green, g (s)	9.0	43.1		8.9	43.0	43.0	11.0	48.0		12.0	49.0	
Actuated g/C Ratio	0.08	0.36		0.07	0.36	0.36	0.09	0.40		0.10	0.41	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	192	1513		190	1065	476	235	1150		256	1178	
v/s Ratio Prot	c0.07	0.11		0.04	c0.34		c0.09	0.08		c0.09	c0.30	
v/s Ratio Perm						0.16						
v/c Ratio	0.95	0.31		0.48	0.94	0.44	0.98	0.20		0.93	0.74	
Uniform Delay, d1	55.3	27.7		53.3	37.3	29.3	54.4	23.5		53.6	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	51.2	0.1		1.9	15.5	0.6	53.6	0.4		38.4	4.2	
Delay (s)	106.5	27.9		55.3	52.8	29.9	108.0	23.8		92.0	34.2	
Level of Service	F	C		E	D	C	F	C		F	C	
Approach Delay (s)		49.5			46.8			64.4			46.5	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	49.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	1163	309	198	618	223	248	684	195	256	787	133
Future Volume (vph)	246	1163	309	198	618	223	248	684	195	256	787	133
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	2.5		1.0	2.5	2.5	1.0	2.0		1.0	2.0	2.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2949	3312		2949	3420	1530	1615	3306		1615	3420	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2949	3312		2949	3420	1530	1615	3306		1615	3420	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	259	1224	325	208	651	235	261	720	205	269	828	140
RTOR Reduction (vph)	0	17	0	0	0	147	0	18	0	0	0	91
Lane Group Flow (vph)	259	1532	0	208	651	88	261	907	0	269	828	49
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	15.2	57.0		8.0	49.8	49.8	20.0	38.0		21.0	39.0	39.0
Effective Green, g (s)	17.2	59.5		10.0	52.3	52.3	22.0	41.0		23.0	42.0	42.0
Actuated g/C Ratio	0.12	0.42		0.07	0.37	0.37	0.16	0.29		0.16	0.30	0.30
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	362	1407		210	1277	571	253	968		265	1026	459
v/s Ratio Prot	c0.09	c0.46		c0.07	0.19		c0.16	c0.27		c0.17	0.24	
v/s Ratio Perm						0.06						0.03
v/c Ratio	0.72	1.09		0.99	0.51	0.15	1.03	0.94		1.02	0.81	0.11
Uniform Delay, d1	59.0	40.2		65.0	33.9	29.1	59.0	48.2		58.5	45.3	35.4
Progression Factor	1.00	1.00		1.00	1.11	2.11	0.54	0.56		1.00	1.00	1.00
Incremental Delay, d2	6.6	52.0		16.4	0.0	0.0	59.3	14.7		59.2	6.8	0.5
Delay (s)	65.6	92.2		81.4	37.8	61.4	91.0	41.8		117.7	52.1	35.9
Level of Service	E	F		F	D	E	F	D		F	D	D
Approach Delay (s)		88.4			51.1			52.6			64.5	
Approach LOS		F			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	67.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	106.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	529	40	808	546	237	46	716	781	270	868	16
Future Volume (vph)	14	529	40	808	546	237	46	716	781	270	868	16
Ideal Flow (vphpl)	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	2.0	1.0	1.0	2.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	3384		2949	1800	1530	1615	3420	1530	1615	3411	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1615	3384		2949	1800	1530	1615	3420	1530	1615	3411	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	557	42	851	575	249	48	754	822	284	914	17
RTOR Reduction (vph)	0	4	0	0	0	58	0	0	38	0	1	0
Lane Group Flow (vph)	15	595	0	851	575	191	48	754	784	284	930	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	5	1	6	3	5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	2.8	28.0		41.8	67.0	90.0	5.6	31.2	73.0	23.0	48.6	
Effective Green, g (s)	4.8	30.0		43.8	69.0	94.0	7.6	34.2	77.0	25.0	51.6	
Actuated g/C Ratio	0.03	0.21		0.31	0.49	0.67	0.05	0.24	0.55	0.18	0.37	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	55	725		922	887	1027	87	835	841	288	1257	
v/s Ratio Prot	0.01	c0.18		0.29	0.32	0.03	0.03	c0.22	c0.29	c0.18	0.27	
v/s Ratio Perm						0.09			0.22			
v/c Ratio	0.27	0.82		0.92	0.65	0.19	0.55	0.90	0.93	0.99	0.74	
Uniform Delay, d1	65.9	52.4		46.5	26.5	8.6	64.5	51.3	29.1	57.3	38.4	
Progression Factor	1.00	1.00		0.87	0.74	0.80	0.72	0.68	1.59	0.68	0.82	
Incremental Delay, d2	2.7	7.4		11.8	1.3	0.1	5.6	11.9	13.7	30.3	1.7	
Delay (s)	68.6	59.9		52.0	21.0	7.0	51.8	46.8	60.0	69.0	33.3	
Level of Service	E	E		D	C	A	D	D	E	E	C	
Approach Delay (s)		60.1			34.7			53.6			41.6	
Approach LOS		E			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	45.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	51	101	248	35	54	166	1351	180	89	1471	76
Future Volume (vph)	100	51	101	248	35	54	166	1351	180	89	1471	76
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		1.0	2.0	2.0	1.0	2.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	1800	1530	1470	3062		1615	3420	1530	1615	4878	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1615	1800	1530	1470	3062		1615	3420	1530	1615	4878	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	54	106	261	37	57	175	1422	189	94	1548	80
RTOR Reduction (vph)	0	0	94	0	26	0	0	0	51	0	3	0
Lane Group Flow (vph)	105	54	12	133	196	0	175	1422	138	94	1625	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	14.4	14.4	14.4	18.0	18.0		15.7	79.9	79.9	9.7	73.9	
Effective Green, g (s)	16.4	16.4	16.4	20.0	20.0		17.7	82.9	82.9	11.7	76.9	
Actuated g/C Ratio	0.12	0.12	0.12	0.14	0.14		0.13	0.59	0.59	0.08	0.55	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	189	210	179	210	437		204	2025	905	134	2679	
v/s Ratio Prot	c0.07	0.03		c0.09	0.06		c0.11	c0.42		0.06	0.33	
v/s Ratio Perm			0.01						0.09			
v/c Ratio	0.56	0.26	0.07	0.63	0.45		0.86	0.70	0.15	0.70	0.61	
Uniform Delay, d1	58.4	56.3	55.0	56.5	55.0		59.9	19.9	12.8	62.5	21.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.05	0.93	0.80	0.69	0.99	
Incremental Delay, d2	3.5	0.7	0.2	6.1	0.7		23.0	1.6	0.3	8.5	0.5	
Delay (s)	61.9	56.9	55.2	62.7	55.7		85.9	20.2	10.5	51.4	21.7	
Level of Service	E	E	E	E	E		F	C	B	D	C	
Approach Delay (s)		58.2			58.3			25.6			23.3	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	351	0	595	285	1271	0	0	1257	595
Future Volume (vph)	0	0	0	351	0	595	285	1271	0	0	1257	595
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)				1.0		1.0	1.0	3.0			3.0	3.0
Lane Util. Factor				1.00		0.88	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1615		2693	1615	3420			3420	1530
Flt Permitted				0.95		1.00	0.08	1.00			1.00	1.00
Satd. Flow (perm)				1615		2693	136	3420			3420	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	369	0	626	300	1338	0	0	1323	626
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	245
Lane Group Flow (vph)	0	0	0	369	0	626	300	1338	0	0	1323	381
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm	pm+pt	NA			NA	Perm
Protected Phases							5	2			6	
Permitted Phases				8		8	2					6
Actuated Green, G (s)				37.0		37.0	97.0	95.0			65.0	65.0
Effective Green, g (s)				39.0		39.0	99.0	97.0			67.0	67.0
Actuated g/C Ratio				0.28		0.28	0.71	0.69			0.48	0.48
Clearance Time (s)				3.0		3.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				449		750	402	2369			1636	732
v/s Ratio Prot							c0.15	0.39			c0.39	
v/s Ratio Perm				0.23		c0.23	0.37					0.25
v/c Ratio				0.82		0.83	0.75	0.56			0.81	0.52
Uniform Delay, d1				47.2		47.5	38.5	10.8			31.0	25.4
Progression Factor				1.00		1.00	0.87	1.06			1.06	1.88
Incremental Delay, d2				11.5		8.0	2.6	0.3			3.8	2.3
Delay (s)				58.8		55.4	36.0	11.9			36.6	50.0
Level of Service				E		E	D	B			D	D
Approach Delay (s)		0.0			56.7			16.3			40.9	
Approach LOS		A			E			B			D	

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	558	126	197	56	0	195	0	798	407	637	964	0
Future Volume (vph)	558	126	197	56	0	195	0	798	407	637	964	0
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	3.0	3.0		0.5		1.0		3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95	1.00	1.00	0.95	
Frt	1.00	0.91		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1615	1636		1615		1530		3420	1530	1615	3420	
Flt Permitted	0.95	1.00		0.95		1.00		1.00	1.00	0.11	1.00	
Satd. Flow (perm)	1615	1636		1615		1530		3420	1530	192	3420	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	587	133	207	59	0	205	0	840	428	671	1015	0
RTOR Reduction (vph)	0	39	0	0	0	35	0	0	275	0	0	0
Lane Group Flow (vph)	587	301	0	59	0	170	0	840	153	671	1015	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot		pm+ov		NA	Perm	pm+pt	NA	
Protected Phases	4	4		3		1		2		1	6	
Permitted Phases						3			2	6		
Actuated Green, G (s)	44.0	44.0		5.6		47.6		32.4	32.4	77.4	77.4	
Effective Green, g (s)	46.0	46.0		8.1		51.6		34.4	34.4	79.4	79.4	
Actuated g/C Ratio	0.33	0.33		0.06		0.37		0.25	0.25	0.57	0.57	
Clearance Time (s)	5.0	5.0		3.0		3.0		5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	530	537		93		563		840	375	556	1939	
v/s Ratio Prot	c0.36	0.18		c0.04		0.09		c0.25		c0.38	0.30	
v/s Ratio Perm						0.02			0.10	0.30		
v/c Ratio	1.11	0.56		0.63		0.30		1.00	0.41	1.21	0.52	
Uniform Delay, d1	47.0	38.7		64.5		31.4		52.8	44.3	40.6	18.7	
Progression Factor	1.00	1.00		0.71		2.02		1.00	1.00	0.79	0.18	
Incremental Delay, d2	71.9	1.3		12.8		0.3		31.1	3.3	102.9	0.6	
Delay (s)	118.9	40.0		58.4		63.7		83.9	47.5	135.1	4.0	
Level of Service	F	D		E		E		F	D	F	A	
Approach Delay (s)		90.0			62.5			71.6			56.2	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	68.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	107.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	892	274	256	65	0	0
Future Volume (vph)	892	274	256	65	0	0
Ideal Flow (vphpl)	1600	1800	1800	1800	0	0
Total Lost time (s)	1.0	3.0	1.0			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	0.97			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	2949	3420	3316			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	2949	3420	3316			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	0%	0%
Adj. Flow (vph)	939	288	269	68	0	0
RTOR Reduction (vph)	0	0	16	0	0	0
Lane Group Flow (vph)	939	288	321	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	95.0	140.0	37.0			
Effective Green, g (s)	97.0	140.0	41.0			
Actuated g/C Ratio	0.69	1.00	0.29			
Clearance Time (s)	3.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	2043	3420	971			
v/s Ratio Prot	c0.32	0.08	c0.10			
v/s Ratio Perm						
v/c Ratio	0.46	0.08	0.33			
Uniform Delay, d1	9.7	0.0	38.8			
Progression Factor	0.46	1.00	1.00			
Incremental Delay, d2	0.1	0.0	0.9			
Delay (s)	4.5	0.0	39.7			
Level of Service	A	A	D			
Approach Delay (s)		3.4	39.7		0.0	
Approach LOS		A	D		A	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	828	868	262	502	37	751	672	228	60	889	213
Future Volume (vph)	266	828	868	262	502	37	751	672	228	60	889	213
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1615	3420	1530	1615	3420	1530	1615	4727		1615	4772	
Flt Permitted	0.28	1.00	1.00	0.10	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	468	3420	1530	174	3420	1530	1615	4727		1615	4772	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	280	872	914	276	528	39	791	707	240	63	936	224
RTOR Reduction (vph)	0	0	338	0	0	28	0	43	0	0	29	0
Lane Group Flow (vph)	280	872	576	276	528	11	791	904	0	63	1131	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	46.0	37.0	37.0	46.0	37.0	37.0	42.6	71.7		6.3	35.4	
Effective Green, g (s)	50.0	39.0	39.0	50.0	39.0	39.0	44.6	73.7		8.3	37.4	
Actuated g/C Ratio	0.36	0.28	0.28	0.36	0.28	0.28	0.32	0.53		0.06	0.27	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	257	952	426	175	952	426	514	2488		95	1274	
v/s Ratio Prot	0.09	0.25		c0.12	0.15		c0.49	0.19		0.04	c0.24	
v/s Ratio Perm	0.30		c0.38	0.44		0.01						
v/c Ratio	1.09	0.92	1.35	1.58	0.55	0.03	1.54	0.36		0.66	0.89	
Uniform Delay, d1	42.0	48.9	50.5	36.9	43.1	36.7	47.7	19.4		64.5	49.3	
Progression Factor	0.62	0.73	0.33	1.00	1.00	1.00	0.74	0.52		1.00	1.00	
Incremental Delay, d2	65.0	7.0	166.1	285.3	0.7	0.0	248.8	0.3		12.7	9.4	
Delay (s)	90.9	42.5	182.8	322.2	43.8	36.7	284.3	10.4		77.1	58.7	
Level of Service	F	D	F	F	D	D	F	B		E	E	
Approach Delay (s)		111.1			134.6			135.0			59.7	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	110.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	123.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	402	371	476	292	285	87	554	1316	220	167	1490	354
Future Volume (vph)	402	371	476	292	285	87	554	1316	220	167	1490	354
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.0		0.5	2.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2949	3420	1530	2949	3300		2949	4808		2949	4772	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2949	3420	1530	2949	3300		2949	4808		2949	4772	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	423	391	501	307	300	92	583	1385	232	176	1568	373
RTOR Reduction (vph)	0	0	211	0	22	0	0	16	0	0	28	0
Lane Group Flow (vph)	423	391	290	307	370	0	583	1601	0	176	1913	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	17.0	29.6	29.6	16.8	29.4		28.2	66.7		10.9	49.4	
Effective Green, g (s)	19.0	32.1	32.1	18.8	31.9		30.7	69.7		13.4	52.4	
Actuated g/C Ratio	0.14	0.23	0.23	0.13	0.23		0.22	0.50		0.10	0.37	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	400	784	350	396	751		646	2393		282	1786	
v/s Ratio Prot	c0.14	0.11		c0.10	0.11		c0.20	0.33		0.06	c0.40	
v/s Ratio Perm			c0.19									
v/c Ratio	1.06	0.50	0.83	0.78	0.49		0.90	0.67		0.62	1.07	
Uniform Delay, d1	60.5	46.9	51.3	58.6	47.0		53.2	26.5		60.9	43.8	
Progression Factor	0.97	1.01	1.03	1.00	1.00		1.30	0.42		1.15	0.54	
Incremental Delay, d2	46.6	0.2	7.3	9.2	0.5		13.6	1.2		0.4	33.3	
Delay (s)	105.4	47.7	60.3	67.7	47.5		83.0	12.3		70.6	57.0	
Level of Service	F	D	E	E	D		F	B		E	E	
Approach Delay (s)		71.1			56.4			31.0			58.1	
Approach LOS		E			E			C			E	

Intersection Summary			
HCM 2000 Control Delay	51.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	396	0	590	323	1716	0	0	1841	524
Future Volume (vph)	0	0	0	396	0	590	323	1716	0	0	1841	524
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1600	1800	1800	1700	1800	1800
Total Lost time (s)				3.0	3.0	3.0	1.0	3.0			3.0	3.0
Lane Util. Factor				0.95	0.91	0.95	0.97	0.91			0.86	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1534	1420	1454	2949	4914			6192	1530
Flt Permitted				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1534	1420	1454	2949	4914			6192	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	417	0	621	340	1806	0	0	1938	552
RTOR Reduction (vph)	0	0	0	0	27	27	0	0	0	0	0	232
Lane Group Flow (vph)	0	0	0	363	313	308	340	1806	0	0	1938	320
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				40.0	40.0	40.0	20.3	90.0			66.7	66.7
Effective Green, g (s)				42.0	42.0	42.0	22.3	92.0			68.7	68.7
Actuated g/C Ratio				0.30	0.30	0.30	0.16	0.66			0.49	0.49
Clearance Time (s)				5.0	5.0	5.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				460	426	436	469	3229			3038	750
v/s Ratio Prot							c0.12	0.37			c0.31	
v/s Ratio Perm				c0.24	0.22	0.21						0.21
v/c Ratio				0.79	0.73	0.71	0.72	0.56			0.64	0.43
Uniform Delay, d1				44.9	44.0	43.5	55.9	13.0			26.4	23.0
Progression Factor				1.00	1.00	1.00	1.05	0.64			0.53	0.15
Incremental Delay, d2				8.7	6.4	5.1	4.4	0.6			0.4	0.6
Delay (s)				53.7	50.4	48.7	62.9	8.9			14.3	4.1
Level of Service				D	D	D	E	A			B	A
Approach Delay (s)		0.0			51.0			17.5			12.0	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	0	361	0	0	0	0	1569	516	612	1628	0
Future Volume (vph)	491	0	361	0	0	0	0	1569	516	612	1628	0
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1600	1800	1800
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	1.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	0.97	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1534	1624	1530					6192	1530	2949	4914	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1534	1624	1530					6192	1530	2949	4914	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%
Adj. Flow (vph)	517	0	380	0	0	0	0	1652	543	644	1714	0
RTOR Reduction (vph)	0	0	41	0	0	0	0	0	105	0	0	0
Lane Group Flow (vph)	258	259	339	0	0	0	0	1652	438	644	1714	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	34.6	34.6	34.6					57.4	57.4	35.0	95.4	
Effective Green, g (s)	36.6	36.6	36.6					59.4	59.4	37.0	97.4	
Actuated g/C Ratio	0.26	0.26	0.26					0.42	0.42	0.26	0.70	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	401	424	399					2627	649	779	3418	
v/s Ratio Prot								0.27		c0.22	0.35	
v/s Ratio Perm	0.17	0.16	c0.22						c0.29			
v/c Ratio	0.64	0.61	0.85					0.63	0.68	0.83	0.50	
Uniform Delay, d1	45.9	45.4	49.1					31.6	32.5	48.5	10.0	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.64	0.46	
Incremental Delay, d2	3.5	2.6	15.8					1.2	5.6	5.6	0.4	
Delay (s)	49.4	48.0	64.9					32.8	38.1	36.8	5.0	
Level of Service	D	D	E					C	D	D	A	
Approach Delay (s)		55.6			0.0			34.1			13.7	
Approach LOS		E			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	1165	169	219	601	82	101	581	184	100	657	70
Future Volume (vph)	123	1165	169	219	601	82	101	581	184	100	657	70
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	1404	2921		1404	2867		1404	2931	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	1404	2921		1404	2867		1404	2931	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	129	1226	178	231	633	86	106	612	194	105	692	74
RTOR Reduction (vph)	0	0	89	0	9	0	0	27	0	0	7	0
Lane Group Flow (vph)	129	1226	89	231	710	0	106	779	0	105	759	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	14.2	42.0	42.0	16.0	43.8		7.0	29.0		7.0	29.0	
Effective Green, g (s)	16.2	44.0	44.0	18.0	45.8		9.0	31.0		9.0	31.0	
Actuated g/C Ratio	0.15	0.40	0.40	0.16	0.42		0.08	0.28		0.08	0.28	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	206	1189	532	229	1216		114	807		114	826	
v/s Ratio Prot	0.09	c0.41		c0.16	0.24		0.08	c0.27		0.07	c0.26	
v/s Ratio Perm			0.07									
v/c Ratio	0.63	1.03	0.17	1.01	0.58		0.93	0.96		0.92	0.92	
Uniform Delay, d1	44.1	33.0	21.2	46.0	24.7		50.2	39.0		50.1	38.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.8	34.4	0.1	61.7	0.7		61.7	24.2		59.8	16.9	
Delay (s)	49.9	67.4	21.4	107.7	25.5		111.9	63.2		110.0	55.1	
Level of Service	D	E	C	F	C		F	E		F	E	
Approach Delay (s)		60.6			45.5			68.8			61.7	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	59.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	1188	64	129	665	107	76	198	112	138	239	133
Future Volume (vph)	151	1188	64	129	665	107	76	198	112	138	239	133
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1404	2951		1404	2912		1404	2812		1404	1565	1330
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1404	2951		1404	2912		1404	2812		1404	1565	1330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	159	1251	67	136	700	113	80	208	118	145	252	140
RTOR Reduction (vph)	0	4	0	0	14	0	0	79	0	0	0	92
Lane Group Flow (vph)	159	1314	0	136	799	0	80	247	0	145	252	48
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	10.0	36.0		7.0	33.0		5.6	29.6		7.0	31.0	31.0
Effective Green, g (s)	12.0	38.0		9.0	35.0		7.6	31.6		9.0	33.0	33.0
Actuated g/C Ratio	0.13	0.40		0.09	0.37		0.08	0.33		0.09	0.35	0.35
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	176	1172		132	1066		111	929		132	540	459
v/s Ratio Prot	0.11	c0.45		c0.10	0.27		c0.06	0.09		c0.10	c0.16	
v/s Ratio Perm												0.04
v/c Ratio	0.90	1.12		1.03	0.75		0.72	0.27		1.10	0.47	0.11
Uniform Delay, d1	41.2	28.8		43.3	26.5		43.0	23.5		43.3	24.4	21.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	41.2	66.2		86.6	2.9		20.4	0.7		107.2	2.9	0.5
Delay (s)	82.5	95.0		129.9	29.4		63.4	24.2		150.5	27.3	21.7
Level of Service	F	F		F	C		E	C		F	C	C
Approach Delay (s)		93.6			43.8			31.9			59.1	
Approach LOS		F			D			C			E	

Intersection Summary			
HCM 2000 Control Delay	66.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	95.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	834	238	184	533	169	214	524	188	162	585	53
Future Volume (vph)	47	834	238	184	533	169	214	524	188	162	585	53
Ideal Flow (vphpl)	1700	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	2564	2974	1330	2564	2974	1330	2564	4220	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	2564	2974	1330	2564	2974	1330	2564	4220	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	49	878	251	194	561	178	225	552	198	171	616	56
RTOR Reduction (vph)	0	0	81	0	0	108	0	0	121	0	10	0
Lane Group Flow (vph)	49	878	170	194	561	70	225	552	77	171	662	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	5.5	37.2	37.2	8.0	39.7	39.7	9.0	37.1	37.1	8.0	36.1	
Effective Green, g (s)	7.5	39.2	39.2	10.0	41.7	41.7	11.0	39.1	39.1	10.0	38.1	
Actuated g/C Ratio	0.07	0.37	0.37	0.09	0.39	0.39	0.10	0.37	0.37	0.09	0.36	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	99	1096	490	241	1166	521	265	1093	489	241	1512	
v/s Ratio Prot	0.03	c0.30		c0.08	0.19		c0.09	c0.19		c0.07	0.16	
v/s Ratio Perm			0.13			0.05			0.06			
v/c Ratio	0.49	0.80	0.35	0.80	0.48	0.13	0.85	0.51	0.16	0.71	0.44	
Uniform Delay, d1	47.6	30.1	24.3	47.2	24.2	20.7	46.8	26.1	22.5	46.7	26.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.9	4.3	0.4	17.5	0.3	0.1	21.6	1.7	0.7	9.2	0.9	
Delay (s)	51.4	34.3	24.7	64.7	24.5	20.8	68.4	27.8	23.2	55.9	26.9	
Level of Service	D	C	C	E	C	C	E	C	C	E	C	
Approach Delay (s)		33.0			32.2			36.2			32.8	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	106.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	535	172	120	176	68	133	787	140	85	879	32
Future Volume (vph)	79	535	172	120	176	68	133	787	140	85	879	32
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1600	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2865		1404	1565	1330	2564	4176		1404	4250	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2865		1404	1565	1330	2564	4176		1404	4250	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	83	563	181	126	185	72	140	828	147	89	925	34
RTOR Reduction (vph)	0	37	0	0	0	45	0	24	0	0	4	0
Lane Group Flow (vph)	83	707	0	126	185	27	140	951	0	89	955	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	5.5	26.9		8.0	29.4	29.4	7.0	28.4		5.5	26.9	
Effective Green, g (s)	7.5	28.9		10.0	31.4	31.4	9.0	30.4		7.5	28.9	
Actuated g/C Ratio	0.09	0.34		0.12	0.37	0.37	0.11	0.36		0.09	0.34	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	124	976		165	579	492	272	1497		124	1448	
v/s Ratio Prot	0.06	c0.25		c0.09	0.12		0.05	c0.23		0.06	c0.22	
v/s Ratio Perm						0.02						
v/c Ratio	0.67	0.72		0.76	0.32	0.05	0.51	0.64		0.72	0.66	
Uniform Delay, d1	37.4	24.5		36.3	19.1	17.2	35.8	22.6		37.6	23.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.9	2.7		18.7	0.3	0.0	1.6	2.1		17.9	2.4	
Delay (s)	50.3	27.2		55.0	19.4	17.2	37.5	24.7		55.5	26.1	
Level of Service	D	C		D	B	B	D	C		E	C	
Approach Delay (s)		29.5			30.7			26.3			28.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	411	120	262	221	52	108	576	294	50	553	69
Future Volume (vph)	92	411	120	262	221	52	108	576	294	50	553	69
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1404	2873		1404	1520		1404	2974	1330	1404	2924	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1404	2873		1404	1520		1404	2974	1330	1404	2924	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	433	126	276	233	55	114	606	309	53	582	73
RTOR Reduction (vph)	0	34	0	0	10	0	0	0	177	0	11	0
Lane Group Flow (vph)	97	525	0	276	278	0	114	606	132	53	644	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	5.5	20.2		8.0	22.7		7.0	32.4	32.4	4.0	29.4	
Effective Green, g (s)	7.5	22.2		10.0	24.7		9.0	34.4	34.4	6.0	31.4	
Actuated g/C Ratio	0.09	0.28		0.12	0.31		0.11	0.43	0.43	0.07	0.39	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	130	791		174	465		156	1269	567	104	1139	
v/s Ratio Prot	0.07	c0.18		c0.20	0.18		c0.08	0.20		0.04	c0.22	
v/s Ratio Perm									0.10			
v/c Ratio	0.75	0.66		1.59	0.60		0.73	0.48	0.23	0.51	0.57	
Uniform Delay, d1	35.6	25.9		35.3	23.7		34.6	16.6	14.7	35.9	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	20.6	2.1		289.3	2.1		16.1	1.3	1.0	3.9	2.0	
Delay (s)	56.2	28.0		324.6	25.8		50.7	17.9	15.7	39.8	21.3	
Level of Service	E	C		F	C		D	B	B	D	C	
Approach Delay (s)		32.2			172.0			20.9			22.7	
Approach LOS		C			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	52.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	80.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	658	146	181	461	78	178	1047	140	109	1011	151
Future Volume (vph)	200	658	146	181	461	78	178	1047	140	109	1011	151
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2893		1404	2909		1404	4198		1404	4190	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2893		1404	2909		1404	4198		1404	4190	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	693	154	191	485	82	187	1102	147	115	1064	159
RTOR Reduction (vph)	0	22	0	0	16	0	0	19	0	0	21	0
Lane Group Flow (vph)	211	825	0	191	551	0	187	1230	0	115	1202	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	29.0		7.0	29.0		7.0	27.1		7.0	27.1	
Effective Green, g (s)	9.0	31.0		9.0	31.0		9.0	29.1		9.0	29.1	
Actuated g/C Ratio	0.10	0.36		0.10	0.36		0.10	0.34		0.10	0.34	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	146	1041		146	1047		146	1418		146	1416	
v/s Ratio Prot	c0.15	c0.29		0.14	0.19		c0.13	c0.29		0.08	0.29	
v/s Ratio Perm												
v/c Ratio	1.45	0.79		1.31	0.53		1.28	0.87		0.79	0.85	
Uniform Delay, d1	38.5	24.7		38.5	21.8		38.5	26.7		37.6	26.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	234.5	4.2		179.2	0.5		168.5	7.4		23.9	6.5	
Delay (s)	273.1	28.9		217.8	22.2		207.1	34.1		61.5	33.0	
Level of Service	F	C		F	C		F	C		E	C	
Approach Delay (s)		77.6			71.5			56.6			35.4	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	57.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	631	163	228	448	208	146	1149	220	137	1065	91
Future Volume (vph)	155	631	163	228	448	208	146	1149	220	137	1065	91
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2564	2974	1330	2564	2974	1330	2564	4170		2564	2974	1330
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2564	2974	1330	2564	2974	1330	2564	4170		2564	2974	1330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	163	664	172	240	472	219	154	1209	232	144	1121	96
RTOR Reduction (vph)	0	0	107	0	0	131	0	25	0	0	0	57
Lane Group Flow (vph)	163	664	65	240	472	88	154	1416	0	144	1121	39
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	7.0	27.1	27.1	7.0	27.1	27.1	7.0	36.2		7.0	36.2	36.2
Effective Green, g (s)	9.0	29.1	29.1	9.0	29.1	29.1	9.0	38.2		9.0	38.2	38.2
Actuated g/C Ratio	0.10	0.31	0.31	0.10	0.31	0.31	0.10	0.41		0.10	0.41	0.41
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	247	927	414	247	927	414	247	1707		247	1217	544
v/s Ratio Prot	0.06	c0.22		c0.09	0.16		0.06	c0.34		0.06	c0.38	
v/s Ratio Perm			0.05			0.07						0.03
v/c Ratio	0.66	0.72	0.16	0.97	0.51	0.21	0.62	0.83		0.58	0.92	0.07
Uniform Delay, d1	40.7	28.4	23.2	42.0	26.3	23.6	40.5	24.6		40.4	26.1	16.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.2	2.7	0.2	49.1	0.4	0.3	4.8	4.8		3.5	12.7	0.3
Delay (s)	46.9	31.1	23.4	91.1	26.7	23.9	45.4	29.5		43.8	38.8	17.0
Level of Service	D	C	C	F	C	C	D	C		D	D	B
Approach Delay (s)		32.4			42.6			31.0			37.8	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	93.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	866	145	172	489	363	113	890	127	375	968	119
Future Volume (vph)	260	866	145	172	489	363	113	890	127	375	968	119
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2564	4181		2564	2974	1330	2564	2918		2564	2925	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2564	4181		2564	2974	1330	2564	2918		2564	2925	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	274	912	153	181	515	382	119	937	134	395	1019	125
RTOR Reduction (vph)	0	19	0	0	0	195	0	9	0	0	7	0
Lane Group Flow (vph)	274	1046	0	181	515	187	119	1062	0	395	1137	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	10.0	37.2		10.0	37.2	37.2	7.0	47.1		16.0	56.1	
Effective Green, g (s)	12.0	39.2		12.0	39.2	39.2	9.0	49.1		18.0	58.1	
Actuated g/C Ratio	0.10	0.31		0.10	0.31	0.31	0.07	0.39		0.14	0.46	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	243	1297		243	923	412	182	1134		365	1345	
v/s Ratio Prot	c0.11	c0.25		0.07	0.17		0.05	c0.36		c0.15	0.39	
v/s Ratio Perm						0.14						
v/c Ratio	1.13	0.81		0.74	0.56	0.45	0.65	0.94		1.08	0.85	
Uniform Delay, d1	57.1	40.1		55.7	36.3	35.0	57.1	37.1		54.1	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	96.4	3.8		11.7	0.7	0.8	8.2	15.3		70.9	6.7	
Delay (s)	153.5	43.8		67.4	37.1	35.7	65.3	52.4		125.0	36.8	
Level of Service	F	D		E	D	D	E	D		F	D	
Approach Delay (s)		66.3			41.7			53.7			59.4	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	56.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	126.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	210	15	10	360	220	23	361	10	180	362	280
Future Volume (vph)	170	210	15	10	360	220	23	361	10	180	362	280
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	2.5		1.0	2.5	2.5	1.0	2.0		1.0	2.0	2.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3133	3573		3133	3610	1615	1710	3595		1710	3610	1615
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3133	3573		3133	3610	1615	1710	3595		1710	3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	221	16	11	379	232	24	380	11	189	381	295
RTOR Reduction (vph)	0	5	0	0	0	190	0	2	0	0	0	138
Lane Group Flow (vph)	179	232	0	11	379	42	24	389	0	189	381	157
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	14.1	30.1		1.3	17.3	17.3	7.1	45.7		16.9	55.5	55.5
Effective Green, g (s)	16.1	32.6		3.3	19.8	19.8	9.1	48.7		18.9	58.5	58.5
Actuated g/C Ratio	0.15	0.30		0.03	0.18	0.18	0.08	0.44		0.17	0.53	0.53
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	458	1058		93	649	290	141	1591		293	1919	858
v/s Ratio Prot	c0.06	0.06		0.00	c0.10		0.01	c0.11		c0.11	0.11	
v/s Ratio Perm						0.03						0.10
v/c Ratio	0.39	0.22		0.12	0.58	0.14	0.17	0.24		0.65	0.20	0.18
Uniform Delay, d1	42.5	29.1		51.9	41.3	38.0	46.9	19.2		42.4	13.5	13.4
Progression Factor	1.00	1.00		1.21	0.44	0.62	0.92	0.67		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1		0.5	1.2	0.2	2.6	0.4		4.8	0.2	0.5
Delay (s)	43.1	29.2		63.3	19.5	23.9	46.0	13.3		47.2	13.7	13.8
Level of Service	D	C		E	B	C	D	B		D	B	B
Approach Delay (s)		35.2			21.9			15.2			21.1	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	120	281	100	120	20	181	354	80	20	357	50
Future Volume (vph)	20	120	281	100	120	20	181	354	80	20	357	50
Ideal Flow (vphpl)	1800	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	2.0	1.0	1.0	2.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	3230		3133	1900	1615	1710	3610	1615	1710	3543	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	3230		3133	1900	1615	1710	3610	1615	1710	3543	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	126	296	105	126	21	191	373	84	21	376	53
RTOR Reduction (vph)	0	263	0	0	0	16	0	0	20	0	7	0
Lane Group Flow (vph)	21	159	0	105	126	5	191	373	64	21	422	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	5	1	6	3	5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	2.8	10.3		10.8	18.3	22.5	17.4	68.7	79.5	4.2	55.5	
Effective Green, g (s)	4.8	12.3		12.8	20.3	26.5	19.4	71.7	83.5	6.2	58.5	
Actuated g/C Ratio	0.04	0.11		0.12	0.18	0.24	0.18	0.65	0.76	0.06	0.53	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	74	361		364	350	389	301	2353	1240	96	1884	
v/s Ratio Prot	0.01	c0.05		0.03	c0.07	0.00	c0.11	0.10	0.01	0.01	c0.12	
v/s Ratio Perm						0.00			0.03			
v/c Ratio	0.28	0.44		0.29	0.36	0.01	0.63	0.16	0.05	0.22	0.22	
Uniform Delay, d1	50.9	45.6		44.4	39.2	31.8	42.0	7.4	3.3	49.6	13.7	
Progression Factor	1.00	1.00		0.45	0.38	1.00	0.80	0.76	0.13	0.76	0.55	
Incremental Delay, d2	2.1	0.9		0.4	0.6	0.0	4.2	0.1	0.0	1.1	0.3	
Delay (s)	53.0	46.5		20.4	15.6	31.8	37.9	5.8	0.5	39.0	7.9	
Level of Service	D	D		C	B	C	D	A	A	D	A	
Approach Delay (s)		46.8			18.9			14.6			9.3	
Approach LOS		D			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	10	380	58	10	15	260	710	49	18	660	60
Future Volume (vph)	60	10	380	58	10	15	260	710	49	18	660	60
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		1.0	2.0	2.0	1.0	2.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1900	1615	1556	3227		1710	3610	1615	1710	5122	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	1900	1615	1556	3227		1710	3610	1615	1710	5122	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	400	61	11	16	274	747	52	19	695	63
RTOR Reduction (vph)	0	0	354	0	15	0	0	0	17	0	5	0
Lane Group Flow (vph)	63	11	46	31	42	0	274	747	35	19	753	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	10.7	10.7	10.7	6.7	6.7		13.8	71.8	71.8	2.8	60.8	
Effective Green, g (s)	12.7	12.7	12.7	8.7	8.7		15.8	74.8	74.8	4.8	63.8	
Actuated g/C Ratio	0.12	0.12	0.12	0.08	0.08		0.14	0.68	0.68	0.04	0.58	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	197	219	186	123	255		245	2454	1098	74	2970	
v/s Ratio Prot	c0.04	0.01		c0.02	0.01		c0.16	c0.21		0.01	0.15	
v/s Ratio Perm			0.03						0.02			
v/c Ratio	0.32	0.05	0.25	0.25	0.17		1.12	0.30	0.03	0.26	0.25	
Uniform Delay, d1	44.7	43.3	44.3	47.6	47.3		47.1	7.1	5.8	50.9	11.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.12	0.76	4.87	1.18	0.89	
Incremental Delay, d2	0.9	0.1	0.7	1.1	0.3		91.6	0.3	0.1	1.8	0.2	
Delay (s)	45.6	43.4	45.0	48.7	47.6		144.4	5.7	28.1	61.7	10.3	
Level of Service	D	D	D	D	D		F	A	C	E	B	
Approach Delay (s)		45.0			48.0			42.2			11.6	
Approach LOS		D			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	190	0	321	240	799	0	0	893	365
Future Volume (vph)	0	0	0	190	0	321	240	799	0	0	893	365
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)				1.0		1.0	1.0	3.0			3.0	3.0
Lane Util. Factor				1.00		0.88	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1710		2842	1710	3610			3610	1615
Flt Permitted				0.95		1.00	0.23	1.00			1.00	1.00
Satd. Flow (perm)				1710		2842	411	3610			3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	200	0	338	253	841	0	0	940	384
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	173
Lane Group Flow (vph)	0	0	0	200	0	338	253	841	0	0	940	211
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm	pm+pt	NA			NA	Perm
Protected Phases							5	2			6	
Permitted Phases				8		8	2					6
Actuated Green, G (s)				18.6		18.6	85.4	83.4			58.4	58.4
Effective Green, g (s)				20.6		20.6	87.4	85.4			60.4	60.4
Actuated g/C Ratio				0.19		0.19	0.79	0.78			0.55	0.55
Clearance Time (s)				3.0		3.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				320		532	609	2802			1982	886
v/s Ratio Prot							c0.09	0.23			c0.26	
v/s Ratio Perm				0.12		c0.12	0.24					0.13
v/c Ratio				0.62		0.64	0.42	0.30			0.47	0.24
Uniform Delay, d1				41.1		41.2	12.5	3.6			15.1	12.9
Progression Factor				1.00		1.00	0.62	0.64			0.82	1.18
Incremental Delay, d2				3.8		2.5	0.4	0.2			0.8	0.6
Delay (s)				44.9		43.7	8.2	2.5			13.2	15.7
Level of Service				D		D	A	A			B	B
Approach Delay (s)		0.0			44.2			3.8			13.9	
Approach LOS		A			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	100	250	140	0	110	0	835	580	240	823	0
Future Volume (vph)	144	100	250	140	0	110	0	835	580	240	823	0
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	3.0	3.0		0.5		1.0		3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95	1.00	1.00	0.95	
Frt	1.00	0.89		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1696		1710		1615		3610	1615	1710	3610	
Flt Permitted	0.95	1.00		0.95		1.00		1.00	1.00	0.20	1.00	
Satd. Flow (perm)	1710	1696		1710		1615		3610	1615	363	3610	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	152	105	263	147	0	116	0	879	611	253	866	0
RTOR Reduction (vph)	0	89	0	0	0	86	0	0	337	0	0	0
Lane Group Flow (vph)	152	279	0	147	0	30	0	879	274	253	866	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot		pm+ov		NA	Perm	pm+pt	NA	
Protected Phases	4	4		3		1		2		1	6	
Permitted Phases						3			2	6		
Actuated Green, G (s)	22.3	22.3		10.7		24.3		47.4	47.4	64.0	64.0	
Effective Green, g (s)	24.3	24.3		13.2		28.3		49.4	49.4	66.0	66.0	
Actuated g/C Ratio	0.22	0.22		0.12		0.26		0.45	0.45	0.60	0.60	
Clearance Time (s)	5.0	5.0		3.0		3.0		5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	377	374		205		415		1621	725	408	2166	
v/s Ratio Prot	0.09	c0.16		c0.09		0.01		c0.24		c0.09	0.24	
v/s Ratio Perm						0.01			0.17	0.28		
v/c Ratio	0.40	0.75		0.72		0.07		0.54	0.38	0.62	0.40	
Uniform Delay, d1	36.6	40.0		46.6		30.9		22.1	20.1	13.2	11.6	
Progression Factor	1.00	1.00		0.45		0.61		1.00	1.00	0.58	0.68	
Incremental Delay, d2	0.7	7.9		11.2		0.1		1.3	1.5	2.6	0.5	
Delay (s)	37.4	47.9		32.1		19.0		23.4	21.6	10.2	8.3	
Level of Service	D	D		C		B		C	C	B	A	
Approach Delay (s)		44.8			26.3			22.7			8.8	
Approach LOS		D			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	700	210	251	10	0	0
Future Volume (vph)	700	210	251	10	0	0
Ideal Flow (vphpl)	1700	1900	1900	1900	0	0
Total Lost time (s)	1.0	3.0	1.0			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3133	3610	3588			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3133	3610	3588			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	0%	0%
Adj. Flow (vph)	737	221	264	11	0	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	737	221	272	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	69.0	110.0	33.0			
Effective Green, g (s)	71.0	110.0	37.0			
Actuated g/C Ratio	0.65	1.00	0.34			
Clearance Time (s)	3.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	2022	3610	1206			
v/s Ratio Prot	c0.24	0.06	c0.08			
v/s Ratio Perm						
v/c Ratio	0.36	0.06	0.23			
Uniform Delay, d1	9.0	0.0	26.2			
Progression Factor	0.67	1.00	1.00			
Incremental Delay, d2	0.1	0.0	0.4			
Delay (s)	6.2	0.0	26.6			
Level of Service	A	A	C			
Approach Delay (s)		4.8	26.6		0.0	
Approach LOS		A	C		A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	190	160	71	260	30	220	702	81	10	575	70
Future Volume (vph)	80	190	160	71	260	30	220	702	81	10	575	70
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	3610	1615	1710	3610	1615	1710	5107		1710	5102	
Flt Permitted	0.39	1.00	1.00	0.51	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	701	3610	1615	922	3610	1615	1710	5107		1710	5102	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	200	168	75	274	32	232	739	85	11	605	74
RTOR Reduction (vph)	0	0	144	0	0	27	0	7	0	0	10	0
Lane Group Flow (vph)	84	200	24	75	274	5	232	817	0	11	669	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	19.3	13.7	13.7	19.3	13.7	13.7	19.3	73.5		1.2	55.4	
Effective Green, g (s)	23.3	15.7	15.7	23.3	15.7	15.7	21.3	75.5		3.2	57.4	
Actuated g/C Ratio	0.21	0.14	0.14	0.21	0.14	0.14	0.19	0.69		0.03	0.52	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	218	515	230	249	515	230	331	3505		49	2662	
v/s Ratio Prot	c0.03	0.06		0.02	c0.08		c0.14	0.16		0.01	c0.13	
v/s Ratio Perm	0.05		0.01	0.04		0.00						
v/c Ratio	0.39	0.39	0.10	0.30	0.53	0.02	0.70	0.23		0.22	0.25	
Uniform Delay, d1	36.1	42.8	41.0	35.8	43.7	40.5	41.4	6.4		52.2	14.5	
Progression Factor	0.51	0.57	1.67	1.00	1.00	1.00	0.87	0.76		1.00	1.00	
Incremental Delay, d2	0.4	0.5	0.2	0.2	1.1	0.0	5.1	0.1		0.8	0.2	
Delay (s)	18.8	24.8	68.8	36.0	44.8	40.6	41.0	5.1		53.0	14.7	
Level of Service	B	C	E	D	D	D	D	A		D	B	
Approach Delay (s)		40.0			42.7			12.9			15.3	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	90	80	210	91	30	160	1153	91	30	683	33
Future Volume (vph)	30	90	80	210	91	30	160	1153	91	30	683	33
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.0		0.5	2.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3133	3610	1615	3133	3475		3133	5130		3133	5151	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3133	3610	1615	3133	3475		3133	5130		3133	5151	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	95	84	221	96	32	168	1214	96	32	719	35
RTOR Reduction (vph)	0	0	75	0	27	0	0	5	0	0	3	0
Lane Group Flow (vph)	32	95	9	221	101	0	168	1305	0	32	751	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	4.1	9.5	9.5	10.7	16.1		11.2	69.6		4.2	62.6	
Effective Green, g (s)	6.1	12.0	12.0	12.7	18.6		13.7	72.6		6.7	65.6	
Actuated g/C Ratio	0.06	0.11	0.11	0.12	0.17		0.12	0.66		0.06	0.60	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	173	393	176	361	587		390	3385		190	3071	
v/s Ratio Prot	0.01	c0.03		c0.07	0.03		c0.05	c0.25		0.01	c0.15	
v/s Ratio Perm			0.01									
v/c Ratio	0.18	0.24	0.05	0.61	0.17		0.43	0.39		0.17	0.24	
Uniform Delay, d1	49.6	44.8	43.9	46.3	39.1		44.5	8.5		49.0	10.5	
Progression Factor	0.89	0.87	1.00	1.00	1.00		0.84	0.69		0.89	0.47	
Incremental Delay, d2	0.5	0.3	0.1	3.1	0.1		0.8	0.3		0.4	0.2	
Delay (s)	44.9	39.4	44.0	49.4	39.3		38.0	6.2		44.2	5.1	
Level of Service	D	D	D	D	D		D	A		D	A	
Approach Delay (s)		42.1			45.7			9.8			6.7	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	240	0	358	340	883	0	0	540	460
Future Volume (vph)	0	0	0	240	0	358	340	883	0	0	540	460
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1700	1900	1900	1800	1900	1900
Total Lost time (s)				3.0	3.0	3.0	1.0	3.0			3.0	3.0
Lane Util. Factor				0.95	0.91	0.95	0.97	0.91			0.86	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1624	1499	1534	3133	5187			6536	1615
Flt Permitted				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1624	1499	1534	3133	5187			6536	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	253	0	377	358	929	0	0	568	484
RTOR Reduction (vph)	0	0	0	0	137	138	0	0	0	0	0	237
Lane Group Flow (vph)	0	0	0	220	69	66	358	929	0	0	568	247
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				20.8	20.8	20.8	22.0	79.2			54.2	54.2
Effective Green, g (s)				22.8	22.8	22.8	24.0	81.2			56.2	56.2
Actuated g/C Ratio				0.21	0.21	0.21	0.22	0.74			0.51	0.51
Clearance Time (s)				5.0	5.0	5.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				336	310	317	683	3828			3339	825
v/s Ratio Prot							c0.11	0.18			0.09	
v/s Ratio Perm				c0.14	0.05	0.04						c0.15
v/c Ratio				0.65	0.22	0.21	0.52	0.24			0.17	0.30
Uniform Delay, d1				40.0	36.2	36.1	38.0	4.6			14.4	15.5
Progression Factor				1.00	1.00	1.00	0.74	0.76			0.89	1.72
Incremental Delay, d2				4.5	0.4	0.3	0.7	0.1			0.1	0.9
Delay (s)				44.5	36.6	36.5	28.6	3.7			12.9	27.7
Level of Service				D	D	D	C	A			B	C
Approach Delay (s)		0.0			39.3			10.6			19.7	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	0	280	0	0	0	0	978	480	135	665	0
Future Volume (vph)	245	0	280	0	0	0	0	978	480	135	665	0
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1700	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	1.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	0.97	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1624	1715	1615					6536	1615	3133	5187	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1624	1715	1615					6536	1615	3133	5187	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%
Adj. Flow (vph)	258	0	295	0	0	0	0	1029	505	142	700	0
RTOR Reduction (vph)	0	0	235	0	0	0	0	0	152	0	0	0
Lane Group Flow (vph)	129	129	60	0	0	0	0	1029	353	142	700	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	14.6	14.6	14.6					70.4	70.4	12.0	85.4	
Effective Green, g (s)	16.6	16.6	16.6					72.4	72.4	14.0	87.4	
Actuated g/C Ratio	0.15	0.15	0.15					0.66	0.66	0.13	0.79	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	245	258	243					4301	1062	398	4121	
v/s Ratio Prot								0.16		c0.05	0.13	
v/s Ratio Perm	c0.08	0.08	0.04						c0.22			
v/c Ratio	0.53	0.50	0.25					0.24	0.33	0.36	0.17	
Uniform Delay, d1	43.1	42.9	41.2					7.6	8.2	43.9	2.7	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.55	0.49	
Incremental Delay, d2	2.0	1.5	0.5					0.1	0.8	0.5	0.1	
Delay (s)	45.1	44.4	41.7					7.8	9.1	24.5	1.4	
Level of Service	D	D	D					A	A	C	A	
Approach Delay (s)		43.1			0.0			8.2			5.3	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	450	200	220	1150	100	250	840	280	80	640	60
Future Volume (vph)	70	450	200	220	1150	100	250	840	280	80	640	60
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	1487	3102		1487	3021		1487	3099	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	1487	3102		1487	3021		1487	3099	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	474	211	232	1211	105	263	884	295	84	674	63
RTOR Reduction (vph)	0	0	149	0	5	0	0	25	0	0	5	0
Lane Group Flow (vph)	74	474	62	232	1311	0	263	1154	0	84	732	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	7.0	36.1	36.1	22.9	52.0		22.0	48.0		7.0	33.0	
Effective Green, g (s)	9.0	38.1	38.1	24.9	54.0		24.0	50.0		9.0	35.0	
Actuated g/C Ratio	0.07	0.29	0.29	0.19	0.42		0.18	0.38		0.07	0.27	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	102	919	411	284	1288		274	1161		102	834	
v/s Ratio Prot	0.05	0.15		c0.16	c0.42		0.18	c0.38		0.06	c0.24	
v/s Ratio Perm			0.04									
v/c Ratio	0.73	0.52	0.15	0.82	1.02		0.96	0.99		0.82	0.88	
Uniform Delay, d1	59.3	38.3	34.0	50.4	38.0		52.5	39.8		59.7	45.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.4	0.5	0.2	16.4	29.7		42.9	25.0		39.2	12.6	
Delay (s)	81.7	38.8	34.2	66.8	67.7		95.4	64.8		99.0	58.0	
Level of Service	F	D	C	E	E		F	E		F	E	
Approach Delay (s)		41.7			67.6			70.4			62.2	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	63.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	500	50	70	990	120	160	370	60	60	230	250
Future Volume (vph)	150	500	50	70	990	120	160	370	60	60	230	250
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1487	3096		1487	3088		1487	3074		1487	1652	1404
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1487	3096		1487	3088		1487	3074		1487	1652	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	526	53	74	1042	126	168	389	63	63	242	263
RTOR Reduction (vph)	0	8	0	0	9	0	0	14	0	0	0	150
Lane Group Flow (vph)	158	571	0	74	1159	0	168	438	0	63	242	113
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.0	35.2		6.4	33.6		9.6	32.3		6.3	29.0	29.0
Effective Green, g (s)	10.0	37.2		8.4	35.6		11.6	34.3		8.3	31.0	31.0
Actuated g/C Ratio	0.10	0.39		0.09	0.37		0.12	0.36		0.09	0.32	0.32
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	154	1197		129	1142		179	1096		128	532	452
v/s Ratio Prot	c0.11	0.18		0.05	c0.38		c0.11	0.14		c0.04	c0.15	
v/s Ratio Perm												0.08
v/c Ratio	1.03	0.48		0.57	1.01		0.94	0.40		0.49	0.45	0.25
Uniform Delay, d1	43.1	22.2		42.2	30.3		41.9	23.2		41.9	25.9	24.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	79.5	0.3		6.0	30.3		49.1	1.1		3.0	2.8	1.3
Delay (s)	122.6	22.5		48.2	60.6		91.1	24.3		44.9	28.7	25.3
Level of Service	F	C		D	E		F	C		D	C	C
Approach Delay (s)		44.0			59.8			42.4			28.9	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	96.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	500	230	140	880	140	280	440	100	90	470	60
Future Volume (vph)	50	500	230	140	880	140	280	440	100	90	470	60
Ideal Flow (vphpl)	1800	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	2724	3139	1404	2724	3139	1404	2724	4434	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	2724	3139	1404	2724	3139	1404	2724	4434	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	526	242	147	926	147	295	463	105	95	495	63
RTOR Reduction (vph)	0	0	86	0	0	94	0	0	61	0	14	0
Lane Group Flow (vph)	53	526	156	147	926	53	295	463	44	95	544	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	5.4	34.2	34.2	7.1	35.9	35.9	10.1	41.9	41.9	5.4	37.2	
Effective Green, g (s)	7.4	36.2	36.2	9.1	37.9	37.9	12.1	43.9	43.9	7.4	39.2	
Actuated g/C Ratio	0.07	0.35	0.35	0.09	0.36	0.36	0.12	0.42	0.42	0.07	0.37	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	105	1086	485	236	1137	508	315	1317	589	192	1661	
v/s Ratio Prot	0.04	c0.17		0.05	c0.29		c0.11	c0.15		c0.03	0.12	
v/s Ratio Perm			0.11			0.04			0.03			
v/c Ratio	0.50	0.48	0.32	0.62	0.81	0.10	0.94	0.35	0.07	0.49	0.33	
Uniform Delay, d1	46.8	26.9	25.2	46.1	30.2	22.1	45.9	20.7	18.2	46.8	23.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.8	0.3	0.4	5.0	4.6	0.1	34.1	0.7	0.2	2.0	0.5	
Delay (s)	50.6	27.2	25.6	51.1	34.8	22.2	80.0	21.4	18.4	48.8	23.8	
Level of Service	D	C	C	D	C	C	E	C	B	D	C	
Approach Delay (s)		28.2			35.2			41.1			27.5	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	104.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	240	50	140	590	90	130	610	80	60	730	80
Future Volume (vph)	60	240	50	140	590	90	130	610	80	60	730	80
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1700	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3058		1487	1652	1404	2724	4432		1487	4444	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3058		1487	1652	1404	2724	4432		1487	4444	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	253	53	147	621	95	137	642	84	63	768	84
RTOR Reduction (vph)	0	20	0	0	0	56	0	17	0	0	14	0
Lane Group Flow (vph)	63	286	0	147	621	39	137	709	0	63	838	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	5.3	32.8		8.1	35.6	35.6	7.0	28.8		5.3	27.1	
Effective Green, g (s)	7.3	34.8		10.1	37.6	37.6	9.0	30.8		7.3	29.1	
Actuated g/C Ratio	0.08	0.38		0.11	0.41	0.41	0.10	0.34		0.08	0.32	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	119	1169		165	682	580	269	1500		119	1421	
v/s Ratio Prot	c0.04	0.09		0.10	c0.38		c0.05	0.16		0.04	c0.19	
v/s Ratio Perm						0.03						
v/c Ratio	0.53	0.24		0.89	0.91	0.07	0.51	0.47		0.53	0.59	
Uniform Delay, d1	40.2	19.1		39.9	25.1	16.1	38.9	23.7		40.2	25.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.1		40.3	16.4	0.0	1.5	1.1		4.2	1.8	
Delay (s)	44.4	19.3		80.2	41.5	16.2	40.4	24.8		44.4	27.8	
Level of Service	D	B		F	D	B	D	C		D	C	
Approach Delay (s)		23.6			45.3			27.3			28.9	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	170	130	180	500	50	130	520	100	20	480	80
Future Volume (vph)	90	170	130	180	500	50	130	520	100	20	480	80
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	2935		1487	1629		1487	3139	1404	1487	3072	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	2935		1487	1629		1487	3139	1404	1487	3072	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	179	137	189	526	53	137	547	105	21	505	84
RTOR Reduction (vph)	0	94	0	0	4	0	0	0	61	0	15	0
Lane Group Flow (vph)	95	222	0	189	575	0	137	547	44	21	574	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	5.5	24.6		8.0	27.1		7.0	34.2	34.2	2.7	29.9	
Effective Green, g (s)	7.5	26.6		10.0	29.1		9.0	36.2	36.2	4.7	31.9	
Actuated g/C Ratio	0.09	0.31		0.12	0.34		0.11	0.42	0.42	0.05	0.37	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	130	913		173	554		156	1329	594	81	1146	
v/s Ratio Prot	c0.06	0.08		c0.13	c0.35		c0.09	0.17		0.01	c0.19	
v/s Ratio Perm									0.03			
v/c Ratio	0.73	0.24		1.09	1.04		0.88	0.41	0.07	0.26	0.50	
Uniform Delay, d1	38.0	21.9		37.8	28.2		37.7	17.2	14.7	38.7	20.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.9	0.1		95.3	48.4		38.6	0.9	0.2	1.7	1.6	
Delay (s)	56.9	22.1		133.0	76.6		76.4	18.2	14.9	40.4	22.2	
Level of Service	E	C		F	E		E	B	B	D	C	
Approach Delay (s)		30.1			90.5			27.8			22.9	
Approach LOS		C			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	280	180	200	1020	90	280	1020	90	80	1070	160
Future Volume (vph)	150	280	180	200	1020	90	280	1020	90	80	1070	160
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.94		1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	2955		1487	3101		1487	4455		1487	4423	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	2955		1487	3101		1487	4455		1487	4423	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	295	189	211	1074	95	295	1074	95	84	1126	168
RTOR Reduction (vph)	0	104	0	0	6	0	0	10	0	0	19	0
Lane Group Flow (vph)	158	380	0	211	1163	0	295	1159	0	84	1275	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.0	33.0		9.0	34.0		14.0	36.2		6.4	28.6	
Effective Green, g (s)	10.0	35.0		11.0	36.0		16.0	38.2		8.4	30.6	
Actuated g/C Ratio	0.10	0.35		0.11	0.36		0.16	0.38		0.08	0.30	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	1028		162	1109		236	1691		124	1345	
v/s Ratio Prot	0.11	0.13		c0.14	c0.37		c0.20	0.26		0.06	c0.29	
v/s Ratio Perm												
v/c Ratio	1.07	0.37		1.30	1.05		1.25	0.69		0.68	0.95	
Uniform Delay, d1	45.3	24.5		44.8	32.3		42.3	26.2		44.8	34.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	95.6	0.2		173.6	40.6		142.6	2.3		13.7	14.8	
Delay (s)	140.9	24.8		218.4	72.9		184.9	28.4		58.5	49.1	
Level of Service	F	C		F	E		F	C		E	D	
Approach Delay (s)		53.4			95.1			60.0			49.6	
Approach LOS		D			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	66.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	220	20	120	540	500	20	730	60	370	450	90
Future Volume (vph)	70	220	20	120	540	500	20	730	60	370	450	90
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2724	3139	1404	2724	3139	1404	2724	4459		2724	3139	1404
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2724	3139	1404	2724	3139	1404	2724	4459		2724	3139	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	232	21	126	568	526	21	768	63	389	474	95
RTOR Reduction (vph)	0	0	15	0	0	211	0	8	0	0	0	50
Lane Group Flow (vph)	74	232	6	126	568	315	21	823	0	389	474	45
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	5.3	25.7	25.7	7.0	27.4	27.4	2.5	36.6		9.1	43.2	43.2
Effective Green, g (s)	7.3	27.7	27.7	9.0	29.4	29.4	4.5	38.6		11.1	45.2	45.2
Actuated g/C Ratio	0.08	0.29	0.29	0.10	0.31	0.31	0.05	0.41		0.12	0.48	0.48
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	210	921	411	259	977	437	129	1823		320	1502	672
v/s Ratio Prot	c0.03	0.07		0.05	0.18		0.01	c0.18		c0.14	0.15	
v/s Ratio Perm			0.00			c0.22						0.03
v/c Ratio	0.35	0.25	0.01	0.49	0.58	0.72	0.16	0.45		1.22	0.32	0.07
Uniform Delay, d1	41.3	25.4	23.7	40.5	27.3	28.9	43.1	20.2		41.7	15.1	13.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.0	1.4	0.9	5.8	0.6	0.8		122.2	0.6	0.2
Delay (s)	42.3	25.6	23.7	41.9	28.2	34.7	43.7	21.0		163.9	15.7	13.4
Level of Service	D	C	C	D	C	C	D	C		F	B	B
Approach Delay (s)		29.3			32.4			21.6			75.6	
Approach LOS		C			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	94.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	500	50	100	1180	430	280	1090	60	200	930	250
Future Volume (vph)	260	500	50	100	1180	430	280	1090	60	200	930	250
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2724	4449		2724	3139	1404	2724	3115		2724	3039	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2724	4449		2724	3139	1404	2724	3115		2724	3039	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	274	526	53	105	1242	453	295	1147	63	211	979	263
RTOR Reduction (vph)	0	10	0	0	0	112	0	4	0	0	20	0
Lane Group Flow (vph)	274	569	0	105	1242	341	295	1206	0	211	1222	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	8.0	42.0		7.0	41.0	41.0	8.0	47.0		8.0	47.0	
Effective Green, g (s)	10.0	44.0		9.0	43.0	43.0	10.0	49.0		10.0	49.0	
Actuated g/C Ratio	0.08	0.37		0.08	0.36	0.36	0.08	0.41		0.08	0.41	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	227	1631		204	1124	503	227	1271		227	1240	
v/s Ratio Prot	c0.10	0.13		0.04	c0.40		c0.11	0.39		0.08	c0.40	
v/s Ratio Perm						0.24						
v/c Ratio	1.21	0.35		0.51	1.10	0.68	1.30	0.95		0.93	0.99	
Uniform Delay, d1	55.0	27.6		53.4	38.5	32.6	55.0	34.3		54.6	35.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	127.1	0.1		2.2	60.4	3.6	163.2	15.7		40.2	22.3	
Delay (s)	182.1	27.7		55.6	98.9	36.2	218.2	50.0		94.9	57.4	
Level of Service	F	C		E	F	D	F	D		F	E	
Approach Delay (s)		77.3			80.6			83.0			62.9	
Approach LOS		E			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	76.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	1068	66	32	340	220	30	450	30	390	556	220
Future Volume (vph)	420	1068	66	32	340	220	30	450	30	390	556	220
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	2.5		1.0	2.5	2.5	1.0	2.0		1.0	2.0	2.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3133	3579		3133	3610	1615	1710	3576		1710	3610	1615
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3133	3579		3133	3610	1615	1710	3576		1710	3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	442	1124	69	34	358	232	32	474	32	411	585	232
RTOR Reduction (vph)	0	3	0	0	0	175	0	4	0	0	0	121
Lane Group Flow (vph)	442	1190	0	34	358	57	32	502	0	411	585	111
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	22.4	50.3		5.5	33.4	33.4	7.0	39.2		34.0	66.2	66.2
Effective Green, g (s)	24.4	52.8		7.5	35.9	35.9	9.0	42.2		36.0	69.2	69.2
Actuated g/C Ratio	0.17	0.36		0.05	0.25	0.25	0.06	0.29		0.25	0.48	0.48
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	527	1303		162	893	399	106	1040		424	1722	770
v/s Ratio Prot	c0.14	c0.33		0.01	0.10		0.02	c0.14		c0.24	0.16	
v/s Ratio Perm						0.04						0.07
v/c Ratio	0.84	0.91		0.21	0.40	0.14	0.30	0.48		0.97	0.34	0.14
Uniform Delay, d1	58.4	43.9		65.9	45.6	42.6	65.0	42.4		54.0	23.6	21.3
Progression Factor	1.00	1.00		0.85	1.23	3.57	0.94	0.56		1.00	1.00	1.00
Incremental Delay, d2	11.2	9.9		0.6	0.3	0.1	7.1	1.6		35.3	0.5	0.4
Delay (s)	69.6	53.8		56.3	56.4	152.1	68.1	25.5		89.3	24.2	21.7
Level of Service	E	D		E	E	F	E	C		F	C	C
Approach Delay (s)		58.1			92.0			28.1			45.5	
Approach LOS		E			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	55.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	230	143	240	220	40	140	440	250	65	589	30
Future Volume (vph)	10	230	143	240	220	40	140	440	250	65	589	30
Ideal Flow (vphpl)	1800	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	2.0	1.0	1.0	2.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	3402		3133	1900	1615	1710	3610	1615	1710	3583	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	3402		3133	1900	1615	1710	3610	1615	1710	3583	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	242	151	253	232	42	147	463	263	68	620	32
RTOR Reduction (vph)	0	74	0	0	0	29	0	0	78	0	2	0
Lane Group Flow (vph)	11	319	0	253	232	13	147	463	185	68	650	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	5	1	6	3	5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	5.7	20.5		17.2	32.0	42.4	17.7	80.9	98.1	10.4	73.6	
Effective Green, g (s)	7.7	22.5		19.2	34.0	46.4	19.7	83.9	102.1	12.4	76.6	
Actuated g/C Ratio	0.05	0.16		0.13	0.23	0.32	0.14	0.58	0.70	0.09	0.53	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	90	527		414	445	527	232	2088	1137	146	1892	
v/s Ratio Prot	0.01	c0.09		c0.08	0.12	0.00	c0.09	0.13	0.02	c0.04	c0.18	
v/s Ratio Perm						0.01			0.09			
v/c Ratio	0.12	0.60		0.61	0.52	0.03	0.63	0.22	0.16	0.47	0.34	
Uniform Delay, d1	65.4	57.1		59.4	48.4	33.8	59.2	14.8	7.2	63.1	19.7	
Progression Factor	1.00	1.00		0.63	0.73	3.38	0.94	0.72	9.94	0.69	0.59	
Incremental Delay, d2	0.6	2.0		2.4	1.0	0.0	5.2	0.2	0.1	2.2	0.5	
Delay (s)	66.0	59.1		39.8	36.1	114.2	60.9	10.9	71.3	45.8	12.1	
Level of Service	E	E		D	D	F	E	B	E	D	B	
Approach Delay (s)		59.3			44.1			37.5			15.3	
Approach LOS		E			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	40	140	326	30	60	140	810	271	82	840	20
Future Volume (vph)	40	40	140	326	30	60	140	810	271	82	840	20
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		1.0	2.0	2.0	1.0	2.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1900	1615	1556	3231		1710	3610	1615	1710	5169	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	1900	1615	1556	3231		1710	3610	1615	1710	5169	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	42	147	343	32	63	147	853	285	86	884	21
RTOR Reduction (vph)	0	0	136	0	21	0	0	0	115	0	1	0
Lane Group Flow (vph)	42	42	11	175	242	0	147	853	170	86	904	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	9.0	9.0	9.0	21.7	21.7		19.0	83.7	83.7	12.6	77.3	
Effective Green, g (s)	11.0	11.0	11.0	23.7	23.7		21.0	86.7	86.7	14.6	80.3	
Actuated g/C Ratio	0.08	0.08	0.08	0.16	0.16		0.14	0.60	0.60	0.10	0.55	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	129	144	122	254	528		247	2158	965	172	2862	
v/s Ratio Prot	c0.02	0.02		c0.11	0.07		c0.09	c0.24		c0.05	0.17	
v/s Ratio Perm			0.01						0.11			
v/c Ratio	0.33	0.29	0.09	0.69	0.46		0.60	0.40	0.18	0.50	0.32	
Uniform Delay, d1	63.5	63.3	62.3	57.2	54.8		58.0	15.3	13.1	61.7	17.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.94	0.89	1.35	0.93	0.56	
Incremental Delay, d2	1.5	1.1	0.3	7.6	0.6		3.5	0.5	0.4	2.2	0.3	
Delay (s)	65.0	64.4	62.7	64.7	55.5		58.1	14.2	18.0	59.8	10.1	
Level of Service	E	E	E	E	E		E	B	B	E	B	
Approach Delay (s)		63.4			59.2			20.1			14.4	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	260	0	400	210	1031	0	0	1026	440
Future Volume (vph)	0	0	0	260	0	400	210	1031	0	0	1026	440
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)				1.0		1.0	1.0	3.0			3.0	3.0
Lane Util. Factor				1.00		0.88	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1710		2842	1710	3610			3610	1615
Flt Permitted				0.95		1.00	0.19	1.00			1.00	1.00
Satd. Flow (perm)				1710		2842	338	3610			3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	274	0	421	221	1085	0	0	1080	463
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	194
Lane Group Flow (vph)	0	0	0	274	0	421	221	1085	0	0	1080	269
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm	pm+pt	NA			NA	Perm
Protected Phases							5	2			6	
Permitted Phases				8		8	2					6
Actuated Green, G (s)				29.1		29.1	109.9	107.9			81.9	81.9
Effective Green, g (s)				31.1		31.1	111.9	109.9			83.9	83.9
Actuated g/C Ratio				0.21		0.21	0.77	0.76			0.58	0.58
Clearance Time (s)				3.0		3.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				366		609	497	2736			2088	934
v/s Ratio Prot							c0.08	0.30			c0.30	
v/s Ratio Perm				c0.16		0.15	0.27					0.17
v/c Ratio				0.75		0.69	0.44	0.40			0.52	0.29
Uniform Delay, d1				53.3		52.5	21.9	6.1			18.4	15.4
Progression Factor				1.00		1.00	0.81	0.83			0.43	0.60
Incremental Delay, d2				8.1		3.4	0.5	0.4			0.9	0.8
Delay (s)				61.4		55.9	18.2	5.4			8.9	10.0
Level of Service				E		E	B	A			A	B
Approach Delay (s)		0.0			58.1			7.6			9.2	
Approach LOS		A			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	110	310	120	0	160	0	856	590	255	971	0
Future Volume (vph)	255	110	310	120	0	160	0	856	590	255	971	0
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	3.0	3.0		0.5		1.0		3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95	1.00	1.00	0.95	
Frt	1.00	0.89		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1690		1710		1615		3610	1615	1710	3610	
Flt Permitted	0.95	1.00		0.95		1.00		1.00	1.00	0.18	1.00	
Satd. Flow (perm)	1710	1690		1710		1615		3610	1615	319	3610	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	268	116	326	126	0	168	0	901	621	268	1022	0
RTOR Reduction (vph)	0	74	0	0	0	125	0	0	303	0	0	0
Lane Group Flow (vph)	268	368	0	126	0	43	0	901	318	268	1022	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot		pm+ov		NA	Perm	pm+pt	NA	
Protected Phases	4	4		3		1		2		1	6	
Permitted Phases						3			2	6		
Actuated Green, G (s)	35.6	35.6		13.1		33.4		60.0	60.0	83.3	83.3	
Effective Green, g (s)	37.6	37.6		15.6		37.4		62.0	62.0	85.3	85.3	
Actuated g/C Ratio	0.26	0.26		0.11		0.26		0.43	0.43	0.59	0.59	
Clearance Time (s)	5.0	5.0		3.0		3.0		5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	443	438		183		416		1543	690	401	2123	
v/s Ratio Prot	0.16	c0.22		c0.07		0.02		c0.25		c0.10	0.28	
v/s Ratio Perm						0.01			0.20	0.29		
v/c Ratio	0.60	0.84		0.69		0.10		0.58	0.46	0.67	0.48	
Uniform Delay, d1	47.2	50.9		62.4		41.0		31.7	29.6	19.6	17.1	
Progression Factor	1.00	1.00		0.44		7.44		1.00	1.00	0.76	0.30	
Incremental Delay, d2	2.3	13.5		10.1		0.1		1.6	2.2	3.6	0.7	
Delay (s)	49.5	64.4		37.2		305.5		33.3	31.8	18.4	5.8	
Level of Service	D	E		D		F		C	C	B	A	
Approach Delay (s)		58.8			190.5			32.7			8.4	
Approach LOS		E			F			C			A	

Intersection Summary			
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	660	250	280	20	0	0
Future Volume (vph)	660	250	280	20	0	0
Ideal Flow (vphpl)	1700	1900	1900	1900	0	0
Total Lost time (s)	1.0	3.0	1.0			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3133	3610	3574			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3133	3610	3574			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	0%	0%
Adj. Flow (vph)	695	263	295	21	0	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	695	263	313	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	93.0	145.0	44.0			
Effective Green, g (s)	95.0	145.0	48.0			
Actuated g/C Ratio	0.66	1.00	0.33			
Clearance Time (s)	3.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	2052	3610	1183			
v/s Ratio Prot	c0.22	0.07	c0.09			
v/s Ratio Perm						
v/c Ratio	0.34	0.07	0.26			
Uniform Delay, d1	11.1	0.0	35.6			
Progression Factor	0.87	1.00	1.00			
Incremental Delay, d2	0.1	0.0	0.5			
Delay (s)	9.7	0.0	36.1			
Level of Service	A	A	D			
Approach Delay (s)		7.0	36.1		0.0	
Approach LOS		A	D		A	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	610	420	156	260	40	240	837	119	60	1118	150
Future Volume (vph)	240	610	420	156	260	40	240	837	119	60	1118	150
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	3610	1615	1710	3610	1615	1710	5090		1710	5095	
Flt Permitted	0.33	1.00	1.00	0.41	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	595	3610	1615	734	3610	1615	1710	5090		1710	5095	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	253	642	442	164	274	42	253	881	125	63	1177	158
RTOR Reduction (vph)	0	0	255	0	0	35	0	10	0	0	10	0
Lane Group Flow (vph)	253	642	187	164	274	7	253	996	0	63	1325	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	33.5	33.5	33.5	25.3	23.3	23.3	26.7	76.1		8.2	57.6	
Effective Green, g (s)	35.5	35.5	35.5	27.3	25.3	25.3	28.7	78.1		10.2	59.6	
Actuated g/C Ratio	0.24	0.24	0.24	0.19	0.17	0.17	0.20	0.54		0.07	0.41	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	325	883	395	227	629	281	338	2741		120	2094	
v/s Ratio Prot	c0.13	c0.18		c0.07	0.08		c0.15	0.20		0.04	c0.26	
v/s Ratio Perm	0.06		0.12	0.07		0.00						
v/c Ratio	0.78	0.73	0.47	0.72	0.44	0.03	0.75	0.36		0.53	0.63	
Uniform Delay, d1	48.8	50.3	46.8	55.3	53.5	49.6	54.8	19.2		65.1	34.0	
Progression Factor	0.44	0.45	0.50	1.00	1.00	1.00	0.81	0.50		1.00	1.00	
Incremental Delay, d2	4.3	1.2	0.4	9.2	0.5	0.0	6.9	0.3		1.9	1.5	
Delay (s)	25.8	24.0	23.9	64.5	54.0	49.7	51.3	9.9		67.0	35.5	
Level of Service	C	C	C	E	D	D	D	A		E	D	
Approach Delay (s)		24.3			57.2			18.2			36.9	
Approach LOS		C			E			B			D	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	320	260	295	240	50	374	1211	225	140	1436	88
Future Volume (vph)	165	320	260	295	240	50	374	1211	225	140	1436	88
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.0		0.5	2.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3133	3610	1615	3133	3516		3133	5065		3133	5142	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3133	3610	1615	3133	3516		3133	5065		3133	5142	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	174	337	274	311	253	53	394	1275	237	147	1512	93
RTOR Reduction (vph)	0	0	233	0	14	0	0	14	0	0	3	0
Lane Group Flow (vph)	174	337	41	311	292	0	394	1498	0	147	1602	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	16.0	19.4	19.4	14.0	17.4		23.5	85.5		10.1	72.1	
Effective Green, g (s)	18.0	21.9	21.9	16.0	19.9		26.0	88.5		12.6	75.1	
Actuated g/C Ratio	0.12	0.15	0.15	0.11	0.14		0.18	0.61		0.09	0.52	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	388	545	243	345	482		561	3091		272	2663	
v/s Ratio Prot	0.06	c0.09		c0.10	c0.08		c0.13	0.30		0.05	c0.31	
v/s Ratio Perm			0.03									
v/c Ratio	0.45	0.62	0.17	0.90	0.61		0.70	0.48		0.54	0.60	
Uniform Delay, d1	58.9	57.6	53.6	63.7	58.9		55.9	15.6		63.4	24.5	
Progression Factor	0.81	0.80	0.71	1.00	1.00		1.00	0.49		0.71	0.33	
Incremental Delay, d2	0.8	2.1	0.3	25.5	2.2		3.6	0.5		1.7	0.8	
Delay (s)	48.4	48.0	38.5	89.2	61.0		59.4	8.2		47.0	8.9	
Level of Service	D	D	D	F	E		E	A		D	A	
Approach Delay (s)		44.8			75.2			18.8			12.1	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	270	0	615	220	1303	0	0	1444	687
Future Volume (vph)	0	0	0	270	0	615	220	1303	0	0	1444	687
Ideal Flow (vphpl)	1900	1900	1900	1800	1900	1900	1700	1900	1900	1800	1900	1900
Total Lost time (s)				3.0	3.0	3.0	1.0	3.0			3.0	3.0
Lane Util. Factor				0.95	0.91	0.95	0.97	0.91			0.86	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1624	1485	1534	3133	5187			6536	1615
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1624	1485	1534	3133	5187			6536	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	284	0	647	232	1372	0	0	1520	723
RTOR Reduction (vph)	0	0	0	0	38	38	0	0	0	0	0	311
Lane Group Flow (vph)	0	0	0	256	301	298	232	1372	0	0	1520	412
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				36.2	36.2	36.2	15.2	98.8			80.6	80.6
Effective Green, g (s)				38.2	38.2	38.2	17.2	100.8			82.6	82.6
Actuated g/C Ratio				0.26	0.26	0.26	0.12	0.70			0.57	0.57
Clearance Time (s)				5.0	5.0	5.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				427	391	404	371	3605			3723	919
v/s Ratio Prot							c0.07	0.26			0.23	
v/s Ratio Perm				0.16	0.20	0.19						c0.26
v/c Ratio				0.60	0.77	0.74	0.63	0.38			0.41	0.45
Uniform Delay, d1				46.7	49.4	48.8	60.8	9.2			17.5	18.0
Progression Factor				1.00	1.00	1.00	0.91	0.83			0.49	3.85
Incremental Delay, d2				2.3	9.1	6.9	3.1	0.3			0.3	1.3
Delay (s)				49.0	58.4	55.8	58.2	7.9			8.9	70.7
Level of Service				D	E	E	E	A			A	E
Approach Delay (s)		0.0			54.9			15.2			28.8	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	0	420	0	0	0	0	1225	600	402	1242	0
Future Volume (vph)	338	0	420	0	0	0	0	1225	600	402	1242	0
Ideal Flow (vphpl)	1800	1900	1900	1900	1900	1900	1800	1900	1900	1700	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	1.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	0.97	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1624	1715	1615					6536	1615	3133	5187	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1624	1715	1615					6536	1615	3133	5187	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%
Adj. Flow (vph)	356	0	442	0	0	0	0	1289	632	423	1307	0
RTOR Reduction (vph)	0	0	52	0	0	0	0	0	140	0	0	0
Lane Group Flow (vph)	178	178	390	0	0	0	0	1289	492	423	1307	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	38.6	38.6	38.6					69.0	69.0	24.4	96.4	
Effective Green, g (s)	40.6	40.6	40.6					71.0	71.0	26.4	98.4	
Actuated g/C Ratio	0.28	0.28	0.28					0.49	0.49	0.18	0.68	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	454	480	452					3200	790	570	3520	
v/s Ratio Prot								0.20		c0.14	0.25	
v/s Ratio Perm	0.11	0.10	c0.24						c0.30			
v/c Ratio	0.39	0.37	0.86					0.40	0.62	0.74	0.37	
Uniform Delay, d1	42.2	41.9	49.6					23.5	27.2	56.1	10.0	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.70	0.41	
Incremental Delay, d2	0.6	0.5	15.6					0.4	3.7	4.8	0.3	
Delay (s)	42.8	42.4	65.1					23.9	30.9	44.0	4.3	
Level of Service	D	D	E					C	C	D	A	
Approach Delay (s)		55.1			0.0			26.2			14.0	
Approach LOS		E			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1330	220	290	580	100	140	770	240	130	860	70
Future Volume (vph)	130	1330	220	290	580	100	140	770	240	130	860	70
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	1487	3070		1487	3027		1487	3104	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	1487	3070		1487	3027		1487	3104	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	1400	232	305	611	105	147	811	253	137	905	74
RTOR Reduction (vph)	0	0	103	0	13	0	0	30	0	0	6	0
Lane Group Flow (vph)	137	1400	129	305	703	0	147	1034	0	137	973	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	13.0	35.0	35.0	12.0	34.0		7.0	30.0		7.0	30.0	
Effective Green, g (s)	15.0	37.0	37.0	14.0	36.0		9.0	32.0		9.0	32.0	
Actuated g/C Ratio	0.15	0.37	0.37	0.14	0.36		0.09	0.32		0.09	0.32	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	223	1161	519	208	1105		133	968		133	993	
v/s Ratio Prot	0.09	c0.45		c0.21	0.23		c0.10	c0.34		0.09	c0.31	
v/s Ratio Perm			0.09									
v/c Ratio	0.61	1.21	0.25	1.47	0.64		1.11	1.07		1.03	0.98	
Uniform Delay, d1	39.8	31.5	21.8	43.0	26.6		45.5	34.0		45.5	33.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.0	101.0	0.3	234.2	1.2		109.1	49.0		86.3	24.1	
Delay (s)	44.7	132.5	22.1	277.2	27.8		154.6	83.0		131.8	57.8	
Level of Service	D	F	C	F	C		F	F		F	E	
Approach Delay (s)		111.2			102.3			91.7			66.8	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	95.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1420	120	110	600	90	140	310	80	130	370	150
Future Volume (vph)	180	1420	120	110	600	90	140	310	80	130	370	150
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1487	3103		1487	3078		1487	3043		1487	1652	1404
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1487	3103		1487	3078		1487	3043		1487	1652	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1495	126	116	632	95	147	326	84	137	389	158
RTOR Reduction (vph)	0	5	0	0	9	0	0	19	0	0	0	117
Lane Group Flow (vph)	189	1616	0	116	718	0	147	391	0	137	389	41
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	20.0	61.0		8.0	49.0		10.0	30.0		10.0	30.0	30.0
Effective Green, g (s)	22.0	63.0		10.0	51.0		12.0	32.0		12.0	32.0	32.0
Actuated g/C Ratio	0.18	0.50		0.08	0.41		0.10	0.26		0.10	0.26	0.26
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	261	1563		118	1255		142	779		142	422	359
v/s Ratio Prot	0.13	c0.52		c0.08	0.23		c0.10	0.13		c0.09	c0.24	
v/s Ratio Perm												0.03
v/c Ratio	0.72	1.03		0.98	0.57		1.04	0.50		0.96	0.92	0.11
Uniform Delay, d1	48.6	31.0		57.4	28.6		56.5	39.7		56.3	45.3	35.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.5	32.0		77.1	0.6		85.2	2.3		64.3	28.0	0.6
Delay (s)	58.2	63.0		134.5	29.2		141.7	42.0		120.6	73.3	36.3
Level of Service	E	E		F	C		F	D		F	E	D
Approach Delay (s)		62.5			43.7			68.3			74.2	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	61.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1060	380	170	680	170	320	510	170	160	590	70
Future Volume (vph)	70	1060	380	170	680	170	320	510	170	160	590	70
Ideal Flow (vphpl)	1800	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	2724	3139	1404	2724	3139	1404	2724	4438	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	2724	3139	1404	2724	3139	1404	2724	4438	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	1116	400	179	716	179	337	537	179	168	621	74
RTOR Reduction (vph)	0	0	91	0	0	107	0	0	98	0	13	0
Lane Group Flow (vph)	74	1116	309	179	716	72	337	537	81	168	682	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	5.6	40.6	40.6	7.6	42.6	42.6	10.0	36.0	36.0	10.0	36.0	
Effective Green, g (s)	7.6	42.6	42.6	9.6	44.6	44.6	12.0	38.0	38.0	12.0	38.0	
Actuated g/C Ratio	0.07	0.39	0.39	0.09	0.40	0.40	0.11	0.34	0.34	0.11	0.34	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	1213	542	237	1270	568	296	1082	484	296	1530	
v/s Ratio Prot	0.05	c0.36		c0.07	0.23		c0.12	c0.17		c0.06	0.15	
v/s Ratio Perm			0.22			0.05			0.06			
v/c Ratio	0.73	0.92	0.57	0.76	0.56	0.13	1.14	0.50	0.17	0.57	0.45	
Uniform Delay, d1	50.3	32.2	26.6	49.2	25.3	20.6	49.1	28.5	25.1	46.6	27.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.4	11.3	1.4	12.8	0.6	0.1	95.1	1.6	0.8	2.5	0.9	
Delay (s)	72.7	43.5	28.0	62.0	25.9	20.7	144.2	30.2	25.9	49.1	28.9	
Level of Service	E	D	C	E	C	C	F	C	C	D	C	
Approach Delay (s)		41.0			31.0			65.9			32.8	
Approach LOS		D			C			E			C	

Intersection Summary			
HCM 2000 Control Delay	42.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	1000	140	150	340	120	80	790	180	150	930	50
Future Volume (vph)	110	1000	140	150	340	120	80	790	180	150	930	50
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1700	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3081		1487	1652	1404	2724	4385		1487	4476	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3081		1487	1652	1404	2724	4385		1487	4476	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	1053	147	158	358	126	84	832	189	158	979	53
RTOR Reduction (vph)	0	12	0	0	0	74	0	39	0	0	6	0
Lane Group Flow (vph)	116	1188	0	158	358	52	84	982	0	158	1026	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	7.0	37.6		7.0	37.6	37.6	5.6	27.0		7.6	29.0	
Effective Green, g (s)	9.0	39.6		9.0	39.6	39.6	7.6	29.0		9.6	31.0	
Actuated g/C Ratio	0.09	0.42		0.09	0.42	0.42	0.08	0.30		0.10	0.33	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	140	1281		140	687	584	217	1335		149	1457	
v/s Ratio Prot	0.08	c0.39		c0.11	0.22		0.03	c0.22		c0.11	0.23	
v/s Ratio Perm						0.04						
v/c Ratio	0.83	0.93		1.13	0.52	0.09	0.39	0.74		1.06	0.70	
Uniform Delay, d1	42.3	26.4		43.1	20.7	16.9	41.6	29.7		42.8	28.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	31.4	11.6		114.8	0.7	0.1	1.1	3.6		90.7	2.9	
Delay (s)	73.8	38.0		157.9	21.4	16.9	42.7	33.3		133.5	31.0	
Level of Service	E	D		F	C	B	D	C		F	C	
Approach Delay (s)		41.2			54.1			34.0			44.6	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	95.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	660	230	170	360	50	180	680	200	50	650	130
Future Volume (vph)	170	660	230	170	360	50	180	680	200	50	650	130
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	3018		1487	1622		1487	3139	1404	1487	3061	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	3018		1487	1622		1487	3139	1404	1487	3061	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	695	242	179	379	53	189	716	211	53	684	137
RTOR Reduction (vph)	0	41	0	0	6	0	0	0	125	0	19	0
Lane Group Flow (vph)	179	896	0	179	426	0	189	716	86	53	802	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	8.5	25.8		7.0	24.3		8.0	33.0	33.0	4.2	29.2	
Effective Green, g (s)	10.5	27.8		9.0	26.3		10.0	35.0	35.0	6.2	31.2	
Actuated g/C Ratio	0.12	0.32		0.10	0.31		0.12	0.41	0.41	0.07	0.36	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	181	975		155	496		172	1277	571	107	1110	
v/s Ratio Prot	0.12	c0.30		c0.12	c0.26		c0.13	0.23		0.04	c0.26	
v/s Ratio Perm									0.06			
v/c Ratio	0.99	0.92		1.15	0.86		1.10	0.56	0.15	0.50	0.72	
Uniform Delay, d1	37.7	28.0		38.5	28.1		38.0	19.6	16.1	38.4	23.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	63.0	13.1		120.0	13.7		97.5	1.8	0.6	3.6	4.1	
Delay (s)	100.7	41.1		158.5	41.8		135.5	21.4	16.7	42.0	27.7	
Level of Service	F	D		F	D		F	C	B	D	C	
Approach Delay (s)		50.7			76.0			39.8			28.6	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	680	210	220	440	80	260	1230	160	110	1190	130
Future Volume (vph)	200	680	210	220	440	80	260	1230	160	110	1190	130
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	0.98		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3028		1487	3067		1487	4433		1487	4444	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3028		1487	3067		1487	4433		1487	4444	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	716	221	232	463	84	274	1295	168	116	1253	137
RTOR Reduction (vph)	0	24	0	0	12	0	0	13	0	0	11	0
Lane Group Flow (vph)	211	913	0	232	535	0	274	1450	0	116	1379	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	16.0	33.0		16.0	33.0		20.0	44.4		10.6	35.0	
Effective Green, g (s)	18.0	35.0		18.0	35.0		22.0	46.4		12.6	37.0	
Actuated g/C Ratio	0.15	0.29		0.15	0.29		0.18	0.39		0.10	0.31	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	223	883		223	894		272	1714		156	1370	
v/s Ratio Prot	0.14	c0.30		c0.16	0.17		c0.18	0.33		0.08	c0.31	
v/s Ratio Perm												
v/c Ratio	0.95	1.03		1.04	0.60		1.01	0.85		0.74	1.01	
Uniform Delay, d1	50.5	42.5		51.0	36.5		49.0	33.5		52.1	41.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	44.9	39.3		71.2	1.1		56.5	5.3		17.3	25.9	
Delay (s)	95.5	81.8		122.2	37.6		105.5	38.9		69.5	67.4	
Level of Service	F	F		F	D		F	D		E	E	
Approach Delay (s)		84.3			62.8			49.4			67.6	
Approach LOS		F			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	64.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	550	20	150	370	590	20	650	190	450	620	80
Future Volume (vph)	100	550	20	150	370	590	20	650	190	450	620	80
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2724	3139	1404	2724	3139	1404	2724	4357		2724	3139	1404
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2724	3139	1404	2724	3139	1404	2724	4357		2724	3139	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	579	21	158	389	621	21	684	200	474	653	84
RTOR Reduction (vph)	0	0	14	0	0	196	0	48	0	0	0	47
Lane Group Flow (vph)	105	579	7	158	389	425	21	836	0	474	653	37
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	5.4	32.2	32.2	7.1	33.9	33.9	2.6	36.2		9.1	42.7	42.7
Effective Green, g (s)	7.4	34.2	34.2	9.1	35.9	35.9	4.6	38.2		11.1	44.7	44.7
Actuated g/C Ratio	0.07	0.34	0.34	0.09	0.36	0.36	0.05	0.38		0.11	0.44	0.44
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	200	1067	477	246	1120	501	124	1654		300	1394	623
v/s Ratio Prot	0.04	c0.18		0.06	0.12		0.01	c0.19		c0.17	0.21	
v/s Ratio Perm			0.01			c0.30						0.03
v/c Ratio	0.53	0.54	0.01	0.64	0.35	0.85	0.17	0.51		1.58	0.47	0.06
Uniform Delay, d1	44.9	26.9	22.0	44.2	23.7	29.8	46.2	24.0		44.8	19.6	16.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	0.6	0.0	5.6	0.2	12.6	0.6	1.1		276.4	1.1	0.2
Delay (s)	47.4	27.4	22.0	49.8	23.9	42.4	46.8	25.1		321.2	20.7	16.1
Level of Service	D	C	C	D	C	D	D	C		F	C	B
Approach Delay (s)		30.2			37.3			25.6			138.0	
Approach LOS		C			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	64.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	1060	180	210	600	350	140	1230	150	370	1340	180
Future Volume (vph)	380	1060	180	210	600	350	140	1230	150	370	1340	180
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2724	4412		2724	3139	1404	2724	3088		2724	3084	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2724	4412		2724	3139	1404	2724	3088		2724	3084	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	400	1116	189	221	632	368	147	1295	158	389	1411	189
RTOR Reduction (vph)	0	16	0	0	0	160	0	6	0	0	7	0
Lane Group Flow (vph)	400	1289	0	221	632	208	147	1447	0	389	1593	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	20.3	45.7		11.0	36.4	36.4	7.0	61.0		16.0	70.0	
Effective Green, g (s)	22.3	47.7		13.0	38.4	38.4	9.0	63.0		18.0	72.0	
Actuated g/C Ratio	0.15	0.32		0.09	0.26	0.26	0.06	0.42		0.12	0.48	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	405	1405		236	805	360	163	1299		327	1483	
v/s Ratio Prot	0.15	c0.29		c0.08	0.20		0.05	c0.47		c0.14	c0.52	
v/s Ratio Perm						0.15						
v/c Ratio	0.99	0.92		0.94	0.79	0.58	0.90	1.11		1.19	1.07	
Uniform Delay, d1	63.6	49.1		67.9	51.8	48.6	69.9	43.3		65.8	38.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	41.0	9.7		41.0	5.1	2.2	43.1	62.3		111.7	46.2	
Delay (s)	104.6	58.8		108.9	56.9	50.8	113.0	105.6		177.6	85.0	
Level of Service	F	E		F	E	D	F	F		F	F	
Approach Delay (s)		69.5			64.5			106.3			103.1	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	87.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	149.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	280	20	10	480	270	30	370	10	220	370	320
Future Volume (vph)	200	280	20	10	480	270	30	370	10	220	370	320
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	2.5		1.0	2.5	2.5	1.0	2.0		1.0	2.0	2.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3133	3574		3133	3610	1615	1710	3595		1710	3610	1615
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3133	3574		3133	3610	1615	1710	3595		1710	3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	295	21	11	505	284	32	389	11	232	389	337
RTOR Reduction (vph)	0	5	0	0	0	222	0	2	0	0	0	168
Lane Group Flow (vph)	211	311	0	11	505	62	32	398	0	232	389	169
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	15.2	35.3		1.3	21.4	21.4	7.0	39.5		17.9	50.4	50.4
Effective Green, g (s)	17.2	37.8		3.3	23.9	23.9	9.0	42.5		19.9	53.4	53.4
Actuated g/C Ratio	0.16	0.34		0.03	0.22	0.22	0.08	0.39		0.18	0.49	0.49
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	489	1228		93	784	350	139	1388		309	1752	784
v/s Ratio Prot	c0.07	0.09		0.00	c0.14		0.02	c0.11		c0.14	0.11	
v/s Ratio Perm						0.04						0.10
v/c Ratio	0.43	0.25		0.12	0.64	0.18	0.23	0.29		0.75	0.22	0.22
Uniform Delay, d1	42.0	26.0		51.9	39.2	35.0	47.3	23.3		42.7	16.3	16.3
Progression Factor	1.00	1.00		1.20	0.55	0.67	0.81	0.59		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1		0.4	1.4	0.2	3.8	0.5		9.8	0.3	0.6
Delay (s)	42.6	26.1		62.5	23.0	23.7	42.0	14.2		52.5	16.6	16.9
Level of Service	D	C		E	C	C	D	B		D	B	B
Approach Delay (s)		32.7			23.8			16.3			25.4	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	180	350	200	180	20	230	360	170	20	360	50
Future Volume (vph)	20	180	350	200	180	20	230	360	170	20	360	50
Ideal Flow (vphpl)	1800	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	2.0	1.0	1.0	2.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	3252		3133	1900	1615	1710	3610	1615	1710	3544	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	3252		3133	1900	1615	1710	3610	1615	1710	3544	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	189	368	211	189	21	242	379	179	21	379	53
RTOR Reduction (vph)	0	318	0	0	0	15	0	0	47	0	8	0
Lane Group Flow (vph)	21	239	0	211	189	6	242	379	132	21	424	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	5	1	6	3	5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	2.8	12.9		14.4	24.5	28.7	20.2	62.5	76.9	4.2	46.5	
Effective Green, g (s)	4.8	14.9		16.4	26.5	32.7	22.2	65.5	80.9	6.2	49.5	
Actuated g/C Ratio	0.04	0.14		0.15	0.24	0.30	0.20	0.60	0.74	0.06	0.45	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	74	440		467	457	480	345	2149	1202	96	1594	
v/s Ratio Prot	0.01	c0.07		0.07	c0.10	0.00	c0.14	0.10	0.02	0.01	c0.12	
v/s Ratio Perm						0.00			0.07			
v/c Ratio	0.28	0.54		0.45	0.41	0.01	0.70	0.18	0.11	0.22	0.27	
Uniform Delay, d1	50.9	44.4		42.7	35.2	27.3	40.8	10.1	4.2	49.6	18.9	
Progression Factor	1.00	1.00		0.41	0.28	1.00	0.78	0.83	0.15	0.70	0.49	
Incremental Delay, d2	2.1	1.4		0.6	0.6	0.0	6.0	0.2	0.0	1.1	0.4	
Delay (s)	53.0	45.7		18.0	10.4	27.3	38.0	8.5	0.7	35.8	9.8	
Level of Service	D	D		B	B	C	D	A	A	D	A	
Approach Delay (s)		46.0			15.1			15.7			11.0	
Approach LOS		D			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	10	390	60	10	20	260	880	50	20	830	70
Future Volume (vph)	70	10	390	60	10	20	260	880	50	20	830	70
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		1.0	2.0	2.0	1.0	2.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1900	1615	1556	3206		1710	3610	1615	1710	5126	
Flt Permitted	0.95	1.00	1.00	0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	1900	1615	1556	3206		1710	3610	1615	1710	5126	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	11	411	63	11	21	274	926	53	21	874	74
RTOR Reduction (vph)	0	0	362	0	19	0	0	0	17	0	5	0
Lane Group Flow (vph)	74	11	49	32	44	0	274	926	36	21	943	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	11.2	11.2	11.2	6.7	6.7		13.8	71.3	71.3	2.8	60.3	
Effective Green, g (s)	13.2	13.2	13.2	8.7	8.7		15.8	74.3	74.3	4.8	63.3	
Actuated g/C Ratio	0.12	0.12	0.12	0.08	0.08		0.14	0.68	0.68	0.04	0.58	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	205	228	193	123	253		245	2438	1090	74	2949	
v/s Ratio Prot	c0.04	0.01		c0.02	0.01		c0.16	c0.26		0.01	0.18	
v/s Ratio Perm			0.03						0.02			
v/c Ratio	0.36	0.05	0.26	0.26	0.17		1.12	0.38	0.03	0.28	0.32	
Uniform Delay, d1	44.5	42.8	43.9	47.6	47.3		47.1	7.8	5.9	50.9	12.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.11	0.68	3.59	1.05	0.64	
Incremental Delay, d2	1.1	0.1	0.7	1.1	0.3		91.1	0.4	0.1	2.0	0.3	
Delay (s)	45.6	42.9	44.6	48.8	47.6		143.2	5.7	21.3	55.6	8.1	
Level of Service	D	D	D	D	D		F	A	C	E	A	
Approach Delay (s)		44.7			48.0			36.4			9.1	
Approach LOS		D			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	200	0	340	250	930	0	0	1030	440
Future Volume (vph)	0	0	0	200	0	340	250	930	0	0	1030	440
Ideal Flow (vphpl)	1900	1900	1900	1800	1900	1900	1800	1900	1900	1900	1900	1900
Total Lost time (s)				1.0		1.0	1.0	3.0			3.0	3.0
Lane Util. Factor				1.00		0.88	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1710		2842	1710	3610			3610	1615
Flt Permitted				0.95		1.00	0.18	1.00			1.00	1.00
Satd. Flow (perm)				1710		2842	321	3610			3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	211	0	358	263	979	0	0	1084	463
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	211
Lane Group Flow (vph)	0	0	0	211	0	358	263	979	0	0	1084	252
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm	pm+pt	NA			NA	Perm
Protected Phases							5	2			6	
Permitted Phases				8		8	2					6
Actuated Green, G (s)				19.2		19.2	84.8	82.8			57.8	57.8
Effective Green, g (s)				21.2		21.2	86.8	84.8			59.8	59.8
Actuated g/C Ratio				0.19		0.19	0.79	0.77			0.54	0.54
Clearance Time (s)				3.0		3.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				329		547	556	2782			1962	877
v/s Ratio Prot							c0.10	0.27			c0.30	
v/s Ratio Perm				0.12		c0.13	0.27					0.16
v/c Ratio				0.64		0.65	0.47	0.35			0.55	0.29
Uniform Delay, d1				40.9		41.0	17.3	4.0			16.4	13.6
Progression Factor				1.00		1.00	0.51	0.62			0.73	1.11
Incremental Delay, d2				4.2		2.8	0.5	0.3			1.1	0.8
Delay (s)				45.1		43.8	9.4	2.8			13.0	15.9
Level of Service				D		D	A	A			B	B
Approach Delay (s)		0.0			44.3			4.2			13.9	
Approach LOS		A			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	100	260	150	0	120	0	870	590	290	870	0
Future Volume (vph)	190	100	260	150	0	120	0	870	590	290	870	0
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1900	1900	1900	1800	1900	1900
Total Lost time (s)	3.0	3.0		0.5		1.0		3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95	1.00	1.00	0.95	
Frt	1.00	0.89		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1694		1710		1615		3610	1615	1710	3610	
Flt Permitted	0.95	1.00		0.95		1.00		1.00	1.00	0.17	1.00	
Satd. Flow (perm)	1710	1694		1710		1615		3610	1615	309	3610	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	200	105	274	158	0	126	0	916	621	305	916	0
RTOR Reduction (vph)	0	92	0	0	0	90	0	0	355	0	0	0
Lane Group Flow (vph)	200	287	0	158	0	36	0	916	266	305	916	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot		pm+ov		NA	Perm	pm+pt	NA	
Protected Phases	4	4		3		1		2		1	6	
Permitted Phases						3			2	6		
Actuated Green, G (s)	22.6	22.6		10.8		27.0		44.4	44.4	63.6	63.6	
Effective Green, g (s)	24.6	24.6		13.3		31.0		46.4	46.4	65.6	65.6	
Actuated g/C Ratio	0.22	0.22		0.12		0.28		0.42	0.42	0.60	0.60	
Clearance Time (s)	5.0	5.0		3.0		3.0		5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	382	378		206		455		1522	681	416	2152	
v/s Ratio Prot	0.12	c0.17		c0.09		0.01		c0.25		c0.12	0.25	
v/s Ratio Perm						0.01			0.16	0.32		
v/c Ratio	0.52	0.76		0.77		0.08		0.60	0.39	0.73	0.43	
Uniform Delay, d1	37.5	39.9		46.8		29.0		24.6	22.0	15.4	12.0	
Progression Factor	1.00	1.00		0.46		0.62		1.00	1.00	0.50	0.57	
Incremental Delay, d2	1.3	8.5		15.4		0.1		1.8	1.7	5.6	0.5	
Delay (s)	38.8	48.4		37.2		18.0		26.4	23.7	13.3	7.4	
Level of Service	D	D		D		B		C	C	B	A	
Approach Delay (s)		45.1			28.7			25.3			8.8	
Approach LOS		D			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	700	210	260	10	0	0
Future Volume (vph)	700	210	260	10	0	0
Ideal Flow (vphpl)	1700	1900	1900	1900	0	0
Total Lost time (s)	1.0	3.0	1.0			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3133	3610	3589			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3133	3610	3589			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	0%	0%
Adj. Flow (vph)	737	221	274	11	0	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	737	221	282	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	69.0	110.0	33.0			
Effective Green, g (s)	71.0	110.0	37.0			
Actuated g/C Ratio	0.65	1.00	0.34			
Clearance Time (s)	3.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	2022	3610	1207			
v/s Ratio Prot	c0.24	0.06	c0.08			
v/s Ratio Perm						
v/c Ratio	0.36	0.06	0.23			
Uniform Delay, d1	9.0	0.0	26.3			
Progression Factor	0.65	1.00	1.00			
Incremental Delay, d2	0.1	0.0	0.5			
Delay (s)	6.0	0.0	26.7			
Level of Service	A	A	C			
Approach Delay (s)		4.6	26.7		0.0	
Approach LOS		A	C		A	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	280	230	80	380	40	330	720	90	10	590	200
Future Volume (vph)	230	280	230	80	380	40	330	720	90	10	590	200
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	3610	1615	1710	3610	1615	1710	5100		1710	4990	
Flt Permitted	0.28	1.00	1.00	0.46	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	496	3610	1615	828	3610	1615	1710	5100		1710	4990	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	295	242	84	400	42	347	758	95	11	621	211
RTOR Reduction (vph)	0	0	194	0	0	34	0	9	0	0	44	0
Lane Group Flow (vph)	242	295	48	84	400	8	347	844	0	11	788	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	26.6	19.6	19.6	23.8	18.2	18.2	19.3	67.6		1.2	49.5	
Effective Green, g (s)	30.2	21.6	21.6	27.8	20.2	20.2	21.3	69.6		3.2	51.5	
Actuated g/C Ratio	0.27	0.20	0.20	0.25	0.18	0.18	0.19	0.63		0.03	0.47	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	235	708	317	270	662	296	331	3226		49	2336	
v/s Ratio Prot	c0.08	0.08		0.02	c0.11		c0.20	0.17		0.01	c0.16	
v/s Ratio Perm	0.20		0.03	0.06		0.00						
v/c Ratio	1.03	0.42	0.15	0.31	0.60	0.03	1.05	0.26		0.22	0.34	
Uniform Delay, d1	37.4	38.7	36.6	32.4	41.2	36.8	44.4	8.9		52.2	18.5	
Progression Factor	0.66	0.68	1.43	1.00	1.00	1.00	0.87	0.71		1.00	1.00	
Incremental Delay, d2	65.6	0.4	0.2	0.2	1.6	0.0	61.3	0.2		0.8	0.4	
Delay (s)	90.1	26.8	52.4	32.6	42.8	36.9	99.8	6.5		53.0	18.9	
Level of Service	F	C	D	C	D	D	F	A		D	B	
Approach Delay (s)		54.4			40.7			33.5			19.3	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	35.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	90	180	210	100	30	320	1170	100	30	690	40
Future Volume (vph)	40	90	180	210	100	30	320	1170	100	30	690	40
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.0		0.5	2.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3133	3610	1615	3133	3484		3133	5126		3133	5144	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3133	3610	1615	3133	3484		3133	5126		3133	5144	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	95	189	221	105	32	337	1232	105	32	726	42
RTOR Reduction (vph)	0	0	168	0	26	0	0	5	0	0	4	0
Lane Group Flow (vph)	42	95	21	221	111	0	337	1332	0	32	764	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	4.2	10.0	10.0	10.7	16.5		16.9	69.1		4.2	56.4	
Effective Green, g (s)	6.2	12.5	12.5	12.7	19.0		19.4	72.1		6.7	59.4	
Actuated g/C Ratio	0.06	0.11	0.11	0.12	0.17		0.18	0.66		0.06	0.54	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	176	410	183	361	601		552	3359		190	2777	
v/s Ratio Prot	0.01	c0.03		c0.07	0.03		c0.11	c0.26		0.01	c0.15	
v/s Ratio Perm			0.01									
v/c Ratio	0.24	0.23	0.12	0.61	0.18		0.61	0.40		0.17	0.28	
Uniform Delay, d1	49.6	44.4	43.8	46.3	38.9		41.8	8.8		49.0	13.7	
Progression Factor	0.92	0.84	0.98	1.00	1.00		0.86	0.59		0.87	0.56	
Incremental Delay, d2	0.7	0.3	0.3	3.1	0.1		2.0	0.3		0.4	0.2	
Delay (s)	46.5	37.7	43.0	49.4	39.0		38.0	5.6		43.2	7.8	
Level of Service	D	D	D	D	D		D	A		D	A	
Approach Delay (s)		41.9			45.4			12.1			9.3	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	250	0	380	350	1020	0	0	640	480
Future Volume (vph)	0	0	0	250	0	380	350	1020	0	0	640	480
Ideal Flow (vphpl)	1900	1900	1900	1800	1900	1900	1700	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0	3.0	1.0	3.0			3.0	3.0
Lane Util. Factor				0.95	0.91	0.95	0.97	0.91			0.86	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1624	1498	1534	3133	5187			6536	1615
Flt Permitted				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1624	1498	1534	3133	5187			6536	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	263	0	400	368	1074	0	0	674	505
RTOR Reduction (vph)	0	0	0	0	102	102	0	0	0	0	0	249
Lane Group Flow (vph)	0	0	0	229	116	114	368	1074	0	0	674	256
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				21.2	21.2	21.2	22.0	78.8			53.8	53.8
Effective Green, g (s)				23.2	23.2	23.2	24.0	80.8			55.8	55.8
Actuated g/C Ratio				0.21	0.21	0.21	0.22	0.73			0.51	0.51
Clearance Time (s)				5.0	5.0	5.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				342	315	323	683	3810			3315	819
v/s Ratio Prot							c0.12	0.21			0.10	
v/s Ratio Perm				c0.14	0.08	0.07						c0.16
v/c Ratio				0.67	0.37	0.35	0.54	0.28			0.20	0.31
Uniform Delay, d1				39.9	37.1	37.0	38.1	4.9			14.9	15.9
Progression Factor				1.00	1.00	1.00	0.72	0.75			0.86	1.55
Incremental Delay, d2				4.9	0.7	0.7	0.8	0.2			0.1	1.0
Delay (s)				44.8	37.9	37.7	28.2	3.9			13.0	25.5
Level of Service				D	D	D	C	A			B	C
Approach Delay (s)		0.0			40.2			10.1			18.4	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	0	280	0	0	0	0	1090	510	180	740	0
Future Volume (vph)	280	0	280	0	0	0	0	1090	510	180	740	0
Ideal Flow (vphpl)	1800	1900	1900	1900	1900	1900	1900	1900	1900	1700	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	1.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	0.97	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1624	1715	1615					6536	1615	3133	5187	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1624	1715	1615					6536	1615	3133	5187	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%
Adj. Flow (vph)	295	0	295	0	0	0	0	1147	537	189	779	0
RTOR Reduction (vph)	0	0	198	0	0	0	0	0	150	0	0	0
Lane Group Flow (vph)	147	148	97	0	0	0	0	1147	387	189	779	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	15.8	15.8	15.8					69.2	69.2	12.0	84.2	
Effective Green, g (s)	17.8	17.8	17.8					71.2	71.2	14.0	86.2	
Actuated g/C Ratio	0.16	0.16	0.16					0.65	0.65	0.13	0.78	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	262	277	261					4230	1045	398	4064	
v/s Ratio Prot								0.18		c0.06	0.15	
v/s Ratio Perm	c0.09	0.09	0.06						c0.24			
v/c Ratio	0.56	0.53	0.37					0.27	0.37	0.47	0.19	
Uniform Delay, d1	42.5	42.3	41.1					8.3	9.0	44.6	3.0	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.59	0.78	
Incremental Delay, d2	2.7	2.0	0.9					0.2	1.0	0.9	0.1	
Delay (s)	45.2	44.3	42.0					8.5	10.0	27.3	2.5	
Level of Service	D	D	D					A	B	C	A	
Approach Delay (s)		43.4			0.0			9.0			7.3	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	450	200	230	1160	110	250	880	290	90	670	60
Future Volume (vph)	70	450	200	230	1160	110	250	880	290	90	670	60
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	1487	3098		1487	3022		1487	3101	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	1487	3098		1487	3022		1487	3101	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	474	211	242	1221	116	263	926	305	95	705	63
RTOR Reduction (vph)	0	0	151	0	5	0	0	25	0	0	5	0
Lane Group Flow (vph)	74	474	60	242	1332	0	263	1206	0	95	763	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	7.0	35.2	35.2	22.8	51.0		22.0	49.0		7.0	34.0	
Effective Green, g (s)	9.0	37.2	37.2	24.8	53.0		24.0	51.0		9.0	36.0	
Actuated g/C Ratio	0.07	0.29	0.29	0.19	0.41		0.18	0.39		0.07	0.28	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	102	898	401	283	1263		274	1185		102	858	
v/s Ratio Prot	0.05	0.15		c0.16	c0.43		0.18	c0.40		0.06	c0.25	
v/s Ratio Perm			0.04									
v/c Ratio	0.73	0.53	0.15	0.86	1.05		0.96	1.02		0.93	0.89	
Uniform Delay, d1	59.3	39.0	34.6	50.9	38.5		52.5	39.5		60.2	45.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.4	0.6	0.2	21.5	41.0		42.9	30.7		67.1	13.3	
Delay (s)	81.7	39.6	34.8	72.3	79.5		95.4	70.2		127.3	58.4	
Level of Service	F	D	C	E	E		F	E		F	E	
Approach Delay (s)		42.4			78.4			74.6			66.0	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	69.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	500	50	80	1010	140	160	370	70	70	230	250
Future Volume (vph)	150	500	50	80	1010	140	160	370	70	70	230	250
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1487	3096		1487	3082		1487	3064		1487	1652	1404
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1487	3096		1487	3082		1487	3064		1487	1652	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	526	53	84	1063	147	168	389	74	74	242	263
RTOR Reduction (vph)	0	8	0	0	11	0	0	16	0	0	0	149
Lane Group Flow (vph)	158	571	0	84	1199	0	168	447	0	74	242	114
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.0	35.2		6.4	33.6		9.6	31.5		7.1	29.0	29.0
Effective Green, g (s)	10.0	37.2		8.4	35.6		11.6	33.5		9.1	31.0	31.0
Actuated g/C Ratio	0.10	0.39		0.09	0.37		0.12	0.35		0.09	0.32	0.32
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	154	1197		129	1140		179	1066		140	532	452
v/s Ratio Prot	c0.11	0.18		0.06	c0.39		c0.11	0.15		c0.05	c0.15	
v/s Ratio Perm												0.08
v/c Ratio	1.03	0.48		0.65	1.05		0.94	0.42		0.53	0.45	0.25
Uniform Delay, d1	43.1	22.2		42.5	30.3		41.9	23.9		41.5	25.9	24.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	79.5	0.3		11.2	41.3		49.1	1.2		3.6	2.8	1.3
Delay (s)	122.6	22.5		53.7	71.6		91.1	25.1		45.1	28.7	25.4
Level of Service	F	C		D	E		F	C		D	C	C
Approach Delay (s)		44.0			70.4			42.7			29.3	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	51.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	96.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	510	260	170	890	140	320	480	120	100	510	60
Future Volume (vph)	50	510	260	170	890	140	320	480	120	100	510	60
Ideal Flow (vphpl)	1800	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	2724	3139	1404	2724	3139	1404	2724	4439	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	2724	3139	1404	2724	3139	1404	2724	4439	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	537	274	179	937	147	337	505	126	105	537	63
RTOR Reduction (vph)	0	0	95	0	0	93	0	0	73	0	13	0
Lane Group Flow (vph)	53	537	179	179	937	54	337	505	53	105	587	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	5.4	34.5	34.5	7.1	36.2	36.2	10.1	41.8	41.8	5.4	37.1	
Effective Green, g (s)	7.4	36.5	36.5	9.1	38.2	38.2	12.1	43.8	43.8	7.4	39.1	
Actuated g/C Ratio	0.07	0.35	0.35	0.09	0.36	0.36	0.12	0.42	0.42	0.07	0.37	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	104	1093	488	236	1144	511	314	1311	586	192	1656	
v/s Ratio Prot	0.04	c0.17		0.07	c0.30		c0.12	c0.16		c0.04	0.13	
v/s Ratio Perm			0.13			0.04			0.04			
v/c Ratio	0.51	0.49	0.37	0.76	0.82	0.10	1.07	0.39	0.09	0.55	0.35	
Uniform Delay, d1	47.0	26.9	25.5	46.8	30.2	22.0	46.4	21.2	18.4	47.1	23.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.9	0.3	0.5	13.0	4.7	0.1	71.6	0.9	0.3	3.2	0.6	
Delay (s)	50.8	27.2	26.0	59.8	34.9	22.1	118.0	22.0	18.7	50.2	24.3	
Level of Service	D	C	C	E	C	C	F	C	B	D	C	
Approach Delay (s)		28.3			36.9			55.0			28.2	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	104.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	240	50	150	600	110	130	690	80	70	820	90
Future Volume (vph)	60	240	50	150	600	110	130	690	80	70	820	90
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1700	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3058		1487	1652	1404	2724	4440		1487	4443	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3058		1487	1652	1404	2724	4440		1487	4443	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	253	53	158	632	116	137	726	84	74	863	95
RTOR Reduction (vph)	0	20	0	0	0	68	0	14	0	0	14	0
Lane Group Flow (vph)	63	286	0	158	632	48	137	796	0	74	944	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	5.3	33.4		8.1	36.2	36.2	7.0	28.8		5.3	27.1	
Effective Green, g (s)	7.3	35.4		10.1	38.2	38.2	9.0	30.8		7.3	29.1	
Actuated g/C Ratio	0.08	0.39		0.11	0.42	0.42	0.10	0.34		0.08	0.32	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	118	1181		163	688	585	267	1492		118	1411	
v/s Ratio Prot	c0.04	0.09		c0.11	c0.38		0.05	c0.18		0.05	c0.21	
v/s Ratio Perm						0.03						
v/c Ratio	0.53	0.24		0.97	0.92	0.08	0.51	0.53		0.63	0.67	
Uniform Delay, d1	40.5	19.0		40.6	25.2	16.1	39.2	24.6		40.8	27.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	0.1		60.6	17.2	0.1	1.7	1.4		10.0	2.5	
Delay (s)	45.1	19.1		101.2	42.4	16.2	40.9	26.0		50.8	29.6	
Level of Service	D	B		F	D	B	D	C		D	C	
Approach Delay (s)		23.6			49.3			28.1			31.1	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	91.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	170	150	230	500	50	160	530	120	20	490	80
Future Volume (vph)	90	170	150	230	500	50	160	530	120	20	490	80
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	2918		1487	1629		1487	3139	1404	1487	3073	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	2918		1487	1629		1487	3139	1404	1487	3073	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	179	158	242	526	53	168	558	126	21	516	84
RTOR Reduction (vph)	0	109	0	0	4	0	0	0	73	0	15	0
Lane Group Flow (vph)	95	228	0	242	575	0	168	558	53	21	585	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	5.5	24.6		8.0	27.1		7.0	34.2	34.2	2.7	29.9	
Effective Green, g (s)	7.5	26.6		10.0	29.1		9.0	36.2	36.2	4.7	31.9	
Actuated g/C Ratio	0.09	0.31		0.12	0.34		0.11	0.42	0.42	0.05	0.37	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	130	907		173	554		156	1329	594	81	1146	
v/s Ratio Prot	c0.06	0.08		c0.16	c0.35		c0.11	0.18		0.01	c0.19	
v/s Ratio Perm									0.04			
v/c Ratio	0.73	0.25		1.40	1.04		1.08	0.42	0.09	0.26	0.51	
Uniform Delay, d1	38.0	22.0		37.8	28.2		38.2	17.3	14.8	38.7	20.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.9	0.1		210.6	48.4		94.1	1.0	0.3	1.7	1.6	
Delay (s)	56.9	22.2		248.3	76.6		132.3	18.3	15.1	40.4	22.4	
Level of Service	E	C		F	E		F	B	B	D	C	
Approach Delay (s)		29.8			127.2			40.3			23.0	
Approach LOS		C			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	60.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	300	200	200	1080	90	310	1030	90	80	1080	180
Future Volume (vph)	170	300	200	200	1080	90	310	1030	90	80	1080	180
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.94		1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	2951		1487	3103		1487	4456		1487	4414	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	2951		1487	3103		1487	4456		1487	4414	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	316	211	211	1137	95	326	1084	95	84	1137	189
RTOR Reduction (vph)	0	115	0	0	7	0	0	10	0	0	23	0
Lane Group Flow (vph)	179	412	0	211	1225	0	326	1169	0	84	1303	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.0	33.0		9.0	33.0		14.0	37.0		5.6	28.6	
Effective Green, g (s)	11.0	35.0		11.0	35.0		16.0	39.0		7.6	30.6	
Actuated g/C Ratio	0.11	0.35		0.11	0.35		0.16	0.39		0.08	0.30	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	162	1026		162	1079		236	1727		112	1342	
v/s Ratio Prot	0.12	0.14		c0.14	c0.39		c0.22	0.26		0.06	c0.30	
v/s Ratio Perm												
v/c Ratio	1.10	0.40		1.30	1.14		1.38	0.68		0.75	0.97	
Uniform Delay, d1	44.8	24.9		44.8	32.8		42.3	25.6		45.6	34.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	101.6	0.3		173.6	72.8		195.8	2.2		24.2	18.5	
Delay (s)	146.4	25.1		218.4	105.6		238.1	27.7		69.8	53.1	
Level of Service	F	C		F	F		F	C		E	D	
Approach Delay (s)		55.9			122.1			73.3			54.1	
Approach LOS		E			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	79.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	250	20	130	610	510	20	740	70	380	450	90
Future Volume (vph)	70	250	20	130	610	510	20	740	70	380	450	90
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2724	3139	1404	2724	3139	1404	2724	4452		2724	3139	1404
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2724	3139	1404	2724	3139	1404	2724	4452		2724	3139	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	263	21	137	642	537	21	779	74	400	474	95
RTOR Reduction (vph)	0	0	15	0	0	207	0	10	0	0	0	50
Lane Group Flow (vph)	74	263	6	137	642	330	21	843	0	400	474	45
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	5.4	27.1	27.1	7.0	28.7	28.7	2.5	36.5		9.1	43.1	43.1
Effective Green, g (s)	7.4	29.1	29.1	9.0	30.7	30.7	4.5	38.5		11.1	45.1	45.1
Actuated g/C Ratio	0.08	0.30	0.30	0.09	0.32	0.32	0.05	0.40		0.12	0.47	0.47
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	210	954	426	256	1006	450	128	1791		315	1479	661
v/s Ratio Prot	0.03	c0.08		0.05	0.20		0.01	c0.19		c0.15	0.15	
v/s Ratio Perm			0.00			c0.23						0.03
v/c Ratio	0.35	0.28	0.01	0.54	0.64	0.73	0.16	0.47		1.27	0.32	0.07
Uniform Delay, d1	41.9	25.3	23.3	41.4	27.8	28.9	43.8	21.1		42.3	15.8	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.2	0.0	2.1	1.3	6.1	0.6	0.9		144.1	0.6	0.2
Delay (s)	42.9	25.5	23.3	43.5	29.1	34.9	44.4	22.0		186.4	16.3	14.0
Level of Service	D	C	C	D	C	C	D	C		F	B	B
Approach Delay (s)		28.9			33.0			22.5			86.3	
Approach LOS		C			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	44.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	95.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	580	50	140	1390	570	290	1100	90	280	940	260
Future Volume (vph)	270	580	50	140	1390	570	290	1100	90	280	940	260
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2724	4456		2724	3139	1404	2724	3103		2724	3037	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2724	4456		2724	3139	1404	2724	3103		2724	3037	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	284	611	53	147	1463	600	305	1158	95	295	989	274
RTOR Reduction (vph)	0	8	0	0	0	112	0	5	0	0	20	0
Lane Group Flow (vph)	284	656	0	147	1463	488	305	1248	0	295	1243	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	9.0	46.3		9.7	47.0	47.0	10.0	49.0		9.0	48.0	
Effective Green, g (s)	11.0	48.3		11.7	49.0	49.0	12.0	51.0		11.0	50.0	
Actuated g/C Ratio	0.08	0.37		0.09	0.38	0.38	0.09	0.39		0.08	0.38	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	230	1655		245	1183	529	251	1217		230	1168	
v/s Ratio Prot	c0.10	0.15		0.05	c0.47		0.11	c0.40		c0.11	c0.41	
v/s Ratio Perm						0.35						
v/c Ratio	1.23	0.40		0.60	1.24	0.92	1.22	1.03		1.28	1.06	
Uniform Delay, d1	59.5	30.1		56.9	40.5	38.7	59.0	39.5		59.5	40.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	137.3	0.2		3.9	113.9	21.9	127.6	32.5		156.1	45.3	
Delay (s)	196.8	30.3		60.8	154.4	60.6	186.6	72.0		215.6	85.3	
Level of Service	F	C		E	F	E	F	E		F	F	
Approach Delay (s)		80.2			122.7			94.4			110.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	106.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	480	1390	80	40	450	270	30	450	30	480	570	250
Future Volume (vph)	480	1390	80	40	450	270	30	450	30	480	570	250
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	2.5		1.0	2.5	2.5	1.0	2.0		1.0	2.0	2.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3133	3581		3133	3610	1615	1710	3576		1710	3610	1615
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3133	3581		3133	3610	1615	1710	3576		1710	3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	505	1463	84	42	474	284	32	474	32	505	600	263
RTOR Reduction (vph)	0	3	0	0	0	209	0	4	0	0	0	143
Lane Group Flow (vph)	505	1544	0	42	474	75	32	502	0	505	600	120
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						4
Actuated Green, G (s)	23.0	53.1		5.5	35.6	35.6	7.0	36.4		34.0	63.4	63.4
Effective Green, g (s)	25.0	55.6		7.5	38.1	38.1	9.0	39.4		36.0	66.4	66.4
Actuated g/C Ratio	0.17	0.38		0.05	0.26	0.26	0.06	0.27		0.25	0.46	0.46
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	540	1373		162	948	424	106	971		424	1653	739
v/s Ratio Prot	c0.16	c0.43		0.01	0.13		0.02	c0.14		c0.30	0.17	
v/s Ratio Perm						0.05						0.07
v/c Ratio	0.94	1.12		0.26	0.50	0.18	0.30	0.52		1.19	0.36	0.16
Uniform Delay, d1	59.2	44.7		66.1	45.4	41.3	65.0	44.7		54.5	25.6	23.0
Progression Factor	1.00	1.00		0.92	1.05	2.12	0.79	0.38		1.00	1.00	1.00
Incremental Delay, d2	23.6	66.1		0.5	0.2	0.1	7.0	1.9		107.2	0.6	0.5
Delay (s)	82.8	110.8		61.0	47.9	87.7	58.2	19.0		161.7	26.2	23.5
Level of Service	F	F		E	D	F	E	B		F	C	C
Approach Delay (s)		103.9			62.7			21.4			75.7	
Approach LOS		F			E			C			E	

Intersection Summary			
HCM 2000 Control Delay	79.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	360	150	470	340	40	140	450	470	80	600	30
Future Volume (vph)	10	360	150	470	340	40	140	450	470	80	600	30
Ideal Flow (vphpl)	1800	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	2.0	1.0	1.0	2.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	3451		3133	1900	1615	1710	3610	1615	1710	3584	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	3451		3133	1900	1615	1710	3610	1615	1710	3584	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	379	158	495	358	42	147	474	495	84	632	32
RTOR Reduction (vph)	0	32	0	0	0	22	0	0	77	0	2	0
Lane Group Flow (vph)	11	505	0	495	358	20	147	474	418	84	662	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	5	1	6	3	5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	4.7	28.8		29.3	53.4	66.5	17.1	57.8	87.1	13.1	53.8	
Effective Green, g (s)	6.7	30.8		31.3	55.4	70.5	19.1	60.8	91.1	15.1	56.8	
Actuated g/C Ratio	0.05	0.21		0.22	0.38	0.49	0.13	0.42	0.63	0.10	0.39	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	79	733		676	725	796	225	1513	1014	178	1403	
v/s Ratio Prot	0.01	c0.15		c0.16	0.19	0.00	c0.09	0.13	0.09	0.05	c0.18	
v/s Ratio Perm						0.01			0.17			
v/c Ratio	0.14	0.69		0.73	0.49	0.03	0.65	0.31	0.41	0.47	0.47	
Uniform Delay, d1	66.4	52.7		52.9	34.1	19.4	59.8	28.1	13.5	61.2	32.9	
Progression Factor	1.00	1.00		0.58	0.68	1.59	0.80	0.74	3.11	0.69	0.56	
Incremental Delay, d2	0.8	2.7		2.6	0.3	0.0	5.9	0.5	0.2	1.8	1.0	
Delay (s)	67.2	55.4		33.5	23.4	30.8	53.8	21.3	42.3	44.3	19.3	
Level of Service	E	E		C	C	C	D	C	D	D	B	
Approach Delay (s)		55.6			29.3			34.9			22.1	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	40	140	340	30	60	140	1010	280	90	1060	20
Future Volume (vph)	50	40	140	340	30	60	140	1010	280	90	1060	20
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		1.0	2.0	2.0	1.0	2.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1900	1615	1556	3232		1710	3610	1615	1710	5173	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	1900	1615	1556	3232		1710	3610	1615	1710	5173	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	42	147	358	32	63	147	1063	295	95	1116	21
RTOR Reduction (vph)	0	0	135	0	20	0	0	0	104	0	1	0
Lane Group Flow (vph)	53	42	12	183	250	0	147	1063	191	95	1136	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	9.9	9.9	9.9	22.4	22.4		19.0	81.4	81.4	13.3	75.7	
Effective Green, g (s)	11.9	11.9	11.9	24.4	24.4		21.0	84.4	84.4	15.3	78.7	
Actuated g/C Ratio	0.08	0.08	0.08	0.17	0.17		0.14	0.58	0.58	0.11	0.54	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	140	155	132	261	543		247	2101	940	180	2807	
v/s Ratio Prot	c0.03	0.02		c0.12	0.08		c0.09	c0.29		c0.06	0.22	
v/s Ratio Perm			0.01						0.12			
v/c Ratio	0.38	0.27	0.09	0.70	0.46		0.60	0.51	0.20	0.53	0.40	
Uniform Delay, d1	63.0	62.5	61.5	56.9	54.4		58.0	17.9	14.4	61.4	19.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.93	0.90	1.01	1.00	0.50	
Incremental Delay, d2	1.7	0.9	0.3	8.2	0.6		3.4	0.8	0.4	2.4	0.4	
Delay (s)	64.8	63.4	61.9	65.1	55.0		57.1	16.9	14.9	63.8	10.1	
Level of Service	E	E	E	E	D		E	B	B	E	B	
Approach Delay (s)		62.8			59.1			20.4			14.2	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	270	0	430	220	1180	0	0	1190	530
Future Volume (vph)	0	0	0	270	0	430	220	1180	0	0	1190	530
Ideal Flow (vphpl)	1900	1900	1900	1800	1900	1900	1800	1900	1900	1900	1900	1900
Total Lost time (s)				1.0		1.0	1.0	3.0			3.0	3.0
Lane Util. Factor				1.00		0.88	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1710		2842	1710	3610			3610	1615
Flt Permitted				0.95		1.00	0.14	1.00			1.00	1.00
Satd. Flow (perm)				1710		2842	247	3610			3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	284	0	453	232	1242	0	0	1253	558
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	205
Lane Group Flow (vph)	0	0	0	284	0	453	232	1242	0	0	1253	353
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm		Perm	pm+pt	NA			NA	Perm
Protected Phases							5	2			6	
Permitted Phases				8		8	2					6
Actuated Green, G (s)				30.2		30.2	108.8	106.8			80.8	80.8
Effective Green, g (s)				32.2		32.2	110.8	108.8			82.8	82.8
Actuated g/C Ratio				0.22		0.22	0.76	0.75			0.57	0.57
Clearance Time (s)				3.0		3.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				379		631	440	2708			2061	922
v/s Ratio Prot							c0.09	0.34			c0.35	
v/s Ratio Perm				c0.17		0.16	0.31					0.22
v/c Ratio				0.75		0.72	0.53	0.46			0.61	0.38
Uniform Delay, d1				52.6		52.2	28.4	6.9			20.4	17.1
Progression Factor				1.00		1.00	0.74	0.83			0.41	0.31
Incremental Delay, d2				7.9		3.9	0.9	0.4			1.3	1.1
Delay (s)				60.5		56.1	21.9	6.2			9.6	6.5
Level of Service				E		E	C	A			A	A
Approach Delay (s)		0.0			57.8			8.6			8.6	
Approach LOS		A			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	120	320	130	0	170	0	900	600	310	1030	0
Future Volume (vph)	320	120	320	130	0	170	0	900	600	310	1030	0
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1900	1900	1900	1800	1900	1900
Total Lost time (s)	3.0	3.0		0.5		1.0		3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95	1.00	1.00	0.95	
Frt	1.00	0.89		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1693		1710		1615		3610	1615	1710	3610	
Flt Permitted	0.95	1.00		0.95		1.00		1.00	1.00	0.13	1.00	
Satd. Flow (perm)	1710	1693		1710		1615		3610	1615	233	3610	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	337	126	337	137	0	179	0	947	632	326	1084	0
RTOR Reduction (vph)	0	69	0	0	0	95	0	0	317	0	0	0
Lane Group Flow (vph)	337	394	0	137	0	84	0	947	315	326	1084	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot		pm+ov		NA	Perm	pm+pt	NA	
Protected Phases	4	4		3		1		2		1	6	
Permitted Phases						3			2	6		
Actuated Green, G (s)	37.1	37.1		13.4		38.4		53.5	53.5	81.5	81.5	
Effective Green, g (s)	39.1	39.1		15.9		42.4		55.5	55.5	83.5	83.5	
Actuated g/C Ratio	0.27	0.27		0.11		0.29		0.38	0.38	0.58	0.58	
Clearance Time (s)	5.0	5.0		3.0		3.0		5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	461	456		187		472		1381	618	409	2078	
v/s Ratio Prot	0.20	c0.23		c0.08		0.03		c0.26		c0.15	0.30	
v/s Ratio Perm						0.02			0.20	0.31		
v/c Ratio	0.73	0.86		0.73		0.18		0.69	0.51	0.80	0.52	
Uniform Delay, d1	48.2	50.4		62.5		38.3		37.5	34.3	32.4	18.6	
Progression Factor	1.00	1.00		0.48		3.58		1.00	1.00	0.92	0.29	
Incremental Delay, d2	5.9	15.5		13.5		0.2		2.8	3.0	8.4	0.7	
Delay (s)	54.1	65.9		43.3		137.3		40.2	37.3	38.1	6.1	
Level of Service	D	E		D		F		D	D	D	A	
Approach Delay (s)		60.9			96.5			39.1			13.5	
Approach LOS		E			F			D			B	

Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	660	250	280	20	0	0
Future Volume (vph)	660	250	280	20	0	0
Ideal Flow (vphpl)	1700	1900	1900	1900	0	0
Total Lost time (s)	1.0	3.0	1.0			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3133	3610	3574			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3133	3610	3574			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	0%	0%
Adj. Flow (vph)	695	263	295	21	0	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	695	263	313	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	93.0	145.0	44.0			
Effective Green, g (s)	95.0	145.0	48.0			
Actuated g/C Ratio	0.66	1.00	0.33			
Clearance Time (s)	3.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	2052	3610	1183			
v/s Ratio Prot	c0.22	0.07	c0.09			
v/s Ratio Perm						
v/c Ratio	0.34	0.07	0.26			
Uniform Delay, d1	11.1	0.0	35.6			
Progression Factor	0.82	1.00	1.00			
Incremental Delay, d2	0.1	0.0	0.5			
Delay (s)	9.1	0.0	36.1			
Level of Service	A	A	D			
Approach Delay (s)		6.6	36.1		0.0	
Approach LOS		A	D		A	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	500	920	660	160	400	50	340	830	120	70	1130	370
Future Volume (vph)	500	920	660	160	400	50	340	830	120	70	1130	370
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	3610	1615	1710	3610	1615	1710	5089		1710	4995	
Flt Permitted	0.21	1.00	1.00	0.20	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	386	3610	1615	369	3610	1615	1710	5089		1710	4995	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	526	968	695	168	421	53	358	874	126	74	1189	389
RTOR Reduction (vph)	0	0	233	0	0	40	0	12	0	0	40	0
Lane Group Flow (vph)	526	968	462	168	421	13	358	988	0	74	1538	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	47.3	47.3	47.3	35.2	33.2	33.2	26.0	63.1		8.7	45.8	
Effective Green, g (s)	49.3	49.3	49.3	37.2	35.2	35.2	28.0	65.1		10.7	47.8	
Actuated g/C Ratio	0.34	0.34	0.34	0.26	0.24	0.24	0.19	0.45		0.07	0.33	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	368	1227	549	204	876	392	330	2284		126	1646	
v/s Ratio Prot	c0.26	0.27		c0.07	0.12		c0.21	0.19		0.04	c0.31	
v/s Ratio Perm	0.23		c0.29	0.14		0.01						
v/c Ratio	1.43	0.79	0.84	0.82	0.48	0.03	1.08	0.43		0.59	0.93	
Uniform Delay, d1	41.4	43.2	44.2	55.4	47.1	41.9	58.5	27.3		65.0	47.1	
Progression Factor	0.60	0.58	0.67	1.00	1.00	1.00	0.75	0.48		1.00	1.00	
Incremental Delay, d2	194.7	0.3	1.1	21.8	0.4	0.0	70.6	0.5		4.4	11.3	
Delay (s)	219.7	25.2	30.6	77.2	47.5	41.9	114.7	13.6		69.5	58.4	
Level of Service	F	C	C	E	D	D	F	B		E	E	
Approach Delay (s)		73.7			54.8			40.2			58.9	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	340	590	310	260	50	660	1220	240	150	1450	160
Future Volume (vph)	220	340	590	310	260	50	660	1220	240	150	1450	160
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.0		0.5	2.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3133	3610	1615	3133	3522		3133	5059		3133	5110	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3133	3610	1615	3133	3522		3133	5059		3133	5110	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	358	621	326	274	53	695	1284	253	158	1526	168
RTOR Reduction (vph)	0	0	308	0	13	0	0	19	0	0	9	0
Lane Group Flow (vph)	232	358	313	326	314	0	695	1518	0	158	1685	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	25.6	29.8	29.8	14.0	18.2		32.8	75.2		10.0	52.4	
Effective Green, g (s)	27.6	32.3	32.3	16.0	20.7		35.3	78.2		12.5	55.4	
Actuated g/C Ratio	0.19	0.22	0.22	0.11	0.14		0.24	0.54		0.09	0.38	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	596	804	359	345	502		762	2728		270	1952	
v/s Ratio Prot	0.07	0.10		c0.10	c0.09		c0.22	0.30		0.05	c0.33	
v/s Ratio Perm			c0.19									
v/c Ratio	0.39	0.45	0.87	0.94	0.63		0.91	0.56		0.59	0.86	
Uniform Delay, d1	51.3	48.6	54.4	64.1	58.5		53.3	22.0		63.8	41.3	
Progression Factor	0.87	0.86	0.77	1.00	1.00		0.90	0.63		0.66	0.47	
Incremental Delay, d2	0.4	0.4	19.0	34.1	2.4		13.6	0.7		1.4	2.4	
Delay (s)	45.1	42.2	60.8	98.1	60.9		61.5	14.5		43.2	21.8	
Level of Service	D	D	E	F	E		E	B		D	C	
Approach Delay (s)		52.3			79.5			29.2			23.6	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	280	0	660	220	1500	0	0	1670	720
Future Volume (vph)	0	0	0	280	0	660	220	1500	0	0	1670	720
Ideal Flow (vphpl)	1900	1900	1900	1800	1900	1900	1700	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0	3.0	1.0	3.0			3.0	3.0
Lane Util. Factor				0.95	0.91	0.95	0.97	0.91			0.86	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1624	1485	1534	3133	5187			6536	1615
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1624	1485	1534	3133	5187			6536	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	295	0	695	232	1579	0	0	1758	758
RTOR Reduction (vph)	0	0	0	0	27	27	0	0	0	0	0	336
Lane Group Flow (vph)	0	0	0	265	337	334	232	1579	0	0	1758	422
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				39.5	39.5	39.5	14.9	95.5			77.6	77.6
Effective Green, g (s)				41.5	41.5	41.5	16.9	97.5			79.6	79.6
Actuated g/C Ratio				0.29	0.29	0.29	0.12	0.67			0.55	0.55
Clearance Time (s)				5.0	5.0	5.0	3.0	5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				464	425	439	365	3487			3588	886
v/s Ratio Prot							c0.07	0.30			c0.27	
v/s Ratio Perm				0.16	0.23	0.22						0.26
v/c Ratio				0.57	0.79	0.76	0.64	0.45			0.49	0.48
Uniform Delay, d1				44.2	47.8	47.2	61.1	11.2			20.2	20.0
Progression Factor				1.00	1.00	1.00	0.89	0.97			0.40	1.03
Incremental Delay, d2				1.7	9.8	7.6	3.3	0.4			0.2	0.9
Delay (s)				45.9	57.5	54.8	57.9	11.2			8.3	21.4
Level of Service				D	E	D	E	B			A	C
Approach Delay (s)		0.0			53.4			17.2			12.3	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	390	0	420	0	0	0	0	1370	630	510	1370	0
Future Volume (vph)	390	0	420	0	0	0	0	1370	630	510	1370	0
Ideal Flow (vphpl)	1800	1900	1900	1900	1900	1900	1900	1900	1900	1700	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	1.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	0.97	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1624	1715	1615					6536	1615	3133	5187	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1624	1715	1615					6536	1615	3133	5187	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%
Adj. Flow (vph)	411	0	442	0	0	0	0	1442	663	537	1442	0
RTOR Reduction (vph)	0	0	38	0	0	0	0	0	139	0	0	0
Lane Group Flow (vph)	205	206	404	0	0	0	0	1442	524	537	1442	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	39.7	39.7	39.7					64.6	64.6	27.7	95.3	
Effective Green, g (s)	41.7	41.7	41.7					66.6	66.6	29.7	97.3	
Actuated g/C Ratio	0.29	0.29	0.29					0.46	0.46	0.20	0.67	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	467	493	464					3002	741	641	3480	
v/s Ratio Prot								0.22		c0.17	0.28	
v/s Ratio Perm	0.13	0.12	c0.25						c0.32			
v/c Ratio	0.44	0.42	0.87					0.48	0.71	0.84	0.41	
Uniform Delay, d1	42.1	41.8	49.1					27.2	31.4	55.3	10.9	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.83	0.25	
Incremental Delay, d2	0.7	0.6	15.8					0.6	5.6	8.4	0.3	
Delay (s)	42.8	42.4	64.9					27.7	37.0	54.2	3.0	
Level of Service	D	D	E					C	D	D	A	
Approach Delay (s)		54.1			0.0			30.7			16.9	
Approach LOS		D			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1330	220	300	580	110	140	800	250	140	900	70
Future Volume (vph)	130	1330	220	300	580	110	140	800	250	140	900	70
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	1487	3064		1487	3027		1487	3105	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	1487	3064		1487	3027		1487	3105	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	1400	232	316	611	116	147	842	263	147	947	74
RTOR Reduction (vph)	0	0	103	0	15	0	0	30	0	0	5	0
Lane Group Flow (vph)	137	1400	129	316	712	0	147	1075	0	147	1016	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	13.0	35.0	35.0	12.0	34.0		7.0	30.0		7.0	30.0	
Effective Green, g (s)	15.0	37.0	37.0	14.0	36.0		9.0	32.0		9.0	32.0	
Actuated g/C Ratio	0.15	0.37	0.37	0.14	0.36		0.09	0.32		0.09	0.32	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	223	1161	519	208	1103		133	968		133	993	
v/s Ratio Prot	0.09	c0.45		c0.21	0.23		0.10	c0.36		0.10	c0.33	
v/s Ratio Perm			0.09									
v/c Ratio	0.61	1.21	0.25	1.52	0.65		1.11	1.11		1.11	1.02	
Uniform Delay, d1	39.8	31.5	21.8	43.0	26.7		45.5	34.0		45.5	34.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.0	101.0	0.3	256.7	1.3		109.1	64.2		109.1	34.4	
Delay (s)	44.7	132.5	22.1	299.7	28.0		154.6	98.2		154.6	68.4	
Level of Service	D	F	C	F	C		F	F		F	E	
Approach Delay (s)		111.2			110.3			104.9			79.3	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	102.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	105.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1440	120	120	610	110	140	310	90	160	370	150
Future Volume (vph)	180	1440	120	120	610	110	140	310	90	160	370	150
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1487	3103		1487	3067		1487	3033		1487	1652	1404
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1487	3103		1487	3067		1487	3033		1487	1652	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1516	126	126	642	116	147	326	95	168	389	158
RTOR Reduction (vph)	0	4	0	0	10	0	0	20	0	0	0	108
Lane Group Flow (vph)	189	1638	0	126	748	0	147	401	0	168	389	50
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	21.1	66.0		10.0	54.9		11.0	30.0		13.0	32.0	32.0
Effective Green, g (s)	23.1	68.0		12.0	56.9		13.0	32.0		15.0	34.0	34.0
Actuated g/C Ratio	0.17	0.50		0.09	0.42		0.10	0.24		0.11	0.25	0.25
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	254	1562		132	1292		143	718		165	416	353
v/s Ratio Prot	0.13	c0.53		c0.08	0.24		c0.10	0.13		c0.11	c0.24	
v/s Ratio Perm												0.04
v/c Ratio	0.74	1.05		0.95	0.58		1.03	0.56		1.02	0.94	0.14
Uniform Delay, d1	53.1	33.5		61.2	29.9		61.0	45.3		60.0	49.4	39.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.2	36.6		63.9	0.6		82.9	3.1		74.9	30.5	0.8
Delay (s)	64.3	70.1		125.1	30.5		143.9	48.4		134.9	79.9	40.0
Level of Service	E	E		F	C		F	D		F	E	D
Approach Delay (s)		69.5			44.0			73.1			84.0	
Approach LOS		E			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	67.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1070	440	200	690	180	360	570	210	170	650	70
Future Volume (vph)	70	1070	440	200	690	180	360	570	210	170	650	70
Ideal Flow (vphpl)	1800	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	2724	3139	1404	2724	3139	1404	2724	4444	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	2724	3139	1404	2724	3139	1404	2724	4444	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	1126	463	211	726	189	379	600	221	179	684	74
RTOR Reduction (vph)	0	0	91	0	0	110	0	0	98	0	12	0
Lane Group Flow (vph)	74	1126	372	211	726	79	379	600	123	179	746	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	5.6	40.9	40.9	7.6	42.9	42.9	10.0	36.0	36.0	10.0	36.0	
Effective Green, g (s)	7.6	42.9	42.9	9.6	44.9	44.9	12.0	38.0	38.0	12.0	38.0	
Actuated g/C Ratio	0.07	0.39	0.39	0.09	0.41	0.41	0.11	0.34	0.34	0.11	0.34	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	1218	545	236	1275	570	295	1079	482	295	1528	
v/s Ratio Prot	0.05	c0.36		c0.08	0.23		c0.14	c0.19		c0.07	0.17	
v/s Ratio Perm			0.26			0.06			0.09			
v/c Ratio	0.73	0.92	0.68	0.89	0.57	0.14	1.28	0.56	0.26	0.61	0.49	
Uniform Delay, d1	50.4	32.3	28.1	49.9	25.3	20.6	49.2	29.4	26.1	47.0	28.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.4	11.7	3.5	31.8	0.6	0.1	151.4	2.1	1.3	3.5	1.1	
Delay (s)	72.8	44.0	31.6	81.8	25.9	20.7	200.7	31.5	27.4	50.5	29.7	
Level of Service	E	D	C	F	C	C	F	C	C	D	C	
Approach Delay (s)		41.8			35.5			84.2			33.7	
Approach LOS		D			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1010	140	160	340	140	80	890	190	180	1050	60
Future Volume (vph)	120	1010	140	160	340	140	80	890	190	180	1050	60
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1700	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	0.97	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3082		1487	1652	1404	2724	4391		1487	4474	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3082		1487	1652	1404	2724	4391		1487	4474	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	1063	147	168	358	147	84	937	200	189	1105	63
RTOR Reduction (vph)	0	12	0	0	0	86	0	35	0	0	6	0
Lane Group Flow (vph)	126	1198	0	168	358	61	84	1102	0	189	1162	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	7.0	37.7		7.0	37.7	37.7	5.6	26.0		8.6	29.0	
Effective Green, g (s)	9.0	39.7		9.0	39.7	39.7	7.6	28.0		10.6	31.0	
Actuated g/C Ratio	0.09	0.42		0.09	0.42	0.42	0.08	0.29		0.11	0.33	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	140	1283		140	688	584	217	1290		165	1455	
v/s Ratio Prot	0.08	c0.39		c0.11	0.22		0.03	c0.25		c0.13	0.26	
v/s Ratio Perm						0.04						
v/c Ratio	0.90	0.93		1.20	0.52	0.10	0.39	0.85		1.15	0.80	
Uniform Delay, d1	42.7	26.5		43.1	20.7	17.0	41.6	31.7		42.4	29.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	47.4	12.4		139.7	0.7	0.1	1.1	7.3		114.5	4.7	
Delay (s)	90.1	39.0		182.8	21.4	17.0	42.8	39.1		156.9	34.0	
Level of Service	F	D		F	C	B	D	D		F	C	
Approach Delay (s)		43.8			60.8			39.3			51.1	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	95.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	670	270	210	360	50	210	690	260	50	660	130
Future Volume (vph)	170	670	270	210	360	50	210	690	260	50	660	130
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	3004		1487	1622		1487	3139	1404	1487	3062	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	3004		1487	1622		1487	3139	1404	1487	3062	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	705	284	221	379	53	221	726	274	53	695	137
RTOR Reduction (vph)	0	51	0	0	6	0	0	0	163	0	19	0
Lane Group Flow (vph)	179	938	0	221	426	0	221	726	111	53	813	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	8.7	26.0		7.0	24.3		7.0	33.0	33.0	4.2	30.2	
Effective Green, g (s)	10.7	28.0		9.0	26.3		9.0	35.0	35.0	6.2	32.2	
Actuated g/C Ratio	0.12	0.32		0.10	0.31		0.10	0.41	0.41	0.07	0.37	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	184	975		155	494		155	1274	570	106	1143	
v/s Ratio Prot	0.12	c0.31		c0.15	c0.26		c0.15	0.23		0.04	c0.27	
v/s Ratio Perm									0.08			
v/c Ratio	0.97	0.96		1.43	0.86		1.43	0.57	0.20	0.50	0.71	
Uniform Delay, d1	37.6	28.6		38.6	28.2		38.6	19.8	16.5	38.5	23.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	58.0	20.1		224.8	14.3		224.8	1.9	0.8	3.7	3.8	
Delay (s)	95.6	48.6		263.4	42.6		263.4	21.6	17.3	42.2	26.8	
Level of Service	F	D		F	D		F	C	B	D	C	
Approach Delay (s)		55.8			117.3			64.4			27.7	
Approach LOS		E			F			E			C	

Intersection Summary			
HCM 2000 Control Delay	62.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	86.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	720	230	220	470	80	280	1240	160	110	1200	140
Future Volume (vph)	220	720	230	220	470	80	280	1240	160	110	1200	140
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3025		1487	3071		1487	4433		1487	4440	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3025		1487	3071		1487	4433		1487	4440	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	758	242	232	495	84	295	1305	168	116	1263	147
RTOR Reduction (vph)	0	26	0	0	11	0	0	13	0	0	12	0
Lane Group Flow (vph)	232	975	0	232	568	0	295	1460	0	116	1398	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	16.0	33.0		16.0	33.0		20.0	44.4		10.6	35.0	
Effective Green, g (s)	18.0	35.0		18.0	35.0		22.0	46.4		12.6	37.0	
Actuated g/C Ratio	0.15	0.29		0.15	0.29		0.18	0.39		0.10	0.31	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	223	882		223	895		272	1714		156	1369	
v/s Ratio Prot	c0.16	c0.32		0.16	0.18		c0.20	0.33		0.08	c0.31	
v/s Ratio Perm												
v/c Ratio	1.04	1.10		1.04	0.63		1.08	0.85		0.74	1.02	
Uniform Delay, d1	51.0	42.5		51.0	36.9		49.0	33.7		52.1	41.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	71.2	63.2		71.2	1.5		79.0	5.6		17.3	29.9	
Delay (s)	122.2	105.7		122.2	38.4		128.0	39.2		69.5	71.4	
Level of Service	F	F		F	D		F	D		E	E	
Approach Delay (s)		108.8			62.4			54.0			71.2	
Approach LOS		F			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	72.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	620	20	170	420	610	20	650	210	460	620	80
Future Volume (vph)	100	620	20	170	420	610	20	650	210	460	620	80
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0		1.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2724	3139	1404	2724	3139	1404	2724	4345		2724	3139	1404
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2724	3139	1404	2724	3139	1404	2724	4345		2724	3139	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	653	21	179	442	642	21	684	221	484	653	84
RTOR Reduction (vph)	0	0	14	0	0	193	0	53	0	0	0	47
Lane Group Flow (vph)	105	653	7	179	442	449	21	852	0	484	653	37
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	5.4	33.6	33.6	7.1	35.3	35.3	2.7	36.2		9.1	42.6	42.6
Effective Green, g (s)	7.4	35.6	35.6	9.1	37.3	37.3	4.7	38.2		11.1	44.6	44.6
Actuated g/C Ratio	0.07	0.35	0.35	0.09	0.37	0.37	0.05	0.37		0.11	0.44	0.44
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	197	1095	490	243	1147	513	125	1627		296	1372	613
v/s Ratio Prot	0.04	c0.21		0.07	0.14		0.01	c0.20		c0.18	0.21	
v/s Ratio Perm			0.01			c0.32						0.03
v/c Ratio	0.53	0.60	0.01	0.74	0.39	0.87	0.17	0.52		1.64	0.48	0.06
Uniform Delay, d1	45.6	27.3	21.7	45.3	23.9	30.2	46.8	24.8		45.5	20.4	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.8	0.9	0.0	11.0	0.2	15.2	0.6	1.2		300.7	1.2	0.2
Delay (s)	48.4	28.2	21.7	56.3	24.1	45.4	47.4	26.0		346.1	21.6	16.8
Level of Service	D	C	C	E	C	D	D	C		F	C	B
Approach Delay (s)		30.7			39.5			26.5			149.9	
Approach LOS		C			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	67.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	102.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	390	1240	190	280	700	460	150	1240	180	520	1350	190
Future Volume (vph)	390	1240	190	280	700	460	150	1240	180	520	1350	190
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	3.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2724	4421		2724	3139	1404	2724	3080		2724	3081	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2724	4421		2724	3139	1404	2724	3080		2724	3081	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	411	1305	200	295	737	484	158	1305	189	547	1421	200
RTOR Reduction (vph)	0	14	0	0	0	182	0	8	0	0	7	0
Lane Group Flow (vph)	411	1491	0	295	737	302	158	1486	0	547	1614	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	16.6	44.0		12.0	39.4	39.4	7.0	59.0		19.0	71.0	
Effective Green, g (s)	18.6	46.0		14.0	41.4	41.4	9.0	61.0		21.0	73.0	
Actuated g/C Ratio	0.12	0.31		0.09	0.28	0.28	0.06	0.41		0.14	0.49	
Clearance Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	337	1355		254	866	387	163	1252		381	1499	
v/s Ratio Prot	0.15	c0.34		c0.11	0.23		0.06	c0.48		c0.20	0.52	
v/s Ratio Perm						0.22						
v/c Ratio	1.22	1.10		1.16	0.85	0.78	0.97	1.19		1.44	1.08	
Uniform Delay, d1	65.7	52.0		68.0	51.4	50.1	70.4	44.5		64.5	38.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	122.7	56.8		107.2	8.1	9.8	60.6	92.5		210.6	46.9	
Delay (s)	188.4	108.8		175.2	59.4	60.0	131.0	137.0		275.1	85.4	
Level of Service	F	F		F	E	E	F	F		F	F	
Approach Delay (s)		125.9			82.1			136.4			133.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	121.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	1163	309	198	618	223	248	684	195	256	787	133
Future Volume (vph)	246	1163	309	198	618	223	248	684	195	256	787	133
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	2.5		1.0	2.5	0.5	1.0	2.0		1.0	2.0	0.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2949	3312		2949	3420	1530	1615	3306		1615	3420	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2949	3312		2949	3420	1530	1615	3306		1615	3420	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	259	1224	325	208	651	235	261	720	205	269	828	140
RTOR Reduction (vph)	0	17	0	0	0	39	0	19	0	0	0	65
Lane Group Flow (vph)	259	1532	0	208	651	196	261	906	0	269	828	75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases						6						4
Actuated Green, G (s)	15.2	58.0		8.0	50.8	71.8	20.0	37.0		21.0	38.0	53.2
Effective Green, g (s)	17.2	60.5		10.0	53.3	76.8	22.0	40.0		23.0	41.0	59.2
Actuated g/C Ratio	0.12	0.43		0.07	0.38	0.55	0.16	0.29		0.16	0.29	0.42
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0		3.0	5.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	362	1431		210	1302	839	253	944		265	1001	646
v/s Ratio Prot	c0.09	c0.46		c0.07	0.19	0.04	c0.16	c0.27		c0.17	0.24	0.02
v/s Ratio Perm						0.09						0.03
v/c Ratio	0.72	1.07		0.99	0.50	0.23	1.03	0.96		1.02	0.83	0.12
Uniform Delay, d1	59.0	39.8		65.0	33.2	16.4	59.0	49.2		58.5	46.2	24.5
Progression Factor	1.00	1.00		1.08	0.86	0.87	0.54	0.64		1.00	1.00	1.00
Incremental Delay, d2	6.6	45.2		16.4	0.0	0.0	59.3	18.4		59.2	7.8	0.1
Delay (s)	65.6	84.9		86.2	28.6	14.2	91.0	49.7		117.7	54.0	24.6
Level of Service	E	F		F	C	B	F	D		F	D	C
Approach Delay (s)		82.2			36.5			58.8			64.5	
Approach LOS		F			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	63.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	106.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	558	126	197	56	0	195	0	798	407	637	964	0
Future Volume (vph)	558	126	197	56	0	195	0	798	407	637	964	0
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	3.0	3.0		0.5		1.0		3.0	3.0	1.0	3.0	
Lane Util. Factor	0.95	0.91		1.00		1.00		0.95	1.00	0.97	0.95	
Frt	1.00	0.91		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1534	1488		1615		1530		3420	1530	3133	3420	
Flt Permitted	0.95	1.00		0.95		1.00		1.00	1.00	0.12	1.00	
Satd. Flow (perm)	1534	1488		1615		1530		3420	1530	380	3420	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	587	133	207	59	0	205	0	840	428	671	1015	0
RTOR Reduction (vph)	0	48	0	0	0	72	0	0	296	0	0	0
Lane Group Flow (vph)	587	292	0	59	0	133	0	840	132	671	1015	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	Perm	Prot		pm+ov		NA	Perm	pm+pt	NA	
Protected Phases	4	4		3		1		2		1	6	
Permitted Phases			4			3			2	6		
Actuated Green, G (s)	43.4	43.4		5.6		22.2		33.4	33.4	53.0	53.0	
Effective Green, g (s)	45.4	45.4		8.1		26.2		35.4	35.4	55.0	55.0	
Actuated g/C Ratio	0.39	0.39		0.07		0.23		0.31	0.31	0.48	0.48	
Clearance Time (s)	5.0	5.0		3.0		3.0		5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	605	587		113		348		1052	470	627	1635	
v/s Ratio Prot	c0.38	0.20		c0.04		0.06		c0.25		c0.17	0.30	
v/s Ratio Perm						0.03			0.09	0.34		
v/c Ratio	0.97	0.50		0.52		0.38		0.80	0.28	1.07	0.62	
Uniform Delay, d1	34.1	26.2		51.6		37.6		36.5	30.2	33.7	22.3	
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	29.1	0.7		4.3		0.7		6.3	1.5	56.2	1.8	
Delay (s)	63.2	26.9		55.9		38.3		42.9	31.6	89.9	24.0	
Level of Service	E	C		E		D		D	C	F	C	
Approach Delay (s)		49.9			42.2			39.1			50.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	828	868	262	502	37	751	672	228	60	889	213
Future Volume (vph)	266	828	868	262	502	37	751	672	228	60	889	213
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0	1.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1615	3420	1530	1615	3420	1530	1615	4727		1615	4772	
Flt Permitted	0.27	1.00	1.00	0.10	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	464	3420	1530	176	3420	1530	1615	4727		1615	4772	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	280	872	914	276	528	39	791	707	240	63	936	224
RTOR Reduction (vph)	0	0	25	0	0	26	0	42	0	0	29	0
Lane Group Flow (vph)	280	872	889	276	528	13	791	905	0	63	1131	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	47.6	36.6	79.2	47.6	36.6	43.5	42.6	69.5		6.9	33.8	
Effective Green, g (s)	51.6	38.6	83.2	51.6	38.6	47.5	44.6	71.5		8.9	35.8	
Actuated g/C Ratio	0.37	0.28	0.59	0.37	0.28	0.34	0.32	0.51		0.06	0.26	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	1.5	2.0	3.0	1.5	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	277	942	909	198	942	519	514	2414		102	1220	
v/s Ratio Prot	0.09	0.25	c0.31	c0.13	0.15	0.00	c0.49	0.19		0.04	c0.24	
v/s Ratio Perm	0.28		0.27	0.38		0.01						
v/c Ratio	1.01	0.93	0.98	1.39	0.56	0.03	1.54	0.37		0.62	0.93	
Uniform Delay, d1	40.3	49.3	27.5	39.4	43.4	30.8	47.7	20.7		63.9	50.8	
Progression Factor	0.79	0.85	0.75	1.00	1.00	1.00	0.85	0.71		1.00	1.00	
Incremental Delay, d2	40.2	8.0	15.5	205.1	0.8	0.0	248.8	0.3		7.6	13.3	
Delay (s)	72.0	50.2	36.0	244.4	44.2	30.8	289.2	15.1		71.5	64.2	
Level of Service	E	D	D	F	D	C	F	B		E	E	
Approach Delay (s)		46.9			109.1			139.8			64.5	
Approach LOS		D			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	87.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	123.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	461	146	156	1002	78	192	643	197	67	493	55
Future Volume (vph)	65	461	146	156	1002	78	192	643	197	67	493	55
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0		1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	1404	2942		1404	2869		1404	2929	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	1404	2942		1404	2869		1404	2929	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	485	154	164	1055	82	202	677	207	71	519	58
RTOR Reduction (vph)	0	0	79	0	5	0	0	25	0	0	8	0
Lane Group Flow (vph)	68	485	75	164	1132	0	202	859	0	71	569	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	5.5	33.0	48.8	14.2	41.7		15.8	40.0		5.5	29.7	
Effective Green, g (s)	7.5	35.0	52.8	16.2	43.7		17.8	42.0		7.5	31.7	
Actuated g/C Ratio	0.07	0.32	0.49	0.15	0.40		0.16	0.39		0.07	0.29	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0		3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	96	957	646	209	1182		229	1108		96	854	
v/s Ratio Prot	0.05	0.16	0.02	c0.12	c0.38		c0.14	c0.30		0.05	c0.19	
v/s Ratio Perm			0.04									
v/c Ratio	0.71	0.51	0.12	0.78	0.96		0.88	0.78		0.74	0.67	
Uniform Delay, d1	49.5	29.9	15.2	44.6	31.6		44.4	29.2		49.6	33.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.2	0.4	0.1	17.4	16.8		30.3	5.3		25.5	4.1	
Delay (s)	70.7	30.3	15.3	61.9	48.4		74.7	34.5		75.1	38.0	
Level of Service	E	C	B	E	D		E	C		E	D	
Approach Delay (s)		30.9			50.1			42.0			42.0	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	108.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	1165	169	219	601	82	101	581	184	100	657	70
Future Volume (vph)	123	1165	169	219	601	82	101	581	184	100	657	70
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0		1.0	3.0	1.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	1404	2921		1404	2974	1330	1404	2931	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	1404	2921		1404	2974	1330	1404	2931	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	129	1226	178	231	633	86	106	612	194	105	692	74
RTOR Reduction (vph)	0	0	61	0	9	0	0	0	56	0	7	0
Lane Group Flow (vph)	129	1226	117	231	710	0	106	612	138	105	759	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	14.2	43.0	50.0	16.0	44.8		7.0	28.0	44.0	7.0	28.0	
Effective Green, g (s)	16.2	45.0	54.0	18.0	46.8		9.0	30.0	48.0	9.0	30.0	
Actuated g/C Ratio	0.15	0.41	0.49	0.16	0.43		0.08	0.27	0.44	0.08	0.27	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0		3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	206	1216	652	229	1242		114	811	592	114	799	
v/s Ratio Prot	0.09	c0.41	0.01	c0.16	0.24		c0.08	0.21	0.04	0.07	c0.26	
v/s Ratio Perm			0.07						0.07			
v/c Ratio	0.63	1.01	0.18	1.01	0.57		0.93	0.75	0.23	0.92	0.95	
Uniform Delay, d1	44.1	32.5	15.6	46.0	24.0		50.2	36.6	19.5	50.1	39.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.8	27.8	0.1	61.7	0.6		61.7	6.4	0.2	59.8	21.7	
Delay (s)	49.9	60.3	15.8	107.7	24.6		111.9	43.1	19.7	110.0	61.0	
Level of Service	D	E	B	F	C		F	D	B	F	E	
Approach Delay (s)		54.3			44.8			46.1			66.9	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	53.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	1188	64	129	665	107	76	198	112	138	239	133
Future Volume (vph)	151	1188	64	129	665	107	76	198	112	138	239	133
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	1.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1404	2951		1404	2912		1404	2812		1404	1565	1330
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1404	2951		1404	2912		1404	2812		1404	1565	1330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	159	1251	67	136	700	113	80	208	118	145	252	140
RTOR Reduction (vph)	0	3	0	0	9	0	0	56	0	0	0	73
Lane Group Flow (vph)	159	1315	0	136	804	0	80	270	0	145	252	67
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Actuated Green, G (s)	19.8	62.4		14.5	57.1		8.9	30.5		15.4	37.0	56.8
Effective Green, g (s)	21.8	64.4		16.5	59.1		10.9	32.5		17.4	39.0	60.8
Actuated g/C Ratio	0.16	0.46		0.12	0.43		0.08	0.23		0.13	0.28	0.44
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	220	1369		166	1239		110	658		176	439	582
v/s Ratio Prot	0.11	c0.45		c0.10	0.28		c0.06	0.10		c0.10	c0.16	0.02
v/s Ratio Perm												0.03
v/c Ratio	0.72	0.96		0.82	0.65		0.73	0.41		0.82	0.57	0.12
Uniform Delay, d1	55.6	36.0		59.7	31.6		62.5	45.0		59.2	42.8	23.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.1	15.9		25.9	1.2		21.1	1.9		25.7	5.4	0.1
Delay (s)	66.7	51.9		85.6	32.8		83.6	46.9		84.9	48.2	23.2
Level of Service	E	D		F	C		F	D		F	D	C
Approach Delay (s)		53.5			40.4			54.2			51.6	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	138.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	300	128	177	919	92	184	880	74	85	904	152
Future Volume (vph)	152	300	128	177	919	92	184	880	74	85	904	152
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0	1.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	1404	2974	1330	1404	4223		1404	4181	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	1404	2974	1330	1404	4223		1404	4181	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	160	316	135	186	967	97	194	926	78	89	952	160
RTOR Reduction (vph)	0	0	31	0	0	33	0	10	0	0	23	0
Lane Group Flow (vph)	160	316	104	186	967	64	194	994	0	89	1089	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	10.0	32.1	44.1	12.0	34.1	43.9	12.0	29.2		9.8	27.0	
Effective Green, g (s)	12.0	34.1	48.1	14.0	36.1	47.9	14.0	31.2		11.8	29.0	
Actuated g/C Ratio	0.12	0.34	0.49	0.14	0.36	0.48	0.14	0.31		0.12	0.29	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	170	1023	645	198	1083	642	198	1329		167	1223	
v/s Ratio Prot	c0.11	0.11	0.02	c0.13	c0.33	0.01	c0.14	0.24		0.06	c0.26	
v/s Ratio Perm			0.06			0.04						
v/c Ratio	0.94	0.31	0.16	0.94	0.89	0.10	0.98	0.75		0.53	0.89	
Uniform Delay, d1	43.2	23.9	14.2	42.1	29.7	13.9	42.4	30.4		41.1	33.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	51.8	0.2	0.1	46.4	9.5	0.1	57.4	3.9		3.2	9.9	
Delay (s)	95.0	24.0	14.4	88.5	39.2	14.0	99.8	34.3		44.3	43.5	
Level of Service	F	C	B	F	D	B	F	C		D	D	
Approach Delay (s)		40.5			44.6			44.9			43.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	99.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	658	146	181	461	78	178	1047	140	109	1011	151
Future Volume (vph)	200	658	146	181	461	78	178	1047	140	109	1011	151
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0	1.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	2974	1330	1404	2974	1330	1404	4198		1404	4190	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1404	2974	1330	1404	2974	1330	1404	4198		1404	4190	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	693	154	191	485	82	187	1102	147	115	1064	159
RTOR Reduction (vph)	0	0	33	0	0	35	0	16	0	0	19	0
Lane Group Flow (vph)	211	693	121	191	485	47	187	1233	0	115	1204	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	13.0	27.0	38.0	12.0	26.0	34.0	11.0	30.1		8.0	27.1	
Effective Green, g (s)	15.0	29.0	42.0	14.0	28.0	38.0	13.0	32.1		10.0	29.1	
Actuated g/C Ratio	0.16	0.31	0.45	0.15	0.30	0.41	0.14	0.34		0.11	0.31	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	226	926	600	211	894	542	196	1447		150	1309	
v/s Ratio Prot	c0.15	c0.23	0.03	0.14	0.16	0.01	c0.13	c0.29		0.08	0.29	
v/s Ratio Perm			0.06			0.03						
v/c Ratio	0.93	0.75	0.20	0.91	0.54	0.09	0.95	0.85		0.77	0.92	
Uniform Delay, d1	38.6	28.8	15.4	38.9	27.2	16.9	39.8	28.3		40.4	30.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	41.6	3.3	0.2	36.8	0.7	0.1	50.8	6.5		20.6	11.8	
Delay (s)	80.1	32.1	15.6	75.7	27.9	17.0	90.5	34.8		61.0	42.7	
Level of Service	F	C	B	E	C	B	F	C		E	D	
Approach Delay (s)		39.3			38.7			42.1			44.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	93.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	866	145	172	489	363	113	890	127	375	968	119
Future Volume (vph)	260	866	145	172	489	363	113	890	127	375	968	119
Ideal Flow (vphpl)	1600	1800	1800	1600	1800	1800	1600	1800	1800	1600	1800	1800
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2564	4181		2564	2974	1330	2564	2918		2564	2925	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2564	4181		2564	2974	1330	2564	2918		2564	2925	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	274	912	153	181	515	382	119	937	134	395	1019	125
RTOR Reduction (vph)	0	17	0	0	0	43	0	8	0	0	6	0
Lane Group Flow (vph)	274	1048	0	181	515	339	119	1063	0	395	1138	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	14.0	39.7		10.9	36.6	56.6	7.0	49.1		20.0	62.1	
Effective Green, g (s)	16.0	41.7		12.9	38.6	60.6	9.0	51.1		22.0	64.1	
Actuated g/C Ratio	0.12	0.31		0.10	0.28	0.45	0.07	0.38		0.16	0.47	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	302	1284		243	845	593	170	1098		415	1381	
v/s Ratio Prot	c0.11	c0.25		0.07	0.17	0.09	0.05	c0.36		c0.15	0.39	
v/s Ratio Perm						0.16						
v/c Ratio	0.91	0.82		0.74	0.61	0.57	0.70	0.97		0.95	0.82	
Uniform Delay, d1	59.1	43.5		59.8	42.0	27.9	62.0	41.5		56.3	30.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	28.9	4.1		11.7	1.3	1.3	11.9	20.5		31.9	5.7	
Delay (s)	88.0	47.6		71.5	43.3	29.2	73.9	62.0		88.2	36.6	
Level of Service	F	D		E	D	C	E	E		F	D	
Approach Delay (s)		55.9			43.0			63.2			49.9	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	135.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	480	1390	80	40	450	270	30	450	30	480	570	250
Future Volume (vph)	480	1390	80	40	450	270	30	450	30	480	570	250
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	2.5		1.0	2.5	0.5	1.0	2.0		1.0	2.0	0.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3133	3581		3133	3610	1615	1710	3576		1710	3610	1615
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3133	3581		3133	3610	1615	1710	3576		1710	3610	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	505	1463	84	42	474	284	32	474	32	505	600	263
RTOR Reduction (vph)	0	3	0	0	0	39	0	4	0	0	0	63
Lane Group Flow (vph)	505	1544	0	42	474	245	32	502	0	505	600	200
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases						6						4
Actuated Green, G (s)	23.0	53.1		5.5	35.6	69.6	7.0	36.4		34.0	63.4	86.4
Effective Green, g (s)	25.0	55.6		7.5	38.1	74.6	9.0	39.4		36.0	66.4	92.4
Actuated g/C Ratio	0.17	0.38		0.05	0.26	0.51	0.06	0.27		0.25	0.46	0.64
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0		3.0	5.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	540	1373		162	948	830	106	971		424	1653	1029
v/s Ratio Prot	c0.16	c0.43		0.01	0.13	0.07	0.02	c0.14		c0.30	0.17	0.03
v/s Ratio Perm						0.08						0.09
v/c Ratio	0.94	1.12		0.26	0.50	0.30	0.30	0.52		1.19	0.36	0.19
Uniform Delay, d1	59.2	44.7		66.1	45.4	20.2	65.0	44.7		54.5	25.6	10.9
Progression Factor	1.00	1.00		1.06	0.93	0.70	1.02	0.35		1.00	1.00	1.00
Incremental Delay, d2	23.6	66.1		0.5	0.2	0.1	7.0	1.9		107.2	0.6	0.1
Delay (s)	82.8	110.8		70.5	42.4	14.3	73.3	17.6		161.7	26.2	11.0
Level of Service	F	F		E	D	B	E	B		F	C	B
Approach Delay (s)		103.9			33.9			20.9			73.3	
Approach LOS		F			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	73.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	500	920	660	160	400	50	340	830	120	70	1130	370
Future Volume (vph)	500	920	660	160	400	50	340	830	120	70	1130	370
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0	1.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	3610	1615	1710	3610	1615	1710	5089		1710	4995	
Flt Permitted	0.31	1.00	1.00	0.12	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	559	3610	1615	211	3610	1615	1710	5089		1710	4995	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	526	968	695	168	421	53	358	874	126	74	1189	389
RTOR Reduction (vph)	0	0	29	0	0	36	0	12	0	0	39	0
Lane Group Flow (vph)	526	968	666	168	421	17	358	988	0	74	1539	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	59.1	44.5	71.5	43.7	32.1	41.4	27.0	63.6		9.3	45.9	
Effective Green, g (s)	61.1	46.5	75.5	47.7	34.1	45.4	29.0	65.6		11.3	47.9	
Actuated g/C Ratio	0.42	0.32	0.52	0.33	0.24	0.31	0.20	0.45		0.08	0.33	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	2.0	3.0	1.5	2.0	3.0	1.5	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	441	1157	840	210	848	505	342	2302		133	1650	
v/s Ratio Prot	c0.21	c0.27	0.16	0.08	0.12	0.00	c0.21	0.19		0.04	c0.31	
v/s Ratio Perm	0.29		0.25	0.19		0.01						
v/c Ratio	1.19	0.84	0.79	0.80	0.50	0.03	1.05	0.43		0.56	0.93	
Uniform Delay, d1	35.8	45.7	28.4	38.7	48.0	34.6	58.0	27.0		64.4	47.0	
Progression Factor	0.81	0.47	0.25	1.00	1.00	1.00	0.74	0.49		1.00	1.00	
Incremental Delay, d2	89.0	0.5	0.5	18.2	0.5	0.0	57.9	0.5		2.8	11.1	
Delay (s)	117.9	21.8	7.5	57.0	48.5	34.6	100.9	13.7		67.3	58.1	
Level of Service	F	C	A	E	D	C	F	B		E	E	
Approach Delay (s)		40.4			49.6			36.7			58.5	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	450	200	230	1160	110	250	880	290	90	670	60
Future Volume (vph)	70	450	200	230	1160	110	250	880	290	90	670	60
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0		1.0	3.0	3.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	1487	3098		1487	3139	1404	1487	3101	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	1487	3098		1487	3139	1404	1487	3101	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	474	211	242	1221	116	263	926	305	95	705	63
RTOR Reduction (vph)	0	0	69	0	7	0	0	0	195	0	6	0
Lane Group Flow (vph)	74	474	142	242	1330	0	263	926	110	95	762	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	5.5	29.9	46.9	17.7	42.1		17.0	37.1	37.1	8.0	28.1	
Effective Green, g (s)	7.5	31.9	50.9	19.7	44.1		19.0	39.1	39.1	10.0	30.1	
Actuated g/C Ratio	0.07	0.29	0.47	0.18	0.41		0.17	0.36	0.36	0.09	0.28	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0		3.0	5.0	5.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	921	657	269	1256		259	1129	505	136	858	
v/s Ratio Prot	0.05	0.15	0.04	c0.16	c0.43		c0.18	c0.29		0.06	c0.25	
v/s Ratio Perm			0.06						0.08			
v/c Ratio	0.73	0.51	0.22	0.90	1.06		1.02	0.82	0.22	0.70	0.89	
Uniform Delay, d1	49.6	32.0	17.1	43.5	32.3		44.9	31.6	24.2	47.9	37.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.4	0.5	0.2	29.8	42.7		59.9	6.7	1.0	14.5	13.2	
Delay (s)	72.0	32.4	17.3	73.3	75.0		104.8	38.3	25.2	62.4	50.9	
Level of Service	E	C	B	E	E		F	D	C	E	D	
Approach Delay (s)		32.1			74.7			47.3			52.2	
Approach LOS		C			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	55.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	108.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1330	220	300	580	110	140	800	250	140	900	70
Future Volume (vph)	130	1330	220	300	580	110	140	800	250	140	900	70
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0		1.0	3.0	1.0	1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	1487	3064		1487	3139	1404	1487	3105	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	1487	3064		1487	3139	1404	1487	3105	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	1400	232	316	611	116	147	842	263	147	947	74
RTOR Reduction (vph)	0	0	71	0	15	0	0	0	59	0	6	0
Lane Group Flow (vph)	137	1400	161	316	712	0	147	842	204	147	1015	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	13.0	35.0	42.0	13.0	35.0		7.0	29.0	42.0	7.0	29.0	
Effective Green, g (s)	15.0	37.0	46.0	15.0	37.0		9.0	31.0	46.0	9.0	31.0	
Actuated g/C Ratio	0.15	0.37	0.46	0.15	0.37		0.09	0.31	0.46	0.09	0.31	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0		3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	223	1161	645	223	1133		133	973	659	133	962	
v/s Ratio Prot	0.09	c0.45	0.02	c0.21	0.23		c0.10	0.27	0.05	0.10	c0.33	
v/s Ratio Perm			0.09						0.10			
v/c Ratio	0.61	1.21	0.25	1.42	0.63		1.11	0.87	0.31	1.11	1.06	
Uniform Delay, d1	39.8	31.5	16.5	42.5	25.9		45.5	32.5	17.0	45.5	34.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.0	101.0	0.2	212.0	1.1		109.1	10.2	0.3	109.1	44.8	
Delay (s)	44.7	132.5	16.7	254.5	27.0		154.6	42.7	17.3	154.6	79.3	
Level of Service	D	F	B	F	C		F	D	B	F	E	
Approach Delay (s)		110.5			95.9			50.5			88.8	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	88.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1440	120	120	610	110	140	310	90	160	370	150
Future Volume (vph)	180	1440	120	120	610	110	140	310	90	160	370	150
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0		1.0	3.0	1.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1487	3103		1487	3067		1487	3033		1487	1652	1404
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1487	3103		1487	3067		1487	3033		1487	1652	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1516	126	126	642	116	147	326	95	168	389	158
RTOR Reduction (vph)	0	4	0	0	10	0	0	20	0	0	0	74
Lane Group Flow (vph)	189	1638	0	126	748	0	147	401	0	168	389	84
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Actuated Green, G (s)	21.1	66.0		10.0	54.9		11.0	30.0		13.0	32.0	53.1
Effective Green, g (s)	23.1	68.0		12.0	56.9		13.0	32.0		15.0	34.0	57.1
Actuated g/C Ratio	0.17	0.50		0.09	0.42		0.10	0.24		0.11	0.25	0.42
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	254	1562		132	1292		143	718		165	416	593
v/s Ratio Prot	0.13	c0.53		c0.08	0.24		c0.10	0.13		c0.11	c0.24	0.02
v/s Ratio Perm												0.04
v/c Ratio	0.74	1.05		0.95	0.58		1.03	0.56		1.02	0.94	0.14
Uniform Delay, d1	53.1	33.5		61.2	29.9		61.0	45.3		60.0	49.4	23.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.2	36.6		63.9	0.6		82.9	3.1		74.9	30.5	0.1
Delay (s)	64.3	70.1		125.1	30.5		143.9	48.4		134.9	79.9	24.0
Level of Service	E	E		F	C		F	D		F	E	C
Approach Delay (s)		69.5			44.0			73.1			80.5	
Approach LOS		E			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	66.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	170	150	230	500	50	160	530	120	20	490	80
Future Volume (vph)	90	170	150	230	500	50	160	530	120	20	490	80
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	1.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	2918		1487	1629		1487	3139	1404	1487	3073	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	2918		1487	1629		1487	3139	1404	1487	3073	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	179	158	242	526	53	168	558	126	21	516	84
RTOR Reduction (vph)	0	115	0	0	4	0	0	0	50	0	13	0
Lane Group Flow (vph)	95	222	0	242	575	0	168	558	76	21	587	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Actuated Green, G (s)	7.0	25.5		16.6	35.1		11.0	40.0	56.6	2.8	31.8	
Effective Green, g (s)	9.0	27.5		18.6	37.1		13.0	42.0	60.6	4.8	33.8	
Actuated g/C Ratio	0.09	0.27		0.18	0.37		0.13	0.42	0.60	0.05	0.33	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	132	795		274	598		191	1306	843	70	1029	
v/s Ratio Prot	c0.06	0.08		0.16	c0.35		c0.11	0.18	0.02	0.01	c0.19	
v/s Ratio Perm									0.04			
v/c Ratio	0.72	0.28		0.88	0.96		0.88	0.43	0.09	0.30	0.57	
Uniform Delay, d1	44.7	28.9		40.1	31.2		43.2	20.9	8.5	46.4	27.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.1	0.2		26.6	27.4		33.6	1.0	0.0	2.4	2.3	
Delay (s)	61.8	29.1		66.7	58.6		76.8	21.9	8.6	48.8	29.9	
Level of Service	E	C		E	E		E	C	A	D	C	
Approach Delay (s)		36.3			61.0			30.8			30.5	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	670	270	210	360	50	210	690	260	50	660	130
Future Volume (vph)	170	670	270	210	360	50	210	690	260	50	660	130
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0		1.0	3.0	1.0	1.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1487	3004		1487	3081		1487	3139	1404	1487	3062	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1487	3004		1487	3081		1487	3139	1404	1487	3062	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	705	284	221	379	53	221	726	274	53	695	137
RTOR Reduction (vph)	0	44	0	0	13	0	0	0	61	0	16	0
Lane Group Flow (vph)	179	945	0	221	419	0	221	726	213	53	816	0
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Actuated Green, G (s)	23.0	29.0		13.0	19.0		13.0	37.0	50.0	5.6	29.6	
Effective Green, g (s)	25.0	31.0		15.0	21.0		15.0	39.0	54.0	7.6	31.6	
Actuated g/C Ratio	0.25	0.31		0.15	0.21		0.15	0.39	0.54	0.08	0.31	
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0	3.0	3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	369	925		221	643		221	1216	753	112	961	
v/s Ratio Prot	0.12	c0.31		c0.15	0.14		c0.15	0.23	0.04	0.04	c0.27	
v/s Ratio Perm									0.11			
v/c Ratio	0.49	1.02		1.00	0.65		1.00	0.60	0.28	0.47	0.85	
Uniform Delay, d1	32.3	34.8		42.8	36.5		42.8	24.5	12.7	44.6	32.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	35.3		60.5	2.4		60.5	2.2	0.2	3.1	9.2	
Delay (s)	33.3	70.1		103.3	38.8		103.3	26.7	12.9	47.7	41.5	
Level of Service	C	E		F	D		F	C	B	D	D	
Approach Delay (s)		64.5			60.7			37.5			41.9	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	300	200	200	1080	90	310	1030	90	80	1080	180
Future Volume (vph)	170	300	200	200	1080	90	310	1030	90	80	1080	180
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0	1.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	1487	3139	1404	1487	4456		1487	4414	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	1487	3139	1404	1487	4456		1487	4414	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	316	211	211	1137	95	326	1084	95	84	1137	189
RTOR Reduction (vph)	0	0	27	0	0	49	0	10	0	0	23	0
Lane Group Flow (vph)	179	316	184	211	1137	46	326	1169	0	84	1303	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	9.0	33.0	47.0	9.0	33.0	39.9	14.0	35.1		6.9	28.0	
Effective Green, g (s)	11.0	35.0	51.0	11.0	35.0	43.9	16.0	37.1		8.9	30.0	
Actuated g/C Ratio	0.11	0.35	0.51	0.11	0.35	0.44	0.16	0.37		0.09	0.30	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	163	1098	716	163	1098	616	237	1653		132	1324	
v/s Ratio Prot	0.12	0.10	0.04	c0.14	c0.36	0.01	c0.22	0.26		0.06	c0.30	
v/s Ratio Perm			0.09			0.03						
v/c Ratio	1.10	0.29	0.26	1.29	1.04	0.07	1.38	0.71		0.64	0.98	
Uniform Delay, d1	44.5	23.5	13.8	44.5	32.5	16.3	42.0	26.8		44.0	34.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	99.2	0.1	0.2	170.3	36.8	0.1	193.3	2.6		9.6	21.2	
Delay (s)	143.7	23.6	14.0	214.8	69.3	16.3	235.3	29.4		53.6	56.0	
Level of Service	F	C	B	F	E	B	F	C		D	E	
Approach Delay (s)		51.2			87.1			74.0			55.8	
Approach LOS		D			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	69.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	720	230	220	470	80	280	1240	160	110	1200	140
Future Volume (vph)	220	720	230	220	470	80	280	1240	160	110	1200	140
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0	1.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1487	3139	1404	1487	3139	1404	1487	4433		1487	4440	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1487	3139	1404	1487	3139	1404	1487	4433		1487	4440	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	758	242	232	495	84	295	1305	168	116	1263	147
RTOR Reduction (vph)	0	0	27	0	0	42	0	12	0	0	11	0
Lane Group Flow (vph)	232	758	215	232	495	42	295	1461	0	116	1399	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	18.0	32.4	55.4	18.0	32.4	43.9	23.0	51.5		11.5	40.0	
Effective Green, g (s)	20.0	34.4	59.4	20.0	34.4	47.9	25.0	53.5		13.5	42.0	
Actuated g/C Ratio	0.15	0.27	0.46	0.15	0.27	0.37	0.19	0.41		0.10	0.32	
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	229	834	644	229	834	519	287	1832		155	1441	
v/s Ratio Prot	c0.16	c0.24	0.06	0.16	0.16	0.01	c0.20	0.33		0.08	c0.32	
v/s Ratio Perm			0.09			0.02						
v/c Ratio	1.01	0.91	0.33	1.01	0.59	0.08	1.03	0.80		0.75	0.97	
Uniform Delay, d1	54.7	46.0	22.4	54.7	41.4	26.5	52.2	33.2		56.3	43.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	62.9	13.6	0.3	62.9	1.1	0.1	60.5	3.7		17.8	17.7	
Delay (s)	117.6	59.6	22.7	117.6	42.5	26.5	112.7	36.9		74.1	60.8	
Level of Service	F	E	C	F	D	C	F	D		E	E	
Approach Delay (s)		63.2			62.4			49.6			61.8	
Approach LOS		E			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	58.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	129.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	620	20	170	420	610	20	650	210	460	620	80
Future Volume (vph)	100	620	20	170	420	610	20	650	210	460	620	80
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0	1.0	1.0	3.0	1.0	1.0	3.0		1.0	3.0	1.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2724	3139	1404	2724	3139	1404	2724	4345		2724	3139	1404
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2724	3139	1404	2724	3139	1404	2724	4345		2724	3139	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	653	21	179	442	642	21	684	221	484	653	84
RTOR Reduction (vph)	0	0	20	0	0	505	0	49	0	0	0	71
Lane Group Flow (vph)	105	653	1	179	442	137	21	856	0	484	653	13
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA		Prot	NA	Over
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases												
Actuated Green, G (s)	13.7	25.8	4.1	7.0	19.1	14.0	4.1	35.5		14.0	45.4	13.7
Effective Green, g (s)	15.7	27.8	6.1	9.0	21.1	16.0	6.1	37.5		16.0	47.4	15.7
Actuated g/C Ratio	0.16	0.28	0.06	0.09	0.21	0.16	0.06	0.38		0.16	0.48	0.16
Clearance Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0		3.0	5.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	435	887	87	249	673	228	169	1657		443	1513	224
v/s Ratio Prot	0.04	c0.21	0.00	c0.07	c0.14	0.10	0.01	c0.20		c0.18	0.21	0.01
v/s Ratio Perm												
v/c Ratio	0.24	0.74	0.01	0.72	0.66	0.60	0.12	0.52		1.09	0.43	0.06
Uniform Delay, d1	36.1	31.9	43.3	43.4	35.3	38.2	43.6	23.4		41.1	16.6	35.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	3.2	0.1	9.5	2.3	4.4	0.3	1.2		70.1	0.9	0.1
Delay (s)	36.4	35.1	43.3	52.9	37.6	42.6	43.9	24.6		111.3	17.5	35.2
Level of Service	D	D	D	D	D	D	D	C		F	B	D
Approach Delay (s)		35.5			42.3			25.0			55.9	
Approach LOS		D			D			C			E	

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	580	50	140	1390	570	290	1100	90	280	940	260
Future Volume (vph)	270	580	50	140	1390	570	290	1100	90	280	940	260
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2724	4456		2724	3139	1404	2724	3103		2724	3037	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2724	4456		2724	3139	1404	2724	3103		2724	3037	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	284	611	53	147	1463	600	305	1158	95	295	989	274
RTOR Reduction (vph)	0	8	0	0	0	54	0	5	0	0	20	0
Lane Group Flow (vph)	284	656	0	147	1463	546	305	1248	0	295	1243	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	8.0	46.3		9.7	48.0	57.0	10.0	49.0		9.0	48.0	
Effective Green, g (s)	10.0	48.3		11.7	50.0	61.0	12.0	51.0		11.0	50.0	
Actuated g/C Ratio	0.08	0.37		0.09	0.38	0.47	0.09	0.39		0.08	0.38	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	209	1655		245	1207	658	251	1217		230	1168	
v/s Ratio Prot	c0.10	0.15		0.05	c0.47	0.07	0.11	c0.40		c0.11	c0.41	
v/s Ratio Perm						0.32						
v/c Ratio	1.36	0.40		0.60	1.21	0.83	1.22	1.03		1.28	1.06	
Uniform Delay, d1	60.0	30.1		56.9	40.0	30.0	59.0	39.5		59.5	40.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	189.3	0.2		3.9	103.3	8.7	127.6	32.5		156.1	45.3	
Delay (s)	249.3	30.3		60.8	143.3	38.7	186.6	72.0		215.6	85.3	
Level of Service	F	C		E	F	D	F	E		F	F	
Approach Delay (s)		95.9			109.4			94.4			110.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	103.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	390	1240	190	280	700	460	150	1240	180	520	1350	190
Future Volume (vph)	390	1240	190	280	700	460	150	1240	180	520	1350	190
Ideal Flow (vphpl)	1700	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Total Lost time (s)	1.0	3.0		1.0	3.0	1.0	1.0	3.0		1.0	3.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2724	4421		2724	3139	1404	2724	3080		2724	3081	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2724	4421		2724	3139	1404	2724	3080		2724	3081	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	411	1305	200	295	737	484	158	1305	189	547	1421	200
RTOR Reduction (vph)	0	14	0	0	0	51	0	8	0	0	7	0
Lane Group Flow (vph)	411	1491	0	295	737	433	158	1486	0	547	1614	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	17.2	44.0		12.0	38.8	57.8	7.0	59.0		19.0	71.0	
Effective Green, g (s)	19.2	46.0		14.0	40.8	61.8	9.0	61.0		21.0	73.0	
Actuated g/C Ratio	0.13	0.31		0.09	0.27	0.41	0.06	0.41		0.14	0.49	
Clearance Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	348	1355		254	853	578	163	1252		381	1499	
v/s Ratio Prot	0.15	c0.34		c0.11	0.23	0.10	0.06	c0.48		c0.20	0.52	
v/s Ratio Perm						0.20						
v/c Ratio	1.18	1.10		1.16	0.86	0.75	0.97	1.19		1.44	1.08	
Uniform Delay, d1	65.4	52.0		68.0	52.0	37.5	70.4	44.5		64.5	38.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	107.1	56.8		107.2	9.1	5.3	60.6	92.5		210.6	46.9	
Delay (s)	172.5	108.8		175.2	61.0	42.8	131.0	137.0		275.1	85.4	
Level of Service	F	F		F	E	D	F	F		F	F	
Approach Delay (s)		122.5			77.4			136.4			133.2	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	119.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

11. Indian Hill Bl & Arrow Hwy

Existing

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	192	.12*	101	.06*
NBT	2	3200	643	.25	581	.23
NBR	0	0	171		148	
SBL	1	1600	67	.04	100	.06
SBT	2	3200	493	.17*	657	.23*
SBR	0	0	55		70	
EBL	1	1600	65	.04*	123	.08
EBT	2	3200	358	.11	1021	.32*
EBR	1	1600	146	.09	169	.11
WBL	1	1600	128	.08	181	.11*
WBT	2	3200	891	.30*	449	.17
WBR	0	0	78		82	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .73 .82

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	192	.12	101	.06
NBT	2	3200	643	.26*	581	.24*
NBR	0	0	197		184	
SBL	1	1600	67	.04*	100	.06*
SBT	2	3200	493	.17	657	.23
SBR	0	0	55		70	
EBL	1	1600	65	.04*	123	.08
EBT	2	3200	461	.14	1165	.36*
EBR	1	1600	146	.09	169	.11
WBL	1	1600	156	.10	219	.14*
WBT	2	3200	1002	.34*	601	.21
WBR	0	0	78		82	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .78 .90

2040 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	250	.16	140	.09
NBT	2	3200	840	.35*	770	.32*
NBR	0	0	280		240	
SBL	1	1600	80	.05*	130	.08*
SBT	2	3200	640	.22	860	.29
SBR	0	0	60		70	
EBL	1	1600	70	.04*	130	.08
EBT	2	3200	450	.14	1330	.42*
EBR	1	1600	200	.13	220	.14
WBL	1	1600	220	.14	290	.18*
WBT	2	3200	1150	.39*	580	.21
WBR	0	0	100		100	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .93 1.10

2040 plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	250	.16	140	.09
NBT	2	3200	880	.37*	800	.33*
NBR	0	0	290		250	
SBL	1	1600	90	.06*	140	.09*
SBT	2	3200	670	.23	900	.30
SBR	0	0	60		70	
EBL	1	1600	70	.04*	130	.08
EBT	2	3200	450	.14	1330	.42*
EBR	1	1600	200	.13	220	.14
WBL	1	1600	230	.14	300	.19*
WBT	2	3200	1160	.40*	580	.22
WBR	0	0	110		110	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .97 1.13

11. Indian Hill Bl & Arrow Hwy

2040 with project Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	250	.16*	140	.09*
NBT	2	3200	880	.28	800	.25
NBR	1	1600	290	.18	250	.16
SBL	1	1600	90	.06	140	.09
SBT	2	3200	670	.23*	900	.30*
SBR	0	0	60		70	
EBL	1	1600	70	.04*	130	.08
EBT	2	3200	450	.14	1330	.42*
EBR	1	1600	200	.13	220	.14
WBL	1	1600	230	.14	300	.19*
WBT	2	3200	1160	.40*	580	.22
WBR	0	0	110		110	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .93 1.10

12. Mills Ave & Arrow Hwy

Existing

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	84	.05*	76	.05*
NBT	2	3200	237	.08	198	.07
NBR	0	0	28		40	
SBL	1	1600	45	.03	102	.06
SBT	1	1600	145	.09*	239	.15*
SBR	1	1600	202	.13	133	.08
EBL	1	1600	127	.08*	151	.09
EBT	2	3200	327	.11	936	.31*
EBR	0	0	27		64	
WBL	1	1600	37	.02	53	.03*
WBT	2	3200	651	.23*	399	.15
WBR	0	0	98		69	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .55 .64

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	84	.05*	76	.05*
NBT	2	3200	237	.10	198	.10
NBR	0	0	80		112	
SBL	1	1600	71	.04	138	.09
SBT	1	1600	145	.09*	239	.15*
SBR	1	1600	202	.13	133	.08
EBL	1	1600	127	.08*	151	.09
EBT	2	3200	507	.17	1188	.39*
EBR	0	0	27		64	
WBL	1	1600	92	.06	129	.08*
WBT	2	3200	845	.30*	665	.24
WBR	0	0	126		107	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .62 .77

2040 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	160	.10*	140	.09*
NBT	2	3200	370	.13	310	.12
NBR	0	0	60		80	
SBL	1	1600	60	.04	130	.08
SBT	1	1600	230	.14*	370	.23*
SBR	1	1600	250	.16	150	.09
EBL	1	1600	150	.09*	180	.11
EBT	2	3200	500	.17	1420	.48*
EBR	0	0	50		120	
WBL	1	1600	70	.04	110	.07*
WBT	2	3200	990	.35*	600	.22
WBR	0	0	120		90	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .78 .97

2040 plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	160	.10*	140	.09*
NBT	2	3200	370	.14	310	.13
NBR	0	0	70		90	
SBL	1	1600	70	.04	160	.10
SBT	1	1600	230	.14*	370	.23*
SBR	1	1600	250	.16	150	.09
EBL	1	1600	150	.09*	180	.11
EBT	2	3200	500	.17	1440	.49*
EBR	0	0	50		120	
WBL	1	1600	80	.05	120	.08*
WBT	2	3200	1010	.36*	610	.23
WBR	0	0	140		110	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .79 .99

Appendix B TRAFFIC COUNTS

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: ARROW HIGHWAY

File Name : H1408073
Site Code : 00000000
Start Date : 8/21/2014
Page No : 1

Groups Printed- Turning Movements

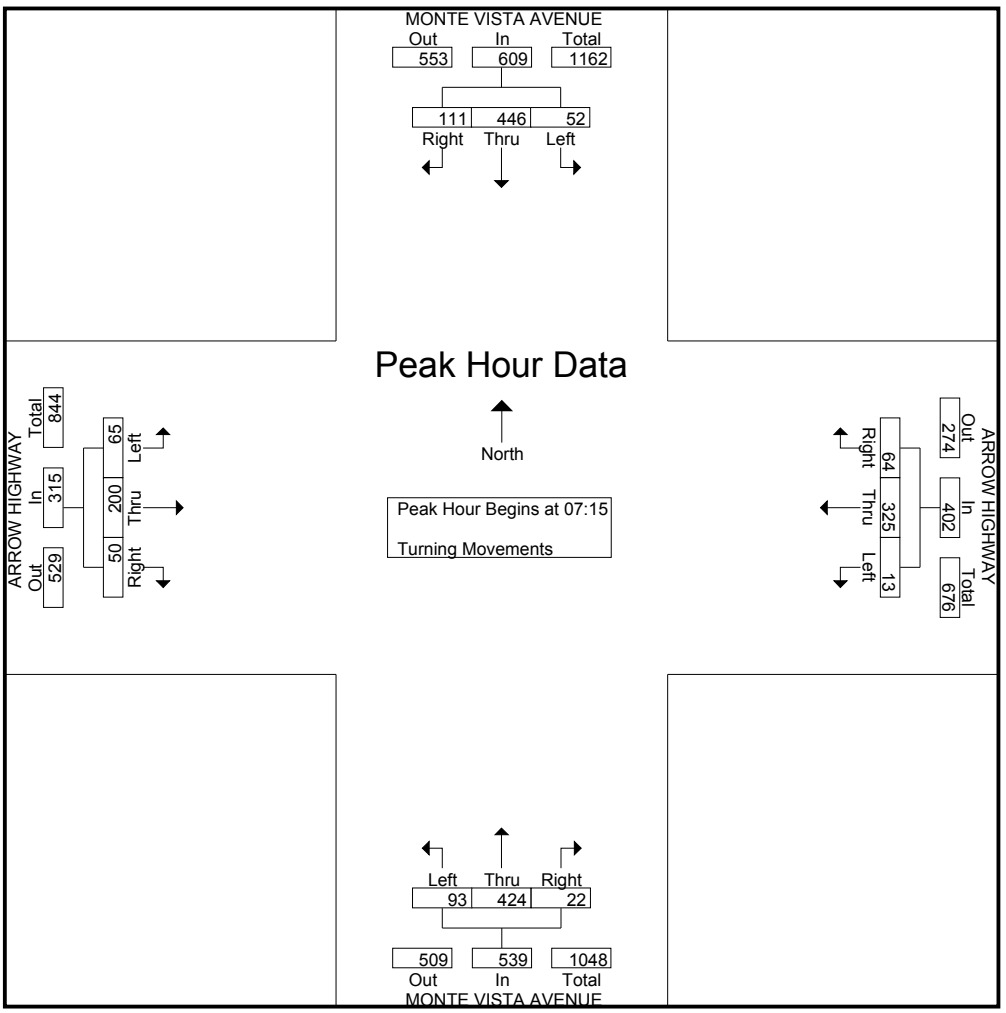
	MONTE VISTA AVENUE Southbound			ARROW HIGHWAY Westbound			MONTE VISTA AVENUE Northbound			ARROW HIGHWAY Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	16	112	12	16	76	7	5	73	16	13	29	10	385
07:15	22	124	15	10	75	3	3	99	17	15	42	15	440
07:30	21	145	10	14	80	6	7	107	28	7	38	14	477
07:45	35	79	15	22	108	2	7	109	28	13	67	20	505
Total	94	460	52	62	339	18	22	388	89	48	176	59	1807
08:00	33	98	12	18	62	2	5	109	20	15	53	16	443
08:15	14	84	12	17	78	6	6	85	20	7	48	16	393
08:30	26	102	11	15	55	2	8	118	17	15	47	23	439
08:45	22	103	9	22	43	3	7	97	28	21	46	27	428
Total	95	387	44	72	238	13	26	409	85	58	194	82	1703
*** BREAK ***													
16:00	33	137	21	15	63	9	7	113	21	46	141	28	634
16:15	15	150	19	22	74	6	7	114	38	30	146	37	658
16:30	21	157	23	19	63	5	8	108	22	42	153	38	659
16:45	30	149	26	15	59	14	17	136	25	38	197	54	760
Total	99	593	89	71	259	34	39	471	106	156	637	157	2711
17:00	18	167	34	19	83	9	13	127	24	51	210	50	805
17:15	29	169	24	15	67	11	10	124	25	36	229	62	801
17:30	18	158	28	22	67	12	11	145	22	40	203	44	770
17:45	25	109	26	18	65	7	5	121	21	50	194	57	698
Total	90	603	112	74	282	39	39	517	92	177	836	213	3074
Grand Total	378	2043	297	279	1118	104	126	1785	372	439	1843	511	9295
Apprch %	13.9	75.2	10.9	18.6	74.5	6.9	5.5	78.2	16.3	15.7	66	18.3	
Total %	4.1	22	3.2	3	12	1.1	1.4	19.2	4	4.7	19.8	5.5	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: ARROW HIGHWAY

File Name : H1408073
Site Code : 00000000
Start Date : 8/21/2014
Page No : 2

	MONTE VISTA AVENUE Southbound				ARROW HIGHWAY Westbound				MONTE VISTA AVENUE Northbound				ARROW HIGHWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	22	124	**15**	161	10	75	3	88	3	99	17	119	**15**	42	15	72	440
07:30	21	**145**	10	**176**	14	80	**6**	100	**7**	107	**28**	142	7	38	14	59	477
07:45	**35**	79	15	129	**22**	**108**	2	**132**	7	**109**	28	**144**	13	**67**	**20**	**100**	**505**
08:00	33	98	12	143	18	62	2	82	5	109	20	134	15	53	16	84	443
Total Volume	111	446	52	609	64	325	13	402	22	424	93	539	50	200	65	315	1865
% App. Total	18.2	73.2	8.5		15.9	80.8	3.2		4.1	78.7	17.3		15.9	63.5	20.6		
PHF	.793	.769	.867	.865	.727	.752	.542	.761	.786	.972	.830	.936	.833	.746	.813	.788	.923

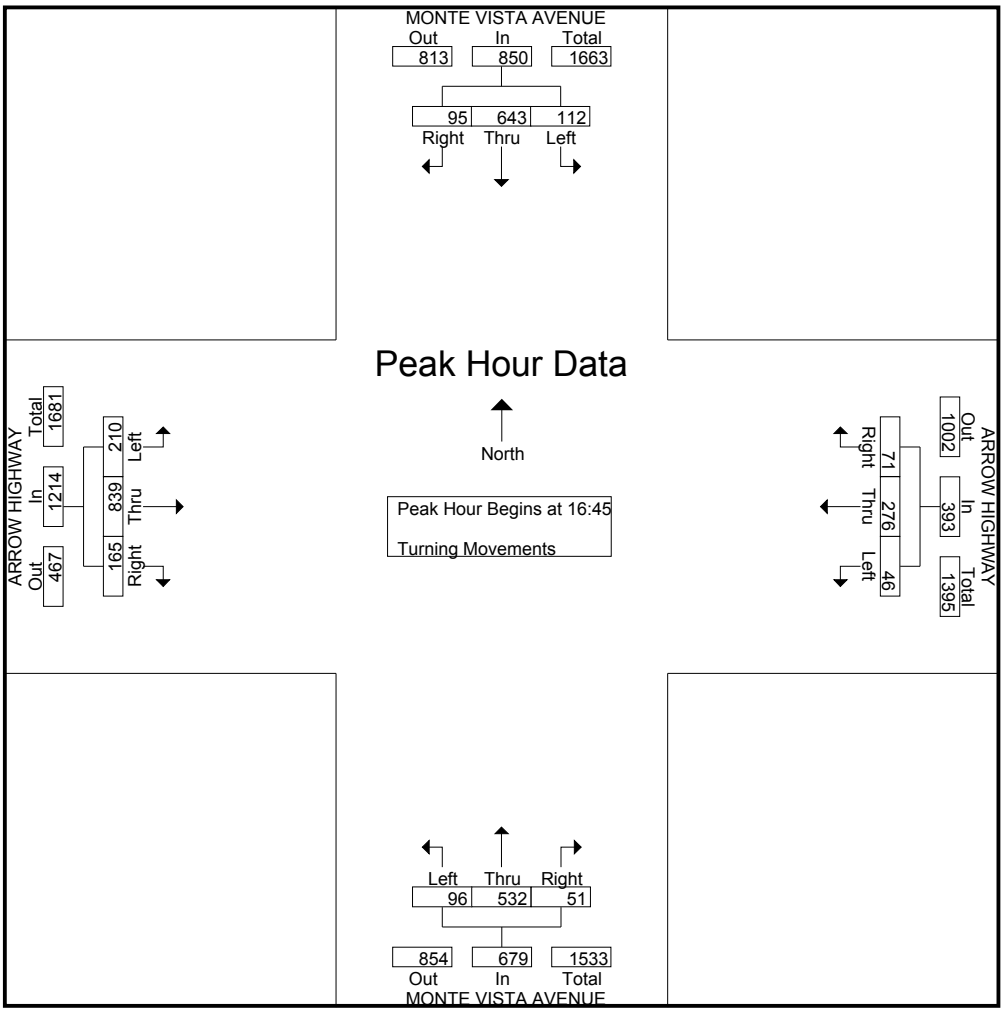


Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: ARROW HIGHWAY

File Name : H1408073
Site Code : 00000000
Start Date : 8/21/2014
Page No : 3

	MONTE VISTA AVENUE Southbound				ARROW HIGHWAY Westbound				MONTE VISTA AVENUE Northbound				ARROW HIGHWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	**30**	149	26	205	15	59	**14**	88	**17**	136	**25**	**178**	38	197	54	289	760
17:00	18	167	**34**	219	19	**83**	9	**111**	13	127	24	164	**51**	210	50	311	**805**
17:15	29	**169**	24	**222**	15	67	11	93	10	124	25	159	36	**229**	**62**	**327**	801
17:30	18	158	28	204	**22**	67	12	101	11	**145**	22	178	40	203	44	287	770
Total Volume	95	643	112	850	71	276	46	393	51	532	96	679	165	839	210	1214	3136
% App. Total	11.2	75.6	13.2		18.1	70.2	11.7		7.5	78.4	14.1		13.6	69.1	17.3		
PHF	.792	.951	.824	.957	.807	.831	.821	.885	.750	.917	.960	.954	.809	.916	.847	.928	.974



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: MORENO STREET

File Name : h1408074
Site Code : 00000000
Start Date : 8/21/2014
Page No : 1

Groups Printed- Turning Movements

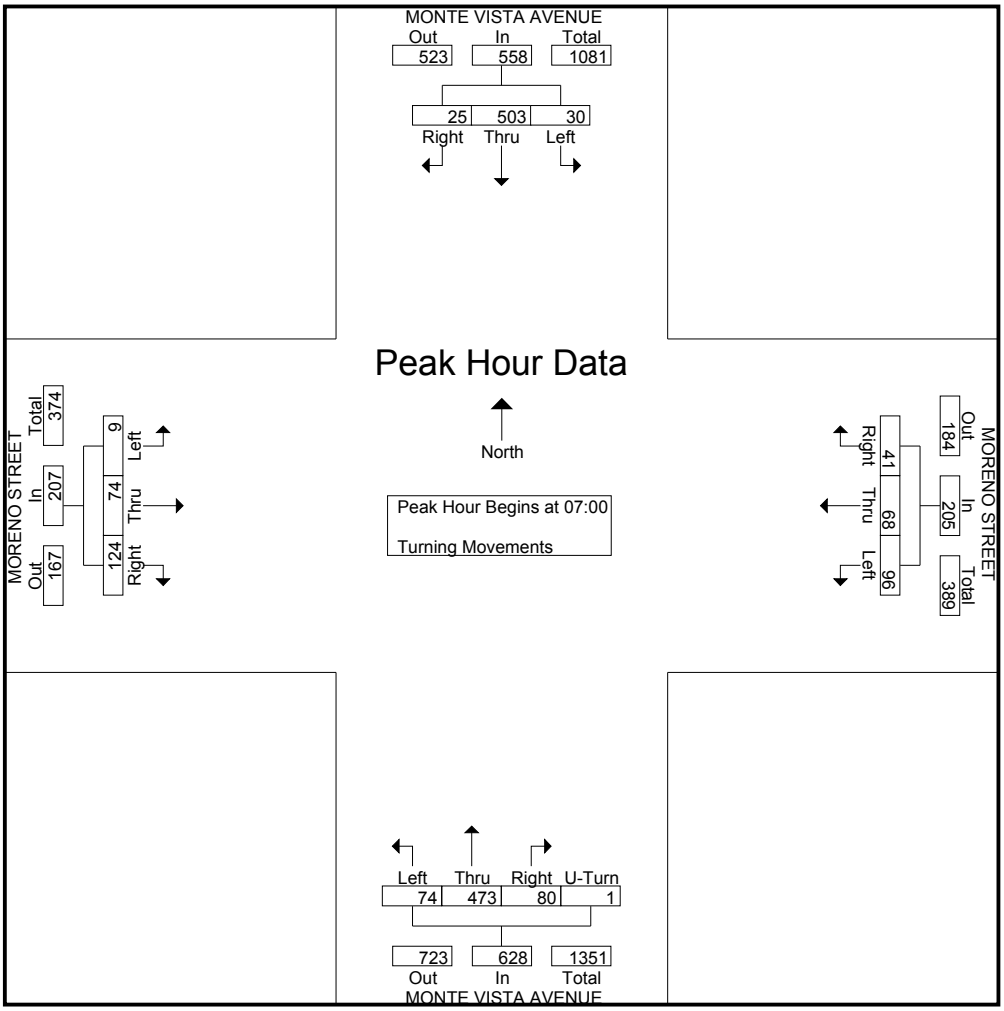
	MONTE VISTA AVENUE Southbound			MORENO STREET Westbound			MONTE VISTA AVENUE Northbound				MORENO STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	U-Turn	Right	Thru	Left	Int. Total
07:00	8	120	7	9	24	33	6	99	36	1	40	16	4	403
07:15	13	134	14	9	22	20	14	120	21	0	60	25	2	454
07:30	2	160	7	14	7	30	19	123	6	0	20	16	0	404
07:45	2	89	2	9	15	13	41	131	11	0	4	17	3	337
Total	25	503	30	41	68	96	80	473	74	1	124	74	9	1598
08:00	3	113	6	4	22	21	27	120	4	1	5	16	1	343
08:15	2	88	7	9	20	15	12	124	4	0	8	23	0	312
08:30	0	104	11	9	10	26	23	119	2	1	15	11	1	332
08:45	3	110	20	10	9	16	26	117	7	0	8	21	2	349
Total	8	415	44	32	61	78	88	480	17	2	36	71	4	1336
*** BREAK ***														
16:00	2	166	32	25	40	32	36	110	5	2	12	29	6	497
16:15	7	160	21	20	36	48	32	132	11	0	7	21	4	499
16:30	5	172	28	20	30	37	34	106	10	2	11	24	7	486
16:45	4	160	32	23	34	50	50	164	6	1	7	27	4	562
Total	18	658	113	88	140	167	152	512	32	5	37	101	21	2044
17:00	2	201	29	15	39	50	60	137	5	3	10	32	2	585
17:15	5	182	33	23	28	50	54	133	18	2	16	42	3	589
17:30	5	173	32	24	27	50	41	138	10	1	7	32	5	545
17:45	2	140	24	31	41	53	44	133	12	3	8	32	4	527
Total	14	696	118	93	135	203	199	541	45	9	41	138	14	2246
Grand Total	65	2272	305	254	404	544	519	2006	168	17	238	384	48	7224
Apprch %	2.5	86	11.5	21.1	33.6	45.3	19.2	74	6.2	0.6	35.5	57.3	7.2	
Total %	0.9	31.5	4.2	3.5	5.6	7.5	7.2	27.8	2.3	0.2	3.3	5.3	0.7	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: MORENO STREET

File Name : h1408074
Site Code : 00000000
Start Date : 8/21/2014
Page No : 2

	MONTE VISTA AVENUE Southbound				MORENO STREET Westbound				MONTE VISTA AVENUE Northbound					MORENO STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:00																		
07:00	8	120	7	135	9	**24**	**33**	**66**	6	99	**36**	**1**	142	40	16	**4**	60	403
07:15	**13**	134	**14**	161	9	22	20	51	14	120	21	0	155	**60**	**25**	2	**87**	**454**
07:30	2	**160**	7	**169**	**14**	7	30	51	19	123	6	0	148	20	16	0	36	404
07:45	2	89	2	93	9	15	13	37	**41**	**131**	11	0	**183**	4	17	3	24	337
Total Volume	25	503	30	558	41	68	96	205	80	473	74	1	628	124	74	9	207	1598
% App. Total	4.5	90.1	5.4		20	33.2	46.8		12.7	75.3	11.8	0.2		59.9	35.7	4.3		
PHF	.481	.786	.536	.825	.732	.708	.727	.777	.488	.903	.514	.250	.858	.517	.740	.563	.595	.880

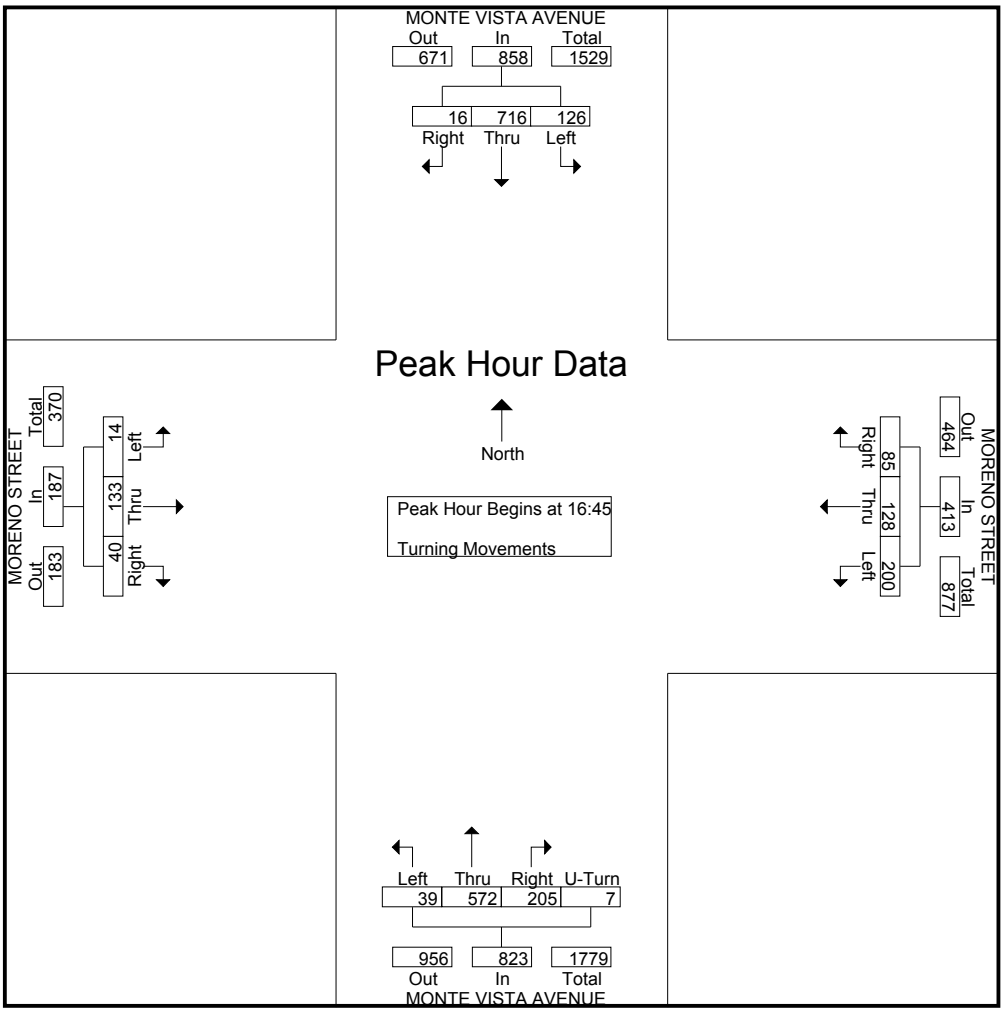


Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: MORENO STREET

File Name : h1408074
Site Code : 00000000
Start Date : 8/21/2014
Page No : 3

	MONTE VISTA AVENUE Southbound				MORENO STREET Westbound				MONTE VISTA AVENUE Northbound					MORENO STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 16:45																		
16:45	4	160	32	196	23	34	**50**	**107**	50	**164**	6	1	**221**	7	27	4	38	562
17:00	2	**201**	29	**232**	15	**39**	50	104	**60**	137	5	**3**	205	10	32	2	44	585
17:15	**5**	182	**33**	220	23	28	50	101	54	133	**18**	2	207	**16**	**42**	3	**61**	**589**
17:30	5	173	32	210	**24**	27	50	101	41	138	10	1	190	7	32	**5**	44	545
Total Volume	16	716	126	858	85	128	200	413	205	572	39	7	823	40	133	14	187	2281
% App. Total	1.9	83.4	14.7		20.6	31	48.4		24.9	69.5	4.7	0.9		21.4	71.1	7.5		
PHF	.800	.891	.955	.925	.885	.821	1.00	.965	.854	.872	.542	.583	.931	.625	.792	.700	.766	.968



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: SAN JOSE STREET

File Name : H1408075
Site Code : 00000000
Start Date : 8/27/2014
Page No : 1

Groups Printed- Turning Movements

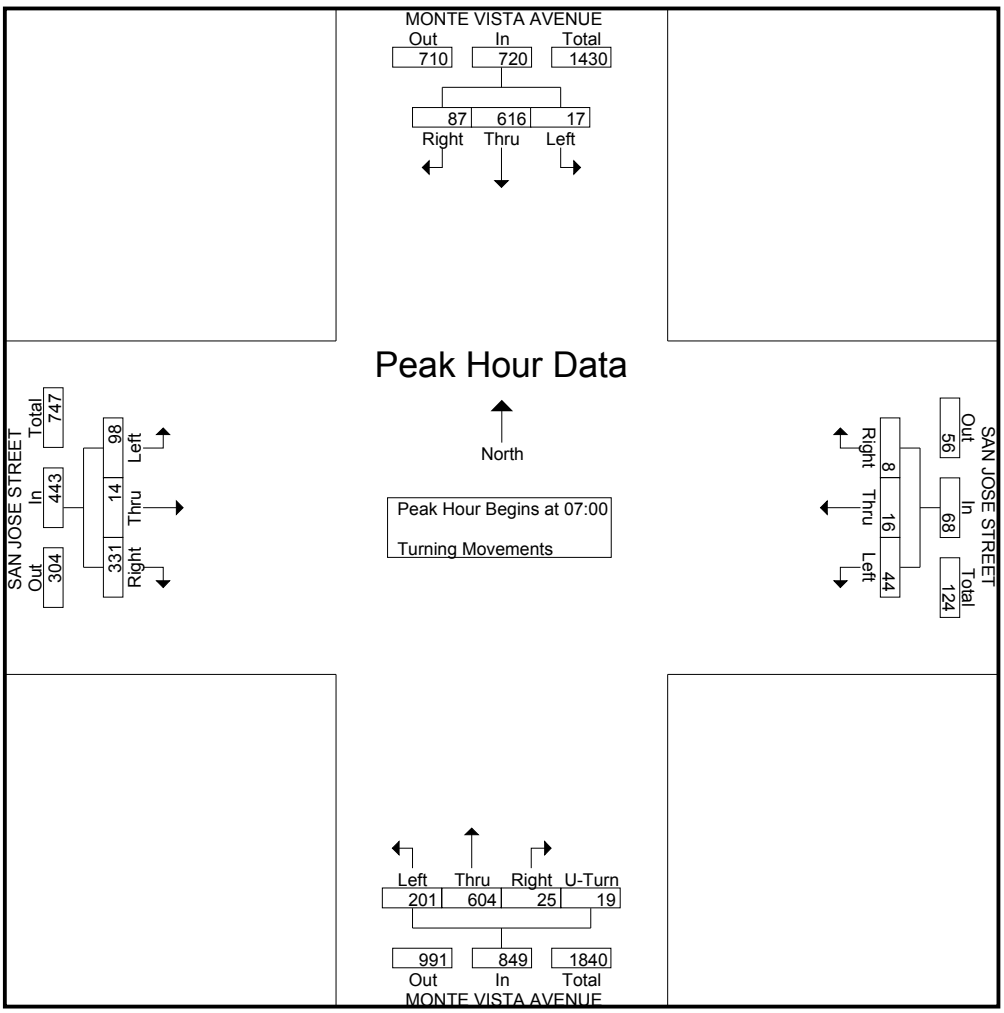
	MONTE VISTA AVENUE Southbound			SAN JOSE STREET Westbound			MONTE VISTA AVENUE Northbound				SAN JOSE STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	U-Turn	Right	Thru	Left	Int. Total
07:00	21	151	2	0	2	6	2	130	17	6	22	3	16	378
07:15	45	151	3	4	3	10	4	133	44	4	63	2	20	486
07:30	10	160	4	2	6	17	6	136	75	6	110	1	27	560
07:45	11	154	8	2	5	11	13	205	65	3	136	8	35	656
Total	87	616	17	8	16	44	25	604	201	19	331	14	98	2080
08:00	6	137	7	1	4	6	10	134	12	3	22	6	9	357
08:15	9	143	8	2	2	15	2	146	14	3	11	2	10	367
08:30	6	142	3	4	3	14	7	170	7	3	13	3	9	384
08:45	3	113	6	1	5	4	12	164	11	7	13	7	9	355
Total	24	535	24	8	14	39	31	614	44	16	59	18	37	1463
*** BREAK ***														
16:00	13	191	20	18	11	43	46	162	25	11	52	9	15	616
16:15	5	147	19	15	7	47	53	179	23	13	39	9	12	568
16:30	7	186	22	11	9	56	44	168	23	14	22	12	14	588
16:45	10	158	24	13	11	62	53	179	22	18	16	8	15	589
Total	35	682	85	57	38	208	196	688	93	56	129	38	56	2361
17:00	11	210	19	11	10	63	43	179	17	8	29	10	17	627
17:15	6	220	17	13	10	58	42	175	22	15	20	11	12	621
17:30	9	196	25	21	8	64	53	189	34	25	19	11	14	668
17:45	12	160	28	9	7	63	42	160	29	16	33	19	21	599
Total	38	786	89	54	35	248	180	703	102	64	101	51	64	2515
Grand Total	184	2619	215	127	103	539	432	2609	440	155	620	121	255	8419
Apprch %	6.1	86.8	7.1	16.5	13.4	70.1	11.9	71.8	12.1	4.3	62.2	12.1	25.6	
Total %	2.2	31.1	2.6	1.5	1.2	6.4	5.1	31	5.2	1.8	7.4	1.4	3	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: SAN JOSE STREET

File Name : H1408075
Site Code : 00000000
Start Date : 8/27/2014
Page No : 2

	MONTE VISTA AVENUE Southbound				SAN JOSE STREET Westbound				MONTE VISTA AVENUE Northbound					SAN JOSE STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:00																		
07:00	21	151	2	174	0	2	6	8	2	130	17	**6**	155	22	3	16	41	378
07:15	**45**	151	3	**199**	**4**	3	10	17	4	133	44	4	185	63	2	20	85	486
07:30	10	**160**	4	174	2	**6**	**17**	**25**	6	136	**75**	6	223	110	1	27	138	560
07:45	11	154	**8**	173	2	5	11	18	**13**	**205**	65	3	**286**	**136**	**8**	**35**	**179**	**656**
Total Volume	87	616	17	720	8	16	44	68	25	604	201	19	849	331	14	98	443	2080
% App. Total	12.1	85.6	2.4		11.8	23.5	64.7		2.9	71.1	23.7	2.2		74.7	3.2	22.1		
PHF	.483	.963	.531	.905	.500	.667	.647	.680	.481	.737	.670	.792	.742	.608	.438	.700	.619	.793

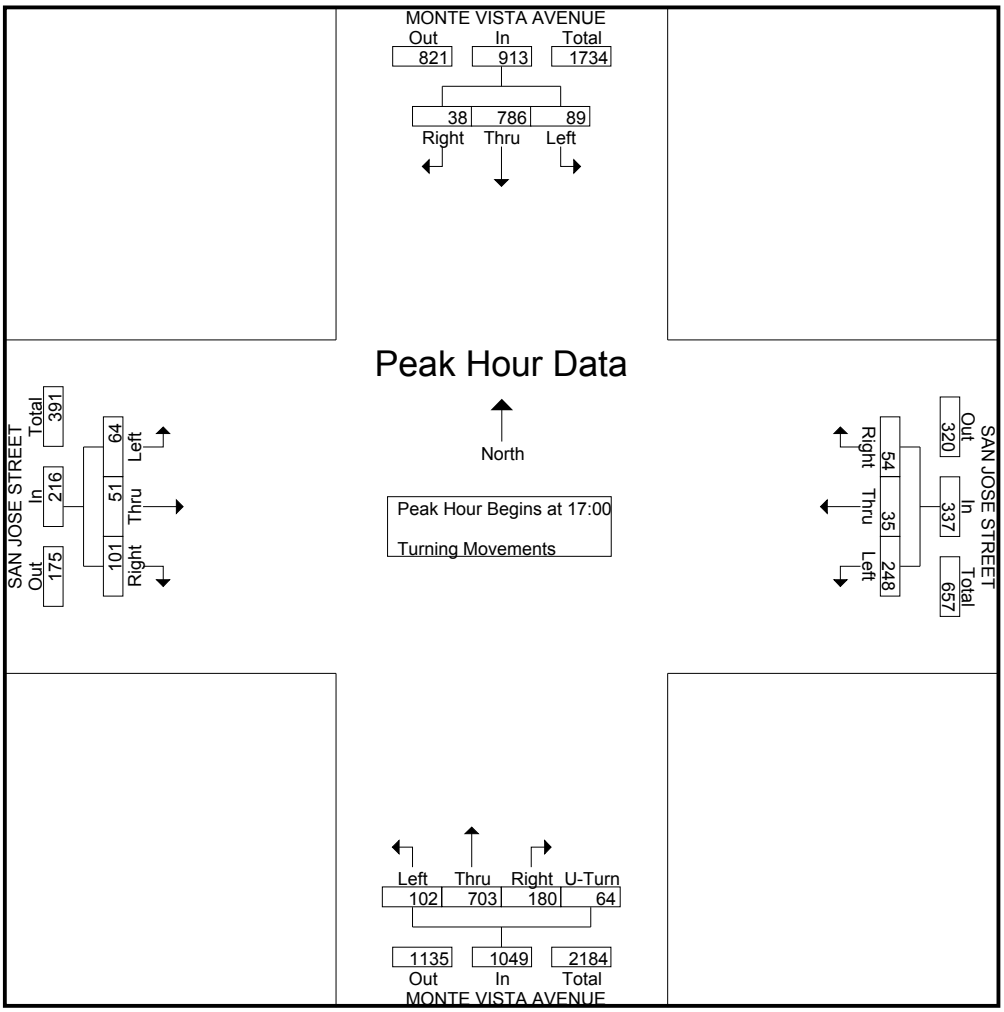


Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: SAN JOSE STREET

File Name : H1408075
Site Code : 00000000
Start Date : 8/27/2014
Page No : 3

	MONTE VISTA AVENUE Southbound				SAN JOSE STREET Westbound				MONTE VISTA AVENUE Northbound					SAN JOSE STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 17:00																		
17:00	11	210	19	240	11	**10**	63	84	43	179	17	8	247	29	10	17	56	627
17:15	6	**220**	17	**243**	13	10	58	81	42	175	22	15	254	20	11	12	43	621
17:30	9	196	25	230	**21**	8	**64**	**93**	**53**	**189**	**34**	**25**	**301**	19	11	14	44	**668**
17:45	**12**	160	**28**	200	9	7	63	79	42	160	29	16	247	**33**	**19**	**21**	**73**	599
Total Volume	38	786	89	913	54	35	248	337	180	703	102	64	1049	101	51	64	216	2515
% App. Total	4.2	86.1	9.7		16	10.4	73.6		17.2	67	9.7	6.1		46.8	23.6	29.6		
PHF	.792	.893	.795	.939	.643	.875	.969	.906	.849	.930	.750	.640	.871	.765	.671	.762	.740	.941



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: I-10 WB RAMPS

File Name : H1408076
Site Code : 00000000
Start Date : 8/27/2014
Page No : 1

Groups Printed- Turning Movements

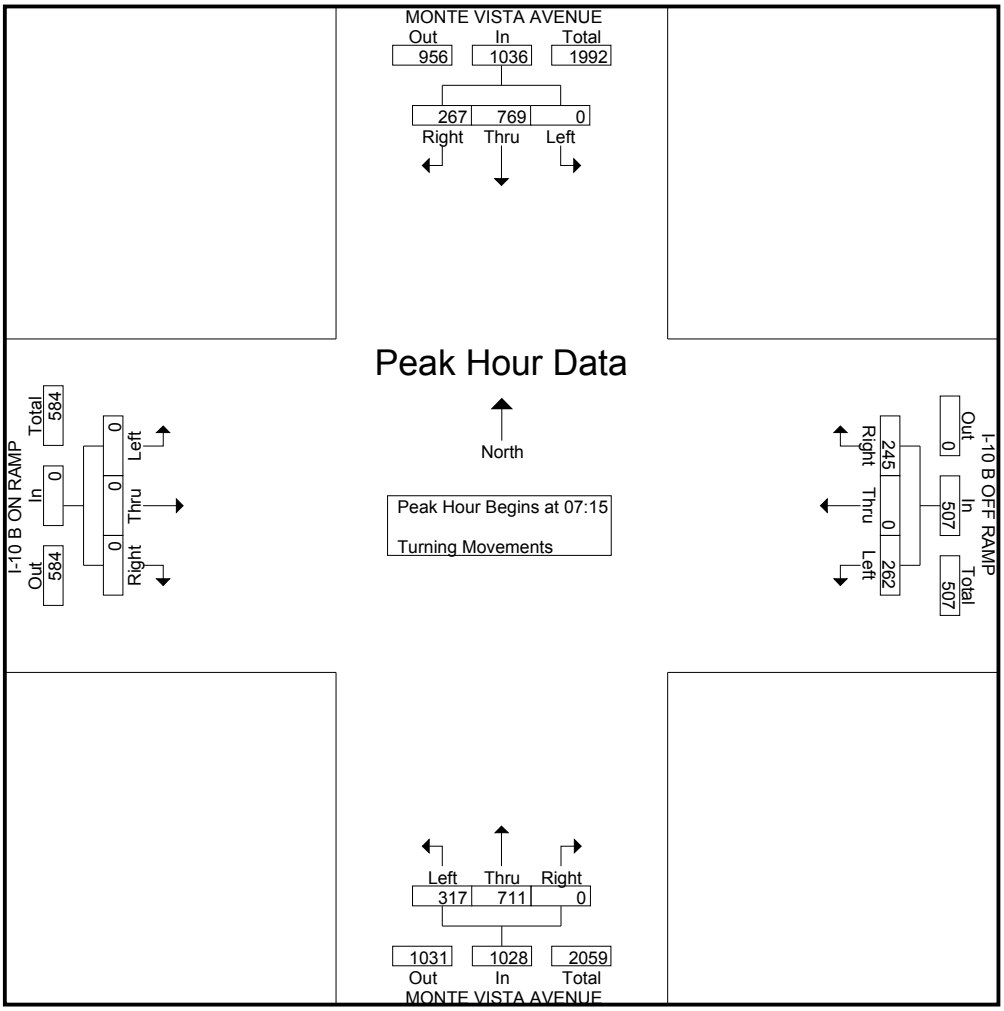
	MONTE VISTA AVENUE Southbound			I-10 B OFF RAMP Westbound			MONTE VISTA AVENUE Northbound			I-10 B ON RAMP Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	78	120	0	44	0	60	0	128	90	0	0	0	520
07:15	58	164	0	54	0	61	0	164	85	0	0	0	586
07:30	76	239	0	62	0	66	0	195	88	0	0	0	726
07:45	67	252	0	69	0	58	0	211	71	0	0	0	728
Total	279	775	0	229	0	245	0	698	334	0	0	0	2560
08:00	66	114	0	60	0	77	0	141	73	0	0	0	531
08:15	58	120	0	52	0	58	0	143	50	0	0	0	481
08:30	63	122	0	48	0	51	0	143	71	0	0	0	498
08:45	43	95	0	53	0	79	0	162	61	0	0	0	493
Total	230	451	0	213	0	265	0	589	255	0	0	0	2003
*** BREAK ***													
16:00	77	201	0	56	0	82	0	200	62	0	0	0	678
16:15	74	172	0	66	0	96	0	232	64	0	0	0	704
16:30	84	196	0	73	0	90	0	211	72	0	0	0	726
16:45	83	184	0	80	0	86	0	213	62	0	0	0	708
Total	318	753	0	275	0	354	0	856	260	0	0	0	2816
17:00	97	199	0	63	0	79	0	230	85	0	0	0	753
17:15	73	234	0	85	0	89	0	215	74	0	0	0	770
17:30	76	222	0	79	0	97	0	253	64	0	0	0	791
17:45	82	182	0	85	0	80	0	220	58	0	0	0	707
Total	328	837	0	312	0	345	0	918	281	0	0	0	3021
Grand Total	1155	2816	0	1029	0	1209	0	3061	1130	0	0	0	10400
Apprch %	29.1	70.9	0	46	0	54	0	73	27	0	0	0	
Total %	11.1	27.1	0	9.9	0	11.6	0	29.4	10.9	0	0	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: I-10 WB RAMPS

File Name : H1408076
Site Code : 00000000
Start Date : 8/27/2014
Page No : 2

	MONTE VISTA AVENUE Southbound				I-10 B OFF RAMP Westbound				MONTE VISTA AVENUE Northbound				I-10 B ON RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	58	164	0	222	54	0	61	115	0	164	85	249	0	0	0	0	586
07:30	**76**	239	0	315	62	0	66	128	0	195	**88**	**283**	0	0	0	0	726
07:45	67	**252**	0	**319**	**69**	0	58	127	0	**211**	71	282	0	0	0	0	**728**
08:00	66	114	0	180	60	0	**77**	**137**	0	141	73	214	0	0	0	0	531
Total Volume	267	769	0	1036	245	0	262	507	0	711	317	1028	0	0	0	0	2571
% App. Total	25.8	74.2	0		48.3	0	51.7		0	69.2	30.8		0	0	0		
PHF	.878	.763	.000	.812	.888	.000	.851	.925	.000	.842	.901	.908	.000	.000	.000	.000	.883

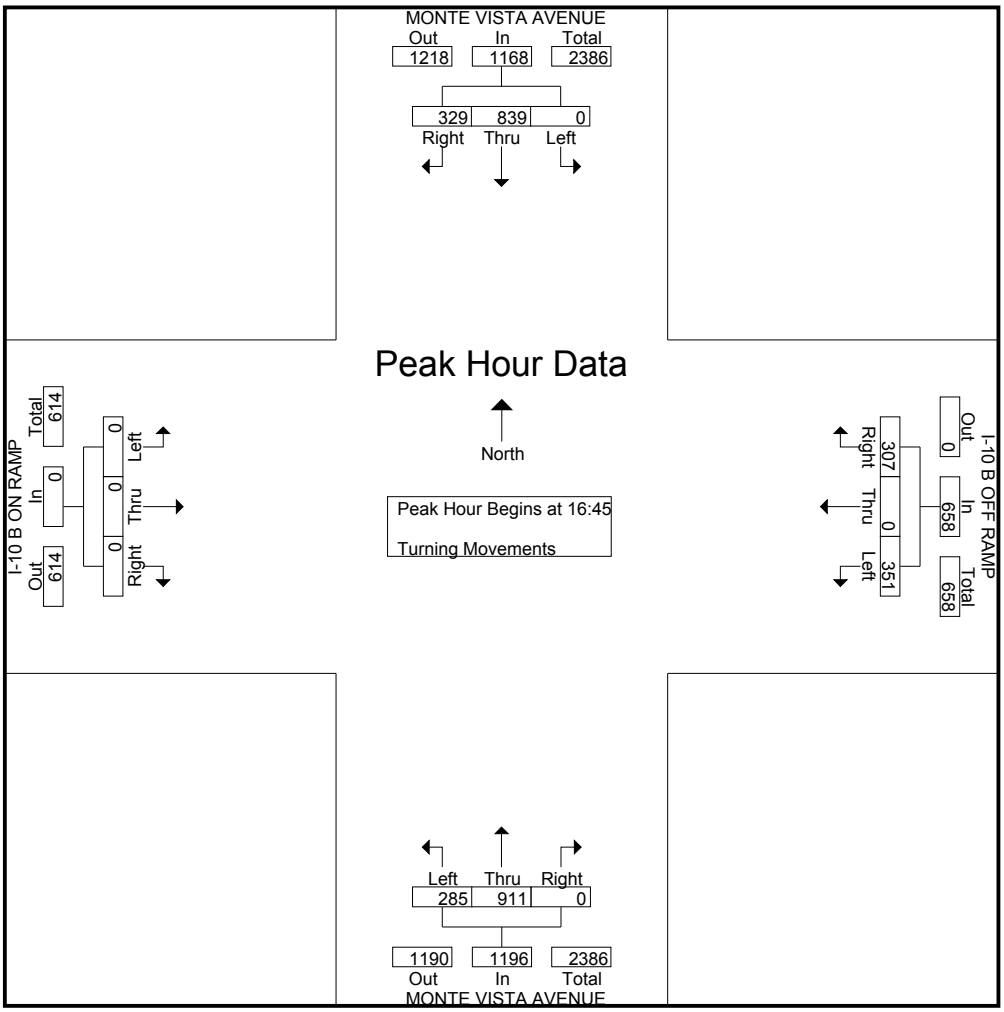


Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: I-10 WB RAMPS

File Name : H1408076
Site Code : 00000000
Start Date : 8/27/2014
Page No : 3

	MONTE VISTA AVENUE Southbound				I-10 B OFF RAMP Westbound				MONTE VISTA AVENUE Northbound				I-10 B ON RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	83	184	0	267	80	0	86	166	0	213	62	275	0	0	0	0	708
17:00	**97**	199	0	296	63	0	79	142	0	230	**85**	315	0	0	0	0	753
17:15	73	**234**	0	**307**	**85**	0	89	174	0	215	74	289	0	0	0	0	770
17:30	76	222	0	298	79	0	**97**	**176**	0	**253**	64	**317**	0	0	0	0	**791**
Total Volume	329	839	0	1168	307	0	351	658	0	911	285	1196	0	0	0	0	3022
% App. Total	28.2	71.8	0		46.7	0	53.3		0	76.2	23.8		0	0	0		
PHF	.848	.896	.000	.951	.903	.000	.905	.935	.000	.900	.838	.943	.000	.000	.000	.000	.955



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: PALO VERDE STREET

File Name : H1408077
Site Code : 00000000
Start Date : 8/27/2014
Page No : 1

Groups Printed- Turning Movements

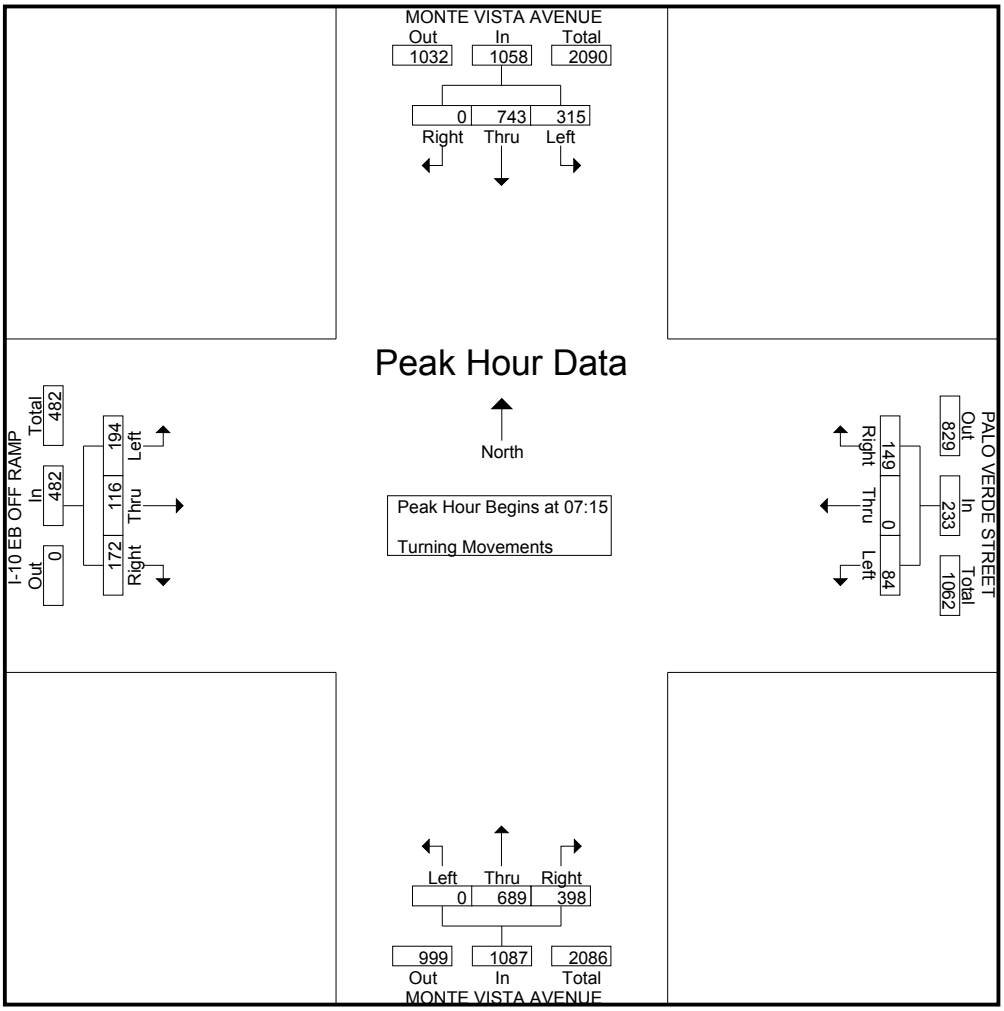
	MONTE VISTA AVENUE Southbound			PALO VERDE STREET Westbound			MONTE VISTA AVENUE Northbound			I-10 EB OFF RAMP Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	122	67	32	0	17	75	161	0	33	28	42	577
07:15	0	160	66	37	0	13	101	161	0	42	20	36	636
07:30	0	220	76	48	0	27	113	185	0	37	27	33	766
07:45	0	233	77	39	0	30	96	182	0	54	38	77	826
Total	0	735	286	156	0	87	385	689	0	166	113	188	2805
08:00	0	130	96	25	0	14	88	161	0	39	31	48	632
08:15	0	105	71	35	0	8	74	134	0	43	40	50	560
08:30	0	91	62	36	0	6	76	103	0	44	28	47	493
08:45	0	103	69	32	0	14	82	126	0	45	19	59	549
Total	0	429	298	128	0	42	320	524	0	171	118	204	2234
*** BREAK ***													
16:00	0	218	76	43	0	14	123	174	0	58	33	77	816
16:15	0	181	84	49	0	11	100	167	0	46	24	64	726
16:30	0	209	72	37	0	16	88	182	0	56	28	64	752
16:45	0	194	78	50	0	13	75	124	0	54	33	86	707
Total	0	802	310	179	0	54	386	647	0	214	118	291	3001
17:00	0	183	83	51	0	18	119	190	0	60	30	69	803
17:15	0	244	87	40	0	9	109	184	0	38	21	76	808
17:30	0	231	89	54	0	14	96	179	0	50	44	73	830
17:45	0	192	74	50	0	15	83	137	0	49	31	88	719
Total	0	850	333	195	0	56	407	690	0	197	126	306	3160
Grand Total	0	2816	1227	658	0	239	1498	2550	0	748	475	989	11200
Apprch %	0	69.7	30.3	73.4	0	26.6	37	63	0	33.8	21.5	44.7	
Total %	0	25.1	11	5.9	0	2.1	13.4	22.8	0	6.7	4.2	8.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: PALO VERDE STREET

File Name : H1408077
Site Code : 00000000
Start Date : 8/27/2014
Page No : 2

	MONTE VISTA AVENUE Southbound				PALO VERDE STREET Westbound				MONTE VISTA AVENUE Northbound				I-10 EB OFF RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	160	66	226	37	0	13	50	101	161	0	262	42	20	36	98	636
07:30	0	220	76	296	**48**	0	27	**75**	**113**	**185**	0	**298**	37	27	33	97	766
07:45	0	**233**	77	**310**	39	0	**30**	69	96	182	0	278	**54**	**38**	**77**	**169**	**826**
08:00	0	130	**96**	226	25	0	14	39	88	161	0	249	39	31	48	118	632
Total Volume	0	743	315	1058	149	0	84	233	398	689	0	1087	172	116	194	482	2860
% App. Total	0	70.2	29.8		63.9	0	36.1		36.6	63.4	0		35.7	24.1	40.2		
PHF	.000	.797	.820	.853	.776	.000	.700	.777	.881	.931	.000	.912	.796	.763	.630	.713	.866

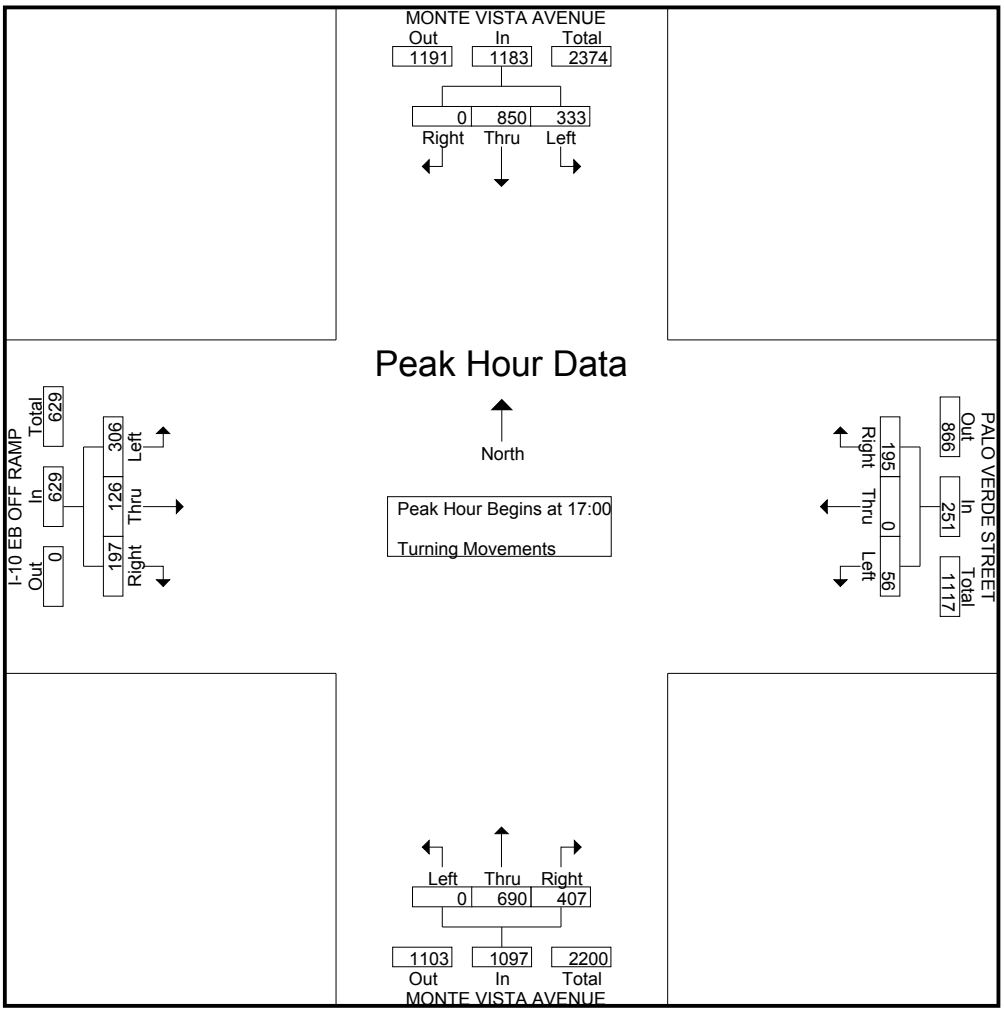


Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: MONTE VISTA AVENUE
E-W Direction: PALO VERDE STREET

File Name : H1408077
Site Code : 00000000
Start Date : 8/27/2014
Page No : 3

	MONTE VISTA AVENUE Southbound				PALO VERDE STREET Westbound				MONTE VISTA AVENUE Northbound				I-10 EB OFF RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	183	83	266	51	0	**18**	**69**	**119**	**190**	0	**309**	**60**	30	69	159	803
17:15	0	**244**	87	**331**	40	0	9	49	109	184	0	293	38	21	76	135	808
17:30	0	231	**89**	320	**54**	0	14	68	96	179	0	275	50	**44**	73	167	**830**
17:45	0	192	74	266	50	0	15	65	83	137	0	220	49	31	**88**	**168**	719
Total Volume	0	850	333	1183	195	0	56	251	407	690	0	1097	197	126	306	629	3160
% App. Total	0	71.9	28.1		77.7	0	22.3		37.1	62.9	0		31.3	20	48.6		
PHF	.000	.871	.935	.894	.903	.000	.778	.909	.855	.908	.000	.888	.821	.716	.869	.936	.952



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: I-10 EB ON RAMP
E-W Direction: PALO VERDE STREET

File Name : H1408078
Site Code : 00000000
Start Date : 8/27/2014
Page No : 1

Groups Printed- Turning Movements

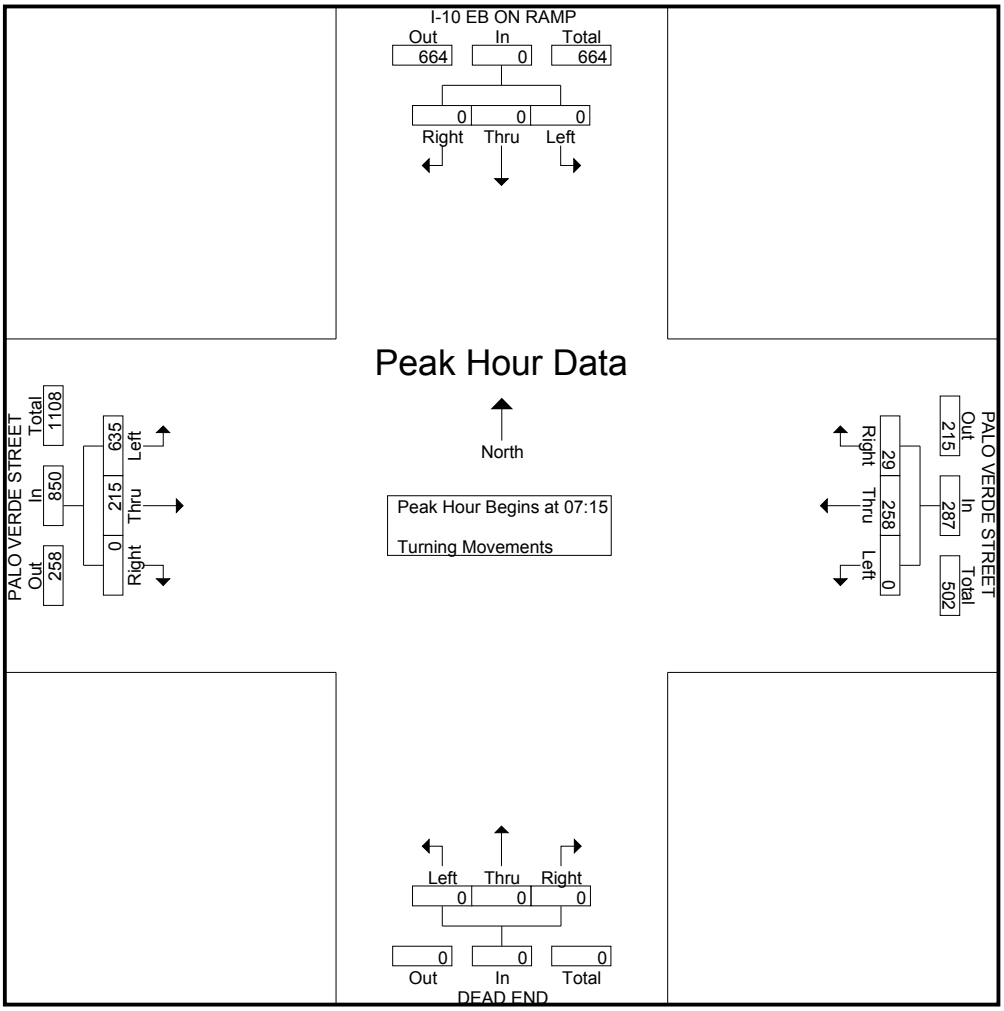
	I-10 EB ON RAMP Southbound			PALO VERDE STREET Westbound			DEAD END Northbound			PALO VERDE STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	0	0	6	41	0	0	0	0	0	34	123	204
07:15	0	0	0	10	69	0	0	0	0	0	39	152	270
07:30	0	0	0	10	69	0	0	0	0	0	33	195	307
07:45	0	0	0	6	70	0	0	0	0	0	62	149	287
Total	0	0	0	32	249	0	0	0	0	0	168	619	1068
08:00	0	0	0	3	50	0	0	0	0	0	81	139	273
08:15	0	0	0	9	47	0	0	0	0	0	56	121	233
08:30	0	0	0	8	47	0	0	0	0	0	67	103	225
08:45	0	0	0	15	46	0	0	0	0	0	40	80	181
Total	0	0	0	35	190	0	0	0	0	0	244	443	912
*** BREAK ***													
16:00	0	0	0	16	57	0	0	0	0	0	73	160	306
16:15	0	0	0	8	58	0	0	0	0	0	69	142	277
16:30	0	0	0	19	61	0	0	0	0	0	62	130	272
16:45	0	0	0	8	55	0	0	0	0	0	66	131	260
Total	0	0	0	51	231	0	0	0	0	0	270	563	1115
17:00	0	0	0	24	67	0	0	0	0	0	70	155	316
17:15	0	0	0	14	55	0	0	0	0	0	55	175	299
17:30	0	0	0	15	65	0	0	0	0	0	81	134	295
17:45	0	0	0	12	69	0	0	0	0	0	68	124	273
Total	0	0	0	65	256	0	0	0	0	0	274	588	1183
Grand Total	0	0	0	183	926	0	0	0	0	0	956	2213	4278
Apprch %	0	0	0	16.5	83.5	0	0	0	0	0	30.2	69.8	
Total %	0	0	0	4.3	21.6	0	0	0	0	0	22.3	51.7	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: I-10 EB ON RAMP
E-W Direction: PALO VERDE STREET

File Name : H1408078
Site Code : 00000000
Start Date : 8/27/2014
Page No : 2

	I-10 EB ON RAMP Southbound				PALO VERDE STREET Westbound				DEAD END Northbound				PALO VERDE STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	0	0	0	**10**	69	0	**79**	0	0	0	0	0	39	152	191	270
07:30	0	0	0	0	10	69	0	79	0	0	0	0	0	33	**195**	**228**	**307**
07:45	0	0	0	0	6	**70**	0	76	0	0	0	0	0	62	149	211	287
08:00	0	0	0	0	3	50	0	53	0	0	0	0	0	**81**	139	220	273
Total Volume	0	0	0	0	29	258	0	287	0	0	0	0	0	215	635	850	1137
% App. Total	0	0	0		10.1	89.9	0		0	0	0		0	25.3	74.7		
PHF	.000	.000	.000	.000	.725	.921	.000	.908	.000	.000	.000	.000	.000	.664	.814	.932	.926

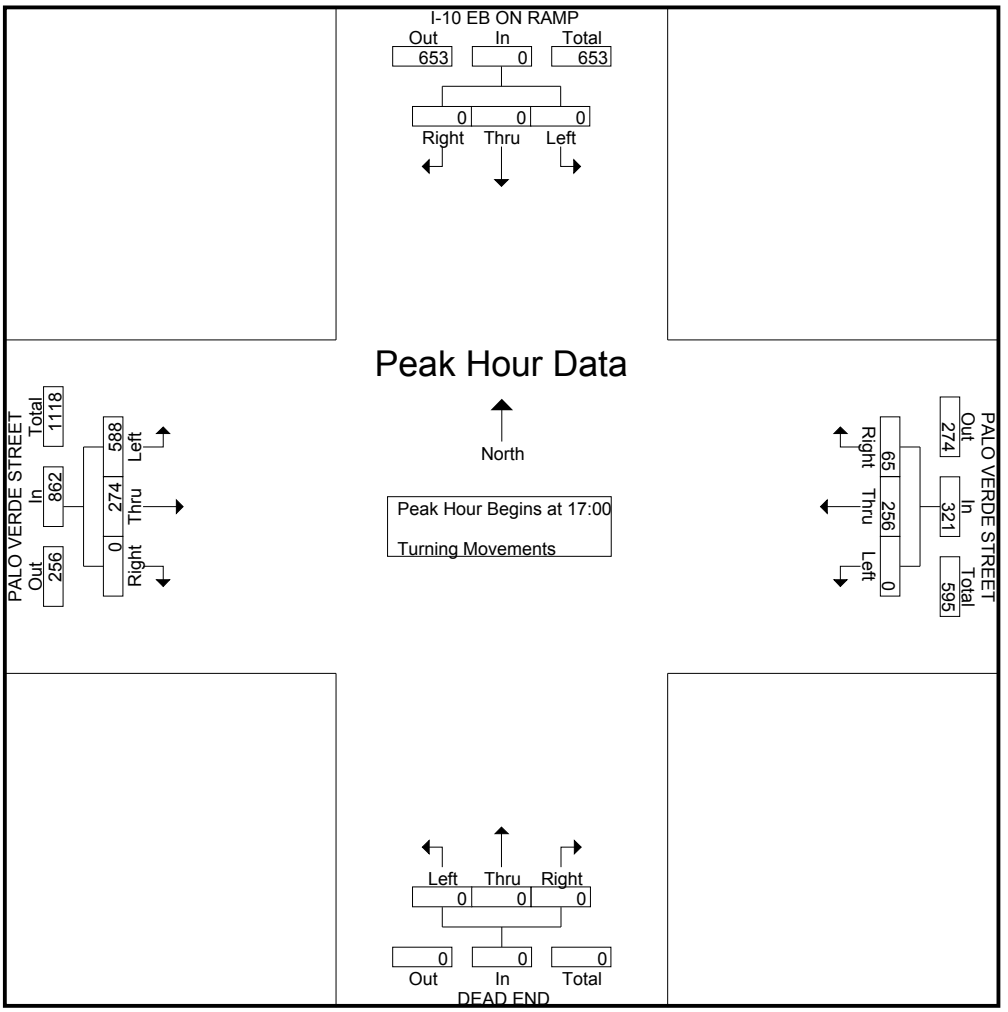


Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: I-10 EB ON RAMP
E-W Direction: PALO VERDE STREET

File Name : H1408078
Site Code : 00000000
Start Date : 8/27/2014
Page No : 3

	I-10 EB ON RAMP Southbound				PALO VERDE STREET Westbound				DEAD END Northbound				PALO VERDE STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	0	0	0	**24**	67	0	**91**	0	0	0	0	0	70	155	225	**316**
17:15	0	0	0	0	14	55	0	69	0	0	0	0	0	55	**175**	**230**	299
17:30	0	0	0	0	15	65	0	80	0	0	0	0	0	**81**	134	215	295
17:45	0	0	0	0	12	**69**	0	81	0	0	0	0	0	68	124	192	273
Total Volume	0	0	0	0	65	256	0	321	0	0	0	0	0	274	588	862	1183
% App. Total	0	0	0		20.2	79.8	0		0	0	0		0	31.8	68.2		
PHF	.000	.000	.000	.000	.677	.928	.000	.882	.000	.000	.000	.000	.000	.846	.840	.937	.936



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: ARROW HIGHWAY

File Name : H1606159
Site Code : 00005054
Start Date : 6/14/2016
Page No : 1

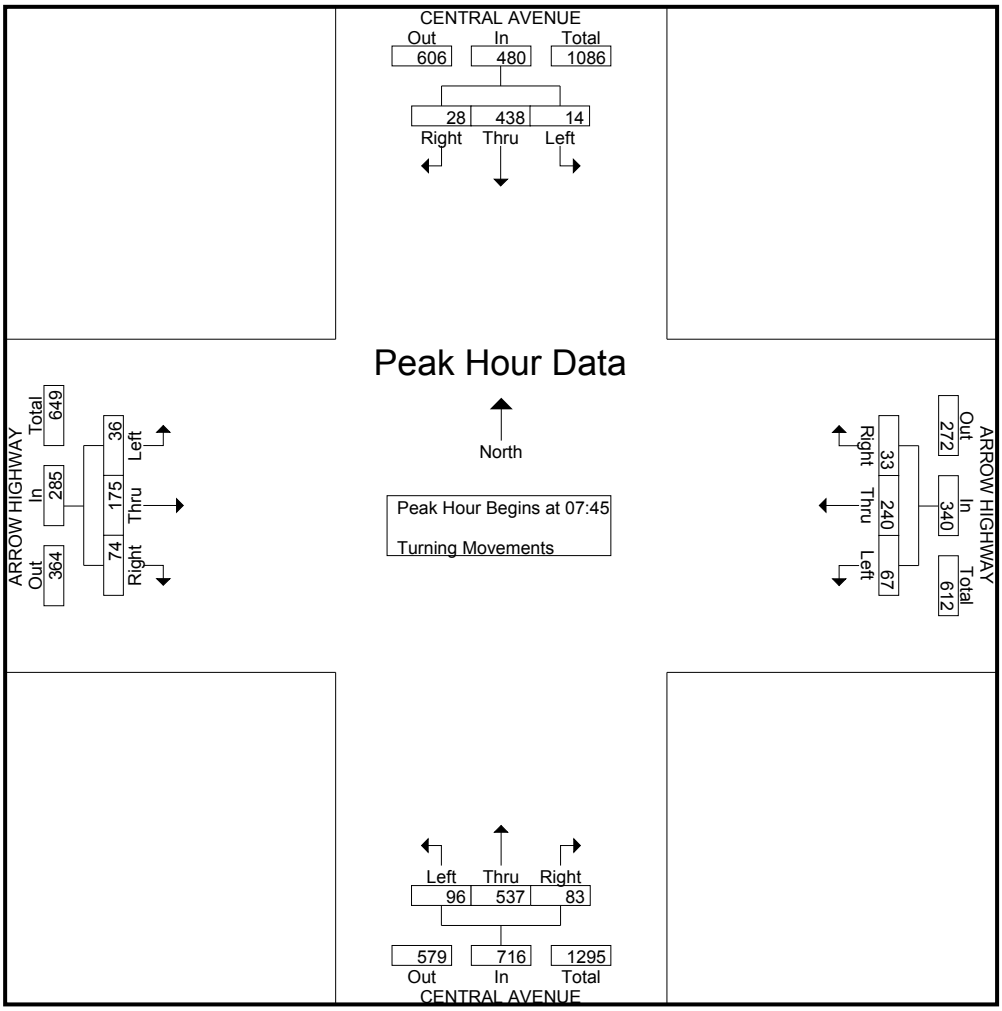
Groups Printed- Turning Movements

	CENTRAL AVENUE Southbound			ARROW HIGHWAY Westbound			CENTRAL AVENUE Northbound			ARROW HIGHWAY Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	6	79	3	10	48	16	10	151	30	7	23	6	389
07:15	7	101	2	4	69	19	7	130	20	17	24	9	409
07:30	10	93	5	4	75	16	16	128	22	19	32	4	424
07:45	4	109	1	11	70	19	22	144	35	18	43	6	482
Total	27	382	11	29	262	70	55	553	107	61	122	25	1704
08:00	10	114	3	7	62	15	24	136	35	24	42	14	486
08:15	5	103	6	11	60	17	19	124	13	10	43	6	417
08:30	9	112	4	4	48	16	18	133	13	22	47	10	436
08:45	16	97	3	4	49	16	17	124	18	24	45	11	424
Total	40	426	16	26	219	64	78	517	79	80	177	41	1763
16:00	22	186	13	13	63	34	31	161	26	39	114	31	733
16:15	12	194	17	10	46	30	29	174	22	43	132	20	729
16:30	14	196	6	9	54	45	37	160	27	54	117	36	755
16:45	16	200	16	10	66	30	33	170	31	50	147	33	802
Total	64	776	52	42	229	139	130	665	106	186	510	120	3019
17:00	12	245	20	6	62	41	22	153	22	40	137	32	792
17:15	18	216	17	15	56	44	31	135	18	60	133	26	769
17:30	23	192	7	6	66	39	28	176	32	33	145	23	770
17:45	13	172	8	11	59	25	30	157	30	35	147	34	721
Total	66	825	52	38	243	149	111	621	102	168	562	115	3052
Grand Total	197	2409	131	135	953	422	374	2356	394	495	1371	301	9538
Apprch %	7.2	88	4.8	8.9	63.1	27.9	12	75.4	12.6	22.8	63.3	13.9	
Total %	2.1	25.3	1.4	1.4	10	4.4	3.9	24.7	4.1	5.2	14.4	3.2	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1606159
Site Code : 00005054
Start Date : 6/14/2016
Page No : 2

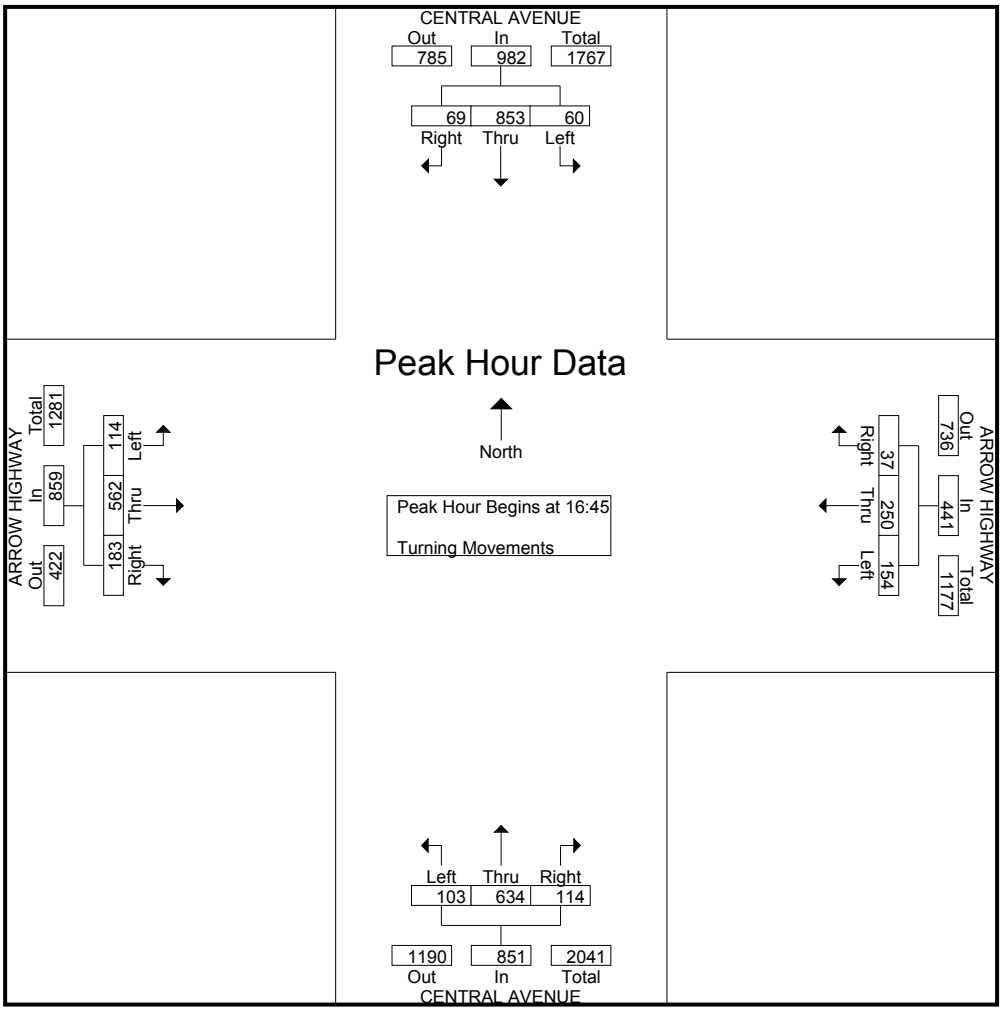
	CENTRAL AVENUE Southbound				ARROW HIGHWAY Westbound				CENTRAL AVENUE Northbound				ARROW HIGHWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	4	109	1	114	**11**	**70**	**19**	**100**	22	**144**	**35**	**201**	18	43	6	67	482
08:00	**10**	**114**	3	**127**	7	62	15	84	**24**	136	35	195	**24**	42	**14**	**80**	**486**
08:15	5	103	**6**	114	11	60	17	88	19	124	13	156	10	43	6	59	417
08:30	9	112	4	125	4	48	16	68	18	133	13	164	22	**47**	10	79	436
Total Volume	28	438	14	480	33	240	67	340	83	537	96	716	74	175	36	285	1821
% App. Total	5.8	91.2	2.9		9.7	70.6	19.7		11.6	75	13.4		26	61.4	12.6		
PHF	.700	.961	.583	.945	.750	.857	.882	.850	.865	.932	.686	.891	.771	.931	.643	.891	.937



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1606159
Site Code : 00005054
Start Date : 6/14/2016
Page No : 3

	CENTRAL AVENUE Southbound				ARROW HIGHWAY Westbound				CENTRAL AVENUE Northbound				ARROW HIGHWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	16	200	16	232	10	**66**	30	106	**33**	170	31	234	50	**147**	**33**	**230**	**802**
17:00	12	**245**	**20**	**277**	6	62	41	109	22	153	22	197	40	137	32	209	792
17:15	18	216	17	251	**15**	56	**44**	**115**	31	135	18	184	**60**	133	26	219	769
17:30	**23**	192	7	222	6	66	39	111	28	**176**	**32**	**236**	33	145	23	201	770
Total Volume	69	853	60	982	37	250	154	441	114	634	103	851	183	562	114	859	3133
% App. Total	7	86.9	6.1		8.4	56.7	34.9		13.4	74.5	12.1		21.3	65.4	13.3		
PHF	.750	.870	.750	.886	.617	.947	.875	.959	.864	.901	.805	.901	.763	.956	.864	.934	.977



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: MORENO STREET

File Name : h1408085
Site Code : 00000000
Start Date : 8/21/2014
Page No : 1

Groups Printed- Turning Movements

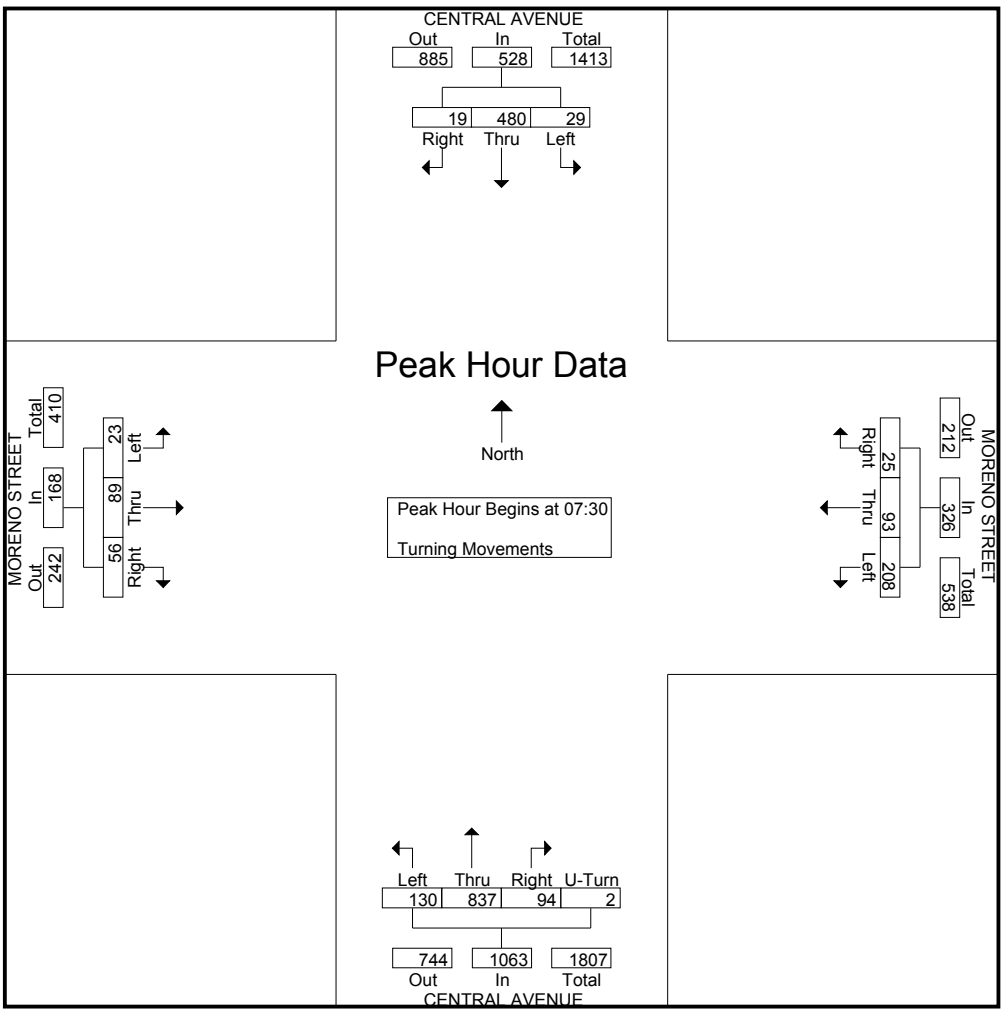
	CENTRAL AVENUE Southbound			MORENO STREET Westbound			CENTRAL AVENUE Northbound				MORENO STREET Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	U-Turn	Right	Thru	Left	Int. Total
07:00	3	109	3	2	24	35	18	162	27	1	10	18	2	414
07:15	3	111	6	7	25	36	15	164	24	1	12	12	4	420
07:30	5	129	7	4	19	61	17	202	21	1	14	18	8	506
07:45	4	117	8	5	25	64	22	245	36	0	13	18	6	563
Total	15	466	24	18	93	196	72	773	108	3	49	66	20	1903
08:00	6	124	5	11	23	41	28	201	28	0	13	29	6	515
08:15	4	110	9	5	26	42	27	189	45	1	16	24	3	501
08:30	6	125	7	3	26	36	34	148	37	3	14	18	8	465
08:45	4	140	11	7	26	38	32	178	44	1	13	24	8	526
Total	20	499	32	26	101	157	121	716	154	5	56	95	25	2007
*** BREAK ***														
16:00	17	218	31	8	55	71	39	183	63	2	49	83	22	841
16:15	9	220	29	19	68	75	46	166	68	1	42	60	25	828
16:30	15	223	40	9	57	83	58	175	72	3	48	70	25	878
16:45	12	233	35	16	68	86	74	228	85	0	54	84	23	998
Total	53	894	135	52	248	315	217	752	288	6	193	297	95	3545
17:00	21	264	30	13	59	75	52	226	64	1	46	91	28	970
17:15	12	256	29	9	62	60	50	181	69	0	51	90	32	901
17:30	13	243	35	13	60	71	44	213	82	1	59	68	23	925
17:45	18	225	23	12	57	71	48	197	82	2	43	86	22	886
Total	64	988	117	47	238	277	194	817	297	4	199	335	105	3682
Grand Total	152	2847	308	143	680	945	604	3058	847	18	497	793	245	11137
Apprch %	4.6	86.1	9.3	8.1	38.5	53.5	13.3	67.6	18.7	0.4	32.4	51.7	16	
Total %	1.4	25.6	2.8	1.3	6.1	8.5	5.4	27.5	7.6	0.2	4.5	7.1	2.2	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: MORENO STREET

File Name : h1408085
Site Code : 00000000
Start Date : 8/21/2014
Page No : 2

	CENTRAL AVENUE Southbound				MORENO STREET Westbound				CENTRAL AVENUE Northbound					MORENO STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:30																		
07:30	5	**129**	7	**141**	4	19	61	84	17	202	21	**1**	241	14	18	**8**	40	506
07:45	4	117	8	129	5	25	**64**	**94**	22	**245**	36	0	**303**	13	18	6	37	**563**
08:00	**6**	124	5	135	**11**	23	41	75	**28**	201	28	0	257	13	**29**	6	**48**	515
08:15	4	110	**9**	123	5	**26**	42	73	27	189	**45**	1	262	**16**	24	3	43	501
Total Volume	19	480	29	528	25	93	208	326	94	837	130	2	1063	56	89	23	168	2085
% App. Total	3.6	90.9	5.5		7.7	28.5	63.8		8.8	78.7	12.2	0.2		33.3	53	13.7		
PHF	.792	.930	.806	.936	.568	.894	.813	.867	.839	.854	.722	.500	.877	.875	.767	.719	.875	.926

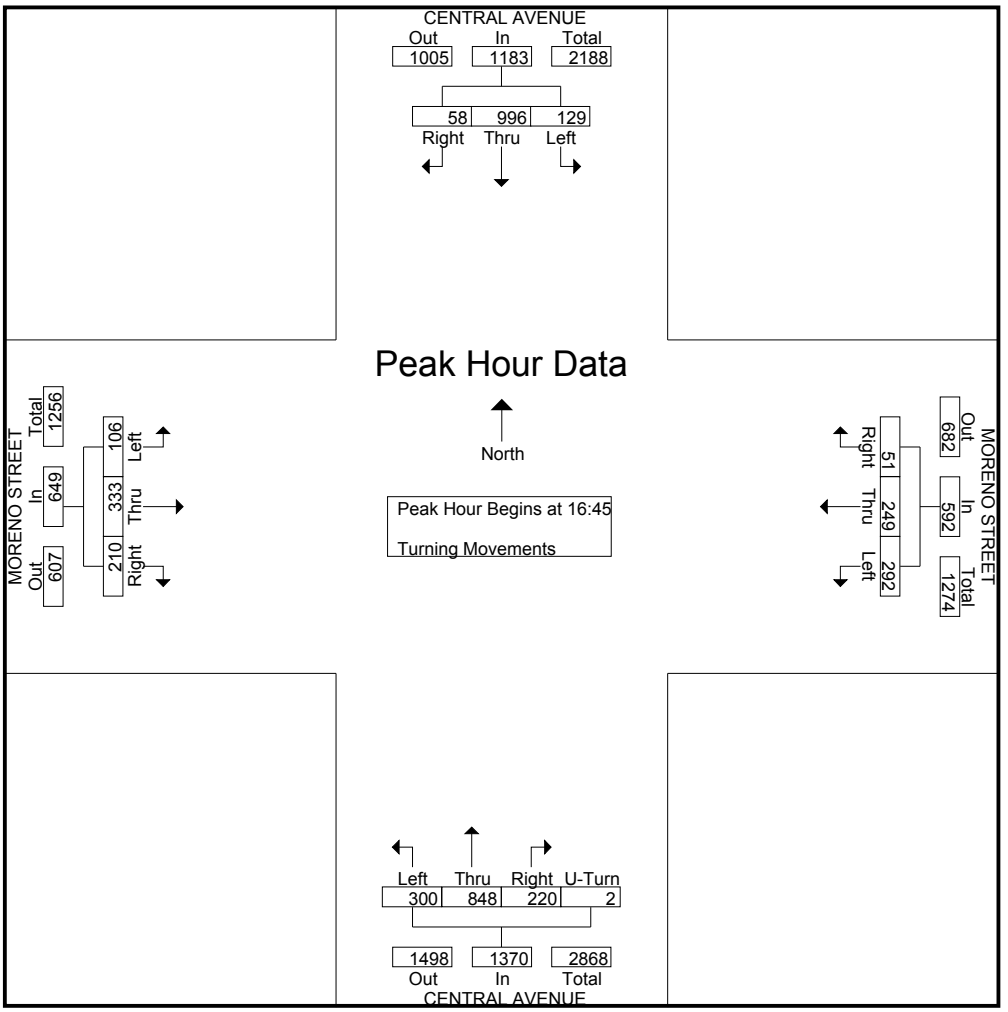


Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: MORENO STREET

File Name : h1408085
Site Code : 00000000
Start Date : 8/21/2014
Page No : 3

	CENTRAL AVENUE Southbound				MORENO STREET Westbound				CENTRAL AVENUE Northbound					MORENO STREET Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 16:45																		
16:45	12	233	**35**	280	**16**	**68**	**86**	**170**	**74**	**228**	**85**	0	**387**	54	84	23	161	**998**
17:00	**21**	**264**	30	**315**	13	59	75	147	52	226	64	**1**	343	46	**91**	28	165	970
17:15	12	256	29	297	9	62	60	131	50	181	69	0	300	51	90	**32**	**173**	901
17:30	13	243	35	291	13	60	71	144	44	213	82	1	340	**59**	68	23	150	925
Total Volume	58	996	129	1183	51	249	292	592	220	848	300	2	1370	210	333	106	649	3794
% App. Total	4.9	84.2	10.9		8.6	42.1	49.3		16.1	61.9	21.9	0.1		32.4	51.3	16.3		
PHF	.690	.943	.921	.939	.797	.915	.849	.871	.743	.930	.882	.500	.885	.890	.915	.828	.938	.950



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: I-10 WB RAMPS

File Name : H1408087
Site Code : 00000000
Start Date : 8/26/2014
Page No : 1

Groups Printed- Turning Movements

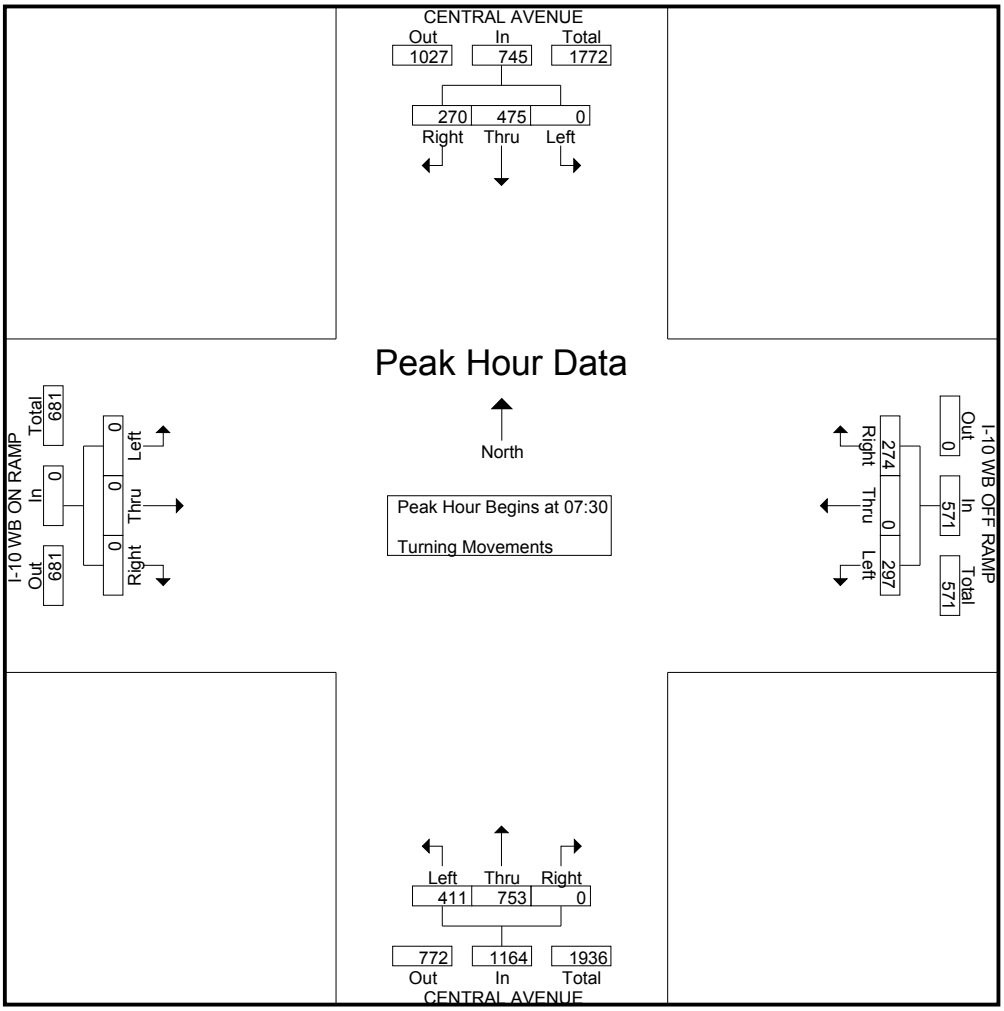
	CENTRAL AVENUE Southbound			I-10 WB OFF RAMP Westbound			CENTRAL AVENUE Northbound			I-10 WB ON RAMP Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	80	103	0	60	0	73	0	150	106	0	0	0	572
07:15	70	100	0	70	0	51	0	140	114	0	0	0	545
07:30	79	129	0	63	0	68	0	156	122	0	0	0	617
07:45	61	113	0	69	0	78	0	224	119	0	0	0	664
Total	290	445	0	262	0	270	0	670	461	0	0	0	2398
08:00	73	121	0	75	0	78	0	197	90	0	0	0	634
08:15	57	112	0	67	0	73	0	176	80	0	0	0	565
08:30	52	102	0	76	0	68	0	173	92	0	0	0	563
08:45	68	118	0	106	0	68	0	190	80	0	0	0	630
Total	250	453	0	324	0	287	0	736	342	0	0	0	2392
*** BREAK ***													
16:00	111	305	0	102	0	110	0	265	82	0	0	0	975
16:15	108	262	0	106	0	107	0	267	95	0	0	0	945
16:30	98	298	0	82	0	78	0	277	83	0	0	0	916
16:45	97	281	0	142	0	117	0	259	75	0	0	0	971
Total	414	1146	0	432	0	412	0	1068	335	0	0	0	3807
17:00	134	310	0	101	0	98	0	269	101	0	0	0	1013
17:15	91	320	0	115	0	106	0	290	68	0	0	0	990
17:30	88	278	0	114	0	90	0	283	81	0	0	0	934
17:45	97	286	0	116	0	102	0	298	73	0	0	0	972
Total	410	1194	0	446	0	396	0	1140	323	0	0	0	3909
Grand Total	1364	3238	0	1464	0	1365	0	3614	1461	0	0	0	12506
Apprch %	29.6	70.4	0	51.7	0	48.3	0	71.2	28.8	0	0	0	
Total %	10.9	25.9	0	11.7	0	10.9	0	28.9	11.7	0	0	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: I-10 WB RAMPS

File Name : H1408087
Site Code : 00000000
Start Date : 8/26/2014
Page No : 2

	CENTRAL AVENUE Southbound				I-10 WB OFF RAMP Westbound				CENTRAL AVENUE Northbound				I-10 WB ON RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	**79**	**129**	0	**208**	63	0	68	131	0	156	**122**	278	0	0	0	0	617
07:45	61	113	0	174	69	0	**78**	147	0	**224**	119	**343**	0	0	0	0	**664**
08:00	73	121	0	194	**75**	0	78	**153**	0	197	90	287	0	0	0	0	634
08:15	57	112	0	169	67	0	73	140	0	176	80	256	0	0	0	0	565
Total Volume	270	475	0	745	274	0	297	571	0	753	411	1164	0	0	0	0	2480
% App. Total	36.2	63.8	0		48	0	52		0	64.7	35.3		0	0	0		
PHF	.854	.921	.000	.895	.913	.000	.952	.933	.000	.840	.842	.848	.000	.000	.000	.000	.934

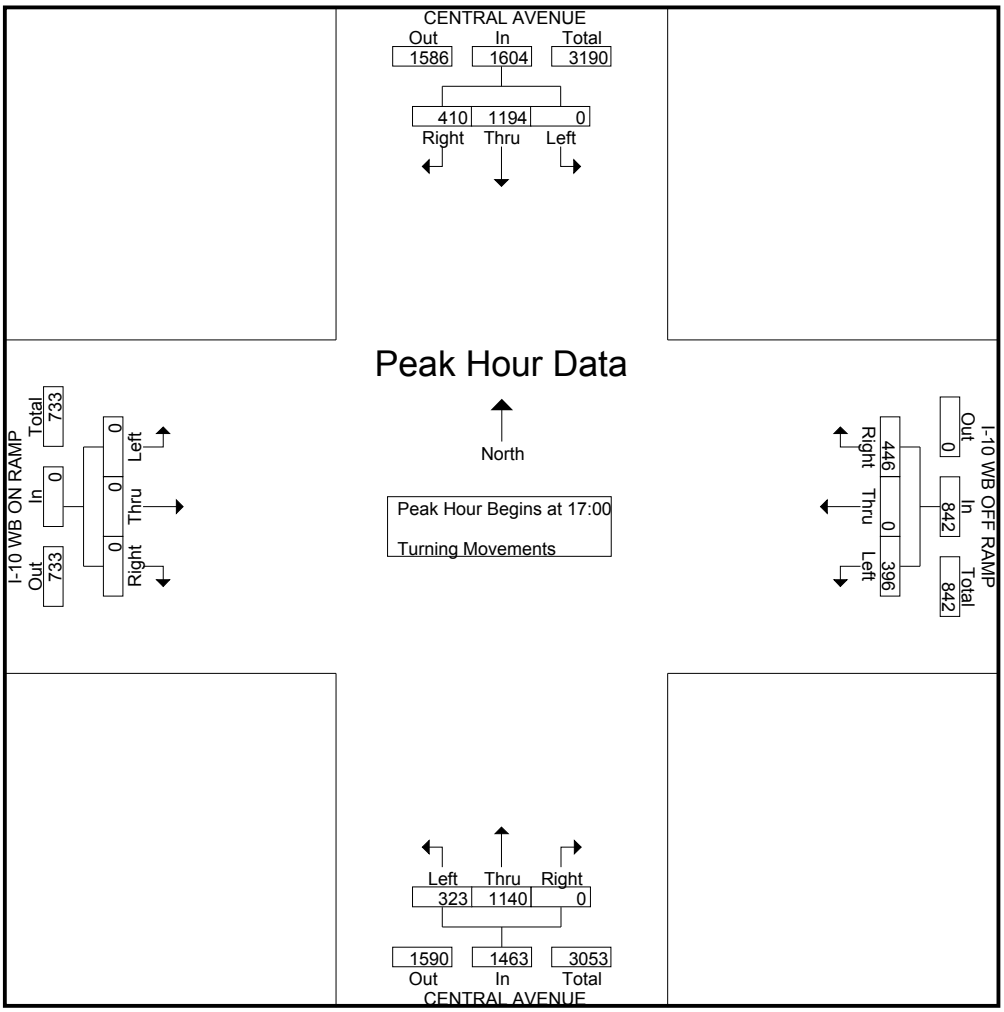


Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: I-10 WB RAMPS

File Name : H1408087
Site Code : 00000000
Start Date : 8/26/2014
Page No : 3

	CENTRAL AVENUE Southbound				I-10 WB OFF RAMP Westbound				CENTRAL AVENUE Northbound				I-10 WB ON RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	**134**	310	0	**444**	101	0	98	199	0	269	**101**	370	0	0	0	0	**1013**
17:15	91	**320**	0	411	115	0	**106**	**221**	0	290	68	358	0	0	0	0	990
17:30	88	278	0	366	114	0	90	204	0	283	81	364	0	0	0	0	934
17:45	97	286	0	383	**116**	0	102	218	0	**298**	73	**371**	0	0	0	0	972
Total Volume	410	1194	0	1604	446	0	396	842	0	1140	323	1463	0	0	0	0	3909
% App. Total	25.6	74.4	0		53	0	47		0	77.9	22.1		0	0	0		
PHF	.765	.933	.000	.903	.961	.000	.934	.952	.000	.956	.800	.986	.000	.000	.000	.000	.965



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: I-10 EB RAMPS

File Name : H1408088
Site Code : 00000000
Start Date : 8/26/2014
Page No : 1

Groups Printed- Turning Movements

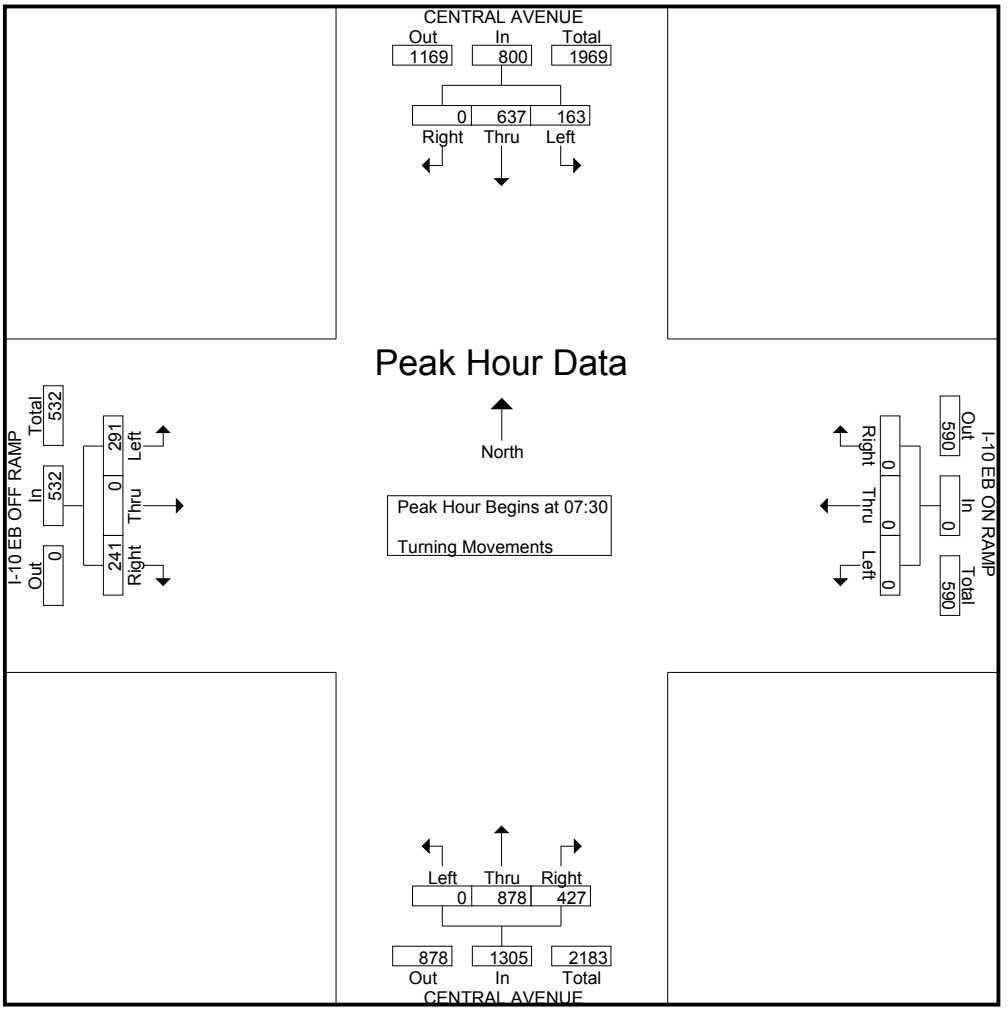
	CENTRAL AVENUE Southbound			I-10 EB ON RAMP Westbound			CENTRAL AVENUE Northbound			I-10 EB OFF RAMP Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	147	31	0	0	0	83	187	0	58	0	51	557
07:15	0	118	28	0	0	0	104	193	0	41	0	57	541
07:30	0	171	45	0	0	0	135	211	0	58	0	58	678
07:45	0	151	41	0	0	0	111	269	0	75	0	93	740
Total	0	587	145	0	0	0	433	860	0	232	0	259	2516
08:00	0	161	38	0	0	0	94	198	0	53	0	69	613
08:15	0	154	39	0	0	0	87	200	0	55	0	71	606
08:30	0	127	40	0	0	0	79	196	0	58	0	65	565
08:45	0	151	42	0	0	0	70	195	0	61	0	67	586
Total	0	593	159	0	0	0	330	789	0	227	0	272	2370
*** BREAK ***													
16:00	0	289	108	0	0	0	138	243	0	81	0	94	953
16:15	0	283	100	0	0	0	124	276	0	77	0	70	930
16:30	0	269	115	0	0	0	110	257	0	74	0	84	909
16:45	0	298	90	0	0	0	127	225	0	95	0	94	929
Total	0	1139	413	0	0	0	499	1001	0	327	0	342	3721
17:00	0	297	125	0	0	0	136	291	0	97	0	89	1035
17:15	0	284	122	0	0	0	130	260	0	79	0	103	978
17:30	0	282	96	0	0	0	123	279	0	89	0	91	960
17:45	0	271	117	0	0	0	127	271	0	96	0	100	982
Total	0	1134	460	0	0	0	516	1101	0	361	0	383	3955
Grand Total	0	3453	1177	0	0	0	1778	3751	0	1147	0	1256	12562
Apprch %	0	74.6	25.4	0	0	0	32.2	67.8	0	47.7	0	52.3	
Total %	0	27.5	9.4	0	0	0	14.2	29.9	0	9.1	0	10	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: I-10 EB RAMPS

File Name : H1408088
Site Code : 00000000
Start Date : 8/26/2014
Page No : 2

	CENTRAL AVENUE Southbound				I-10 EB ON RAMP Westbound				CENTRAL AVENUE Northbound				I-10 EB OFF RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	**171**	**45**	**216**	0	0	0	0	**135**	211	0	346	58	0	58	116	678
07:45	0	151	41	192	0	0	0	0	111	**269**	0	**380**	**75**	0	**93**	**168**	**740**
08:00	0	161	38	199	0	0	0	0	94	198	0	292	53	0	69	122	613
08:15	0	154	39	193	0	0	0	0	87	200	0	287	55	0	71	126	606
Total Volume	0	637	163	800	0	0	0	0	427	878	0	1305	241	0	291	532	2637
% App. Total	0	79.6	20.4		0	0	0		32.7	67.3	0		45.3	0	54.7		
PHF	.000	.931	.906	.926	.000	.000	.000	.000	.791	.816	.000	.859	.803	.000	.782	.792	.891

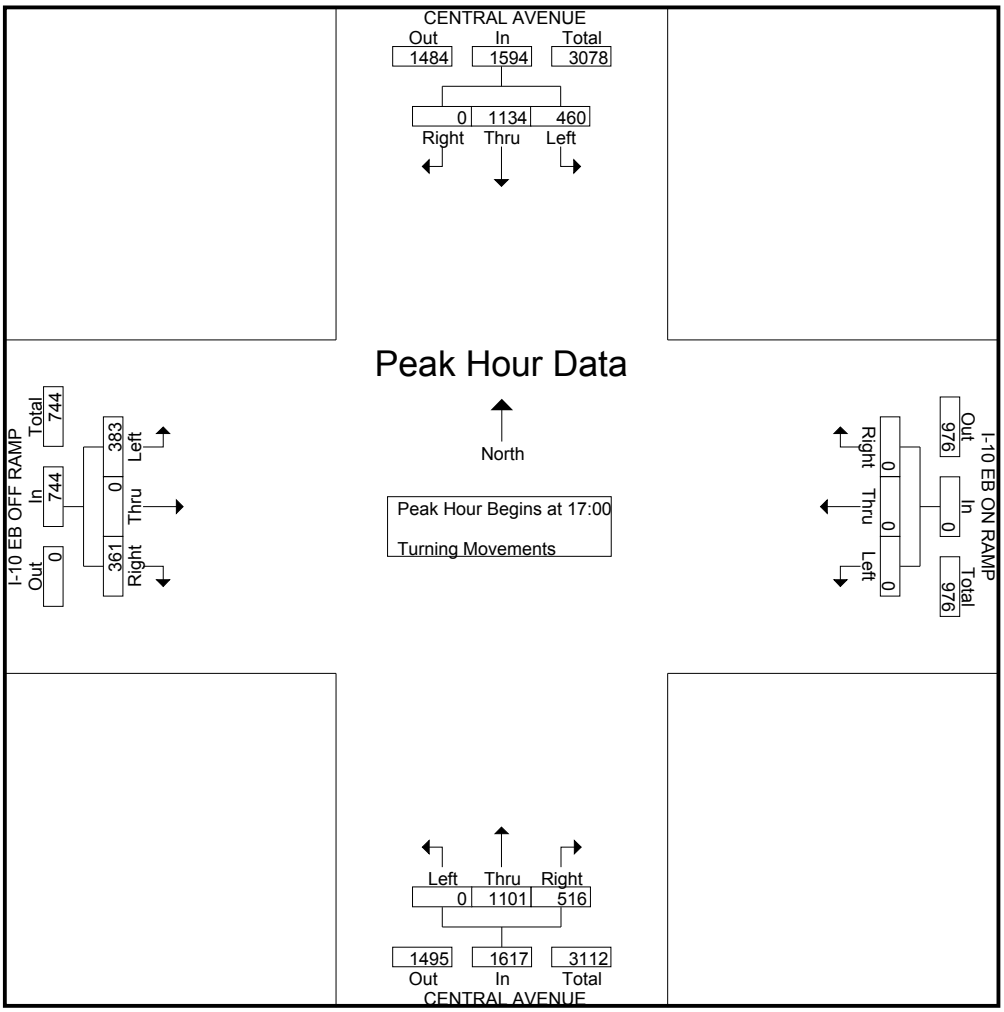


Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: MONTCLAIR
N-S- Direction: CENTRAL AVENUE
E-W Direction: I-10 EB RAMPS

File Name : H1408088
Site Code : 00000000
Start Date : 8/26/2014
Page No : 3

	CENTRAL AVENUE Southbound				I-10 EB ON RAMP Westbound				CENTRAL AVENUE Northbound				I-10 EB OFF RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	**297**	**125**	**422**	0	0	0	0	**136**	**291**	0	**427**	**97**	0	89	186	**1035**
17:15	0	284	122	406	0	0	0	0	130	260	0	390	79	0	**103**	182	978
17:30	0	282	96	378	0	0	0	0	123	279	0	402	89	0	91	180	960
17:45	0	271	117	388	0	0	0	0	127	271	0	398	96	0	100	**196**	982
Total Volume	0	1134	460	1594	0	0	0	0	516	1101	0	1617	361	0	383	744	3955
% App. Total	0	71.1	28.9		0	0	0		31.9	68.1	0		48.5	0	51.5		
PHF	.000	.955	.920	.944	.000	.000	.000	.000	.949	.946	.000	.947	.930	.000	.930	.949	.955



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Claremont
N/S: Indian Hill Boulevard
E/W: W Arrow Route
Weather: Clear

File Name : CMTINARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

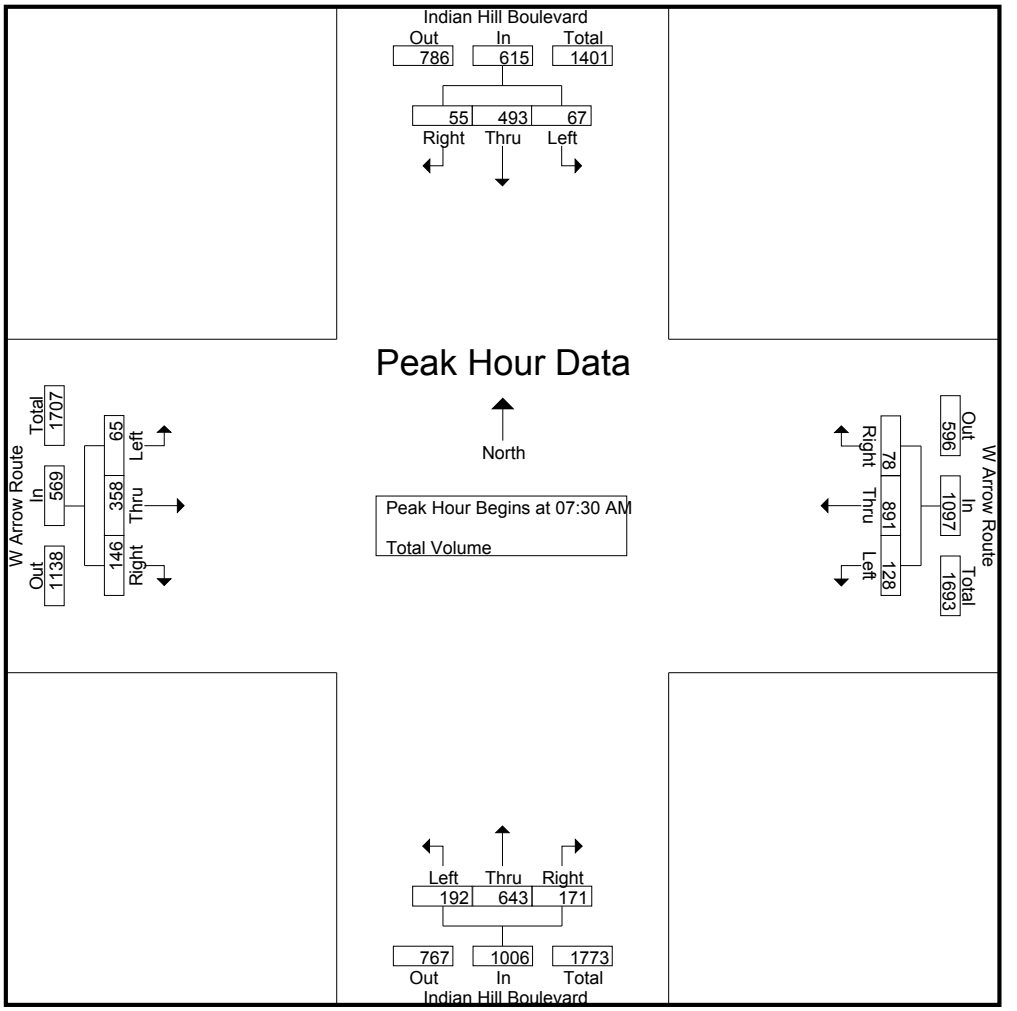
	Indian Hill Boulevard Southbound				W Arrow Route Westbound				Indian Hill Boulevard Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	7	77	9	93	34	160	7	201	40	76	19	135	5	52	29	86	515
07:15 AM	10	85	6	101	24	183	31	238	35	82	16	133	8	47	32	87	559
07:30 AM	9	104	12	125	41	254	18	313	40	139	23	202	11	90	35	136	776
07:45 AM	17	127	12	156	35	273	17	325	51	187	65	303	20	92	29	141	925
Total	43	393	39	475	134	870	73	1077	166	484	123	773	44	281	125	450	2775
08:00 AM	25	113	14	152	29	194	15	238	51	176	39	266	17	88	45	150	806
08:15 AM	16	149	17	182	23	170	28	221	50	141	44	235	17	88	37	142	780
08:30 AM	11	117	22	150	19	128	14	161	46	183	40	269	26	76	37	139	719
08:45 AM	22	132	19	173	25	113	18	156	47	140	50	237	12	76	33	121	687
Total	74	511	72	657	96	605	75	776	194	640	173	1007	72	328	152	552	2992
Grand Total	117	904	111	1132	230	1475	148	1853	360	1124	296	1780	116	609	277	1002	5767
Apprch %	10.3	79.9	9.8		12.4	79.6	8		20.2	63.1	16.6		11.6	60.8	27.6		
Total %	2	15.7	1.9	19.6	4	25.6	2.6	32.1	6.2	19.5	5.1	30.9	2	10.6	4.8	17.4	

	Indian Hill Boulevard Southbound				W Arrow Route Westbound				Indian Hill Boulevard Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	9	104	12	125	**41**	254	18	313	40	139	23	202	11	90	35	136	776
07:45 AM	17	127	12	156	35	**273**	17	**325**	**51**	**187**	**65**	**303**	**20**	**92**	29	141	**925**
08:00 AM	**25**	113	14	152	29	194	15	238	51	176	39	266	17	88	**45**	**150**	806
08:15 AM	16	**149**	**17**	**182**	23	170	**28**	221	50	141	44	235	17	88	37	142	780
Total Volume	67	493	55	615	128	891	78	1097	192	643	171	1006	65	358	146	569	3287
% App. Total	10.9	80.2	8.9		11.7	81.2	7.1		19.1	63.9	17		11.4	62.9	25.7		
PHF	.670	.827	.809	.845	.780	.816	.696	.844	.941	.860	.658	.830	.813	.973	.811	.948	.888

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Claremont
N/S: Indian Hill Boulevard
E/W: W Arrow Route
Weather: Clear

File Name : CMTINARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				07:15 AM				07:45 AM				07:45 AM			
+0 mins.	**25**	113	14	152	24	183	**31**	238	**51**	**187**	**65**	**303**	20	**92**	29	141
+15 mins.	16	**149**	17	**182**	**41**	254	18	313	51	176	39	266	17	88	**45**	**150**
+30 mins.	11	117	**22**	150	35	**273**	17	**325**	50	141	44	235	17	88	37	142
+45 mins.	22	132	19	173	29	194	15	238	46	183	40	269	**26**	76	37	139
Total Volume	74	511	72	657	129	904	81	1114	198	687	188	1073	80	344	148	572
% App. Total	11.3	77.8	11		11.6	81.1	7.3		18.5	64	17.5		14	60.1	25.9	
PHF	.740	.857	.818	.902	.787	.828	.653	.857	.971	.918	.723	.885	.769	.935	.822	.953

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Claremont
N/S: Indian Hill Boulevard
E/W: W Arrow Route
Weather: Clear

File Name : CMTINARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

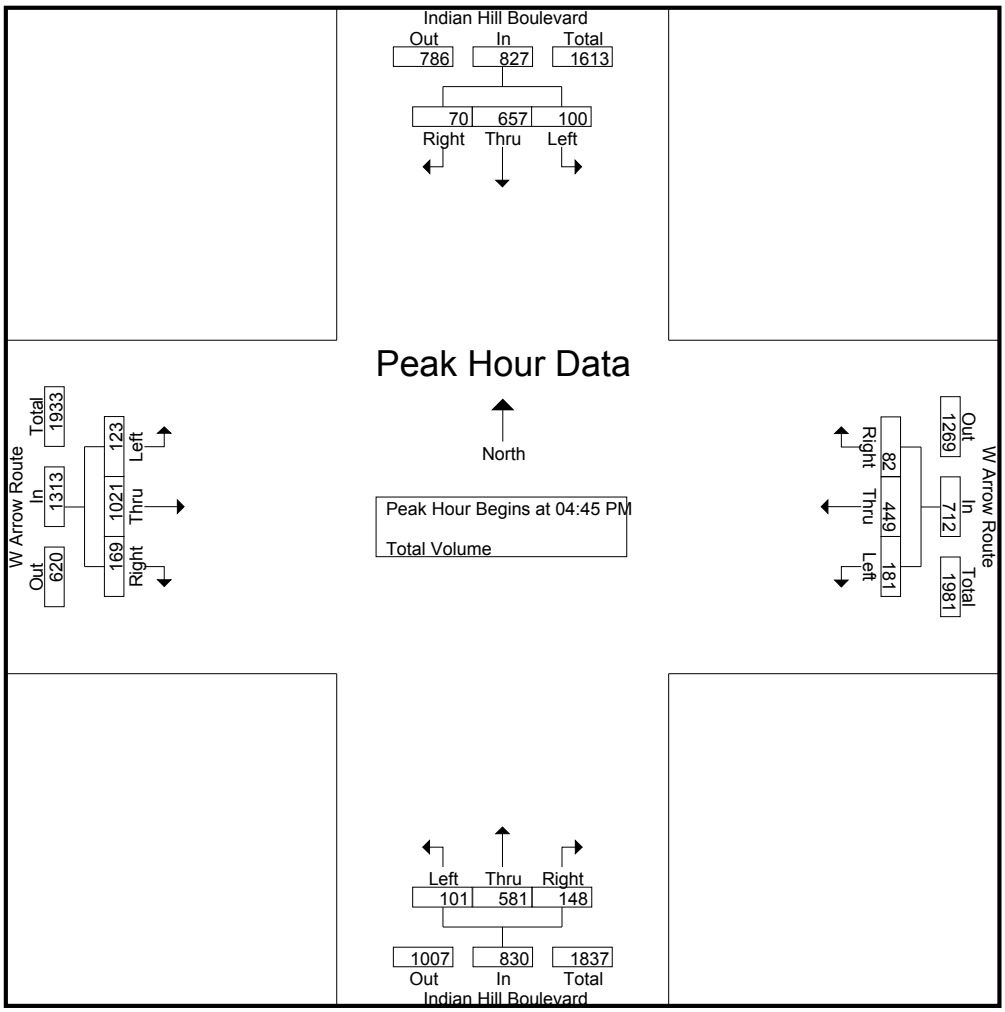
	Indian Hill Boulevard Southbound				W Arrow Route Westbound				Indian Hill Boulevard Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	28	138	18	184	39	127	31	197	27	137	29	193	20	184	54	258	832
04:15 PM	26	144	18	188	30	86	17	133	34	177	28	239	21	194	36	251	811
04:30 PM	24	159	19	202	34	111	27	172	20	129	26	175	22	213	71	306	855
04:45 PM	22	138	20	180	40	126	26	192	29	140	43	212	30	263	39	332	916
Total	100	579	75	754	143	450	101	694	110	583	126	819	93	854	200	1147	3414
05:00 PM	29	179	11	219	49	102	20	171	26	163	33	222	26	228	42	296	908
05:15 PM	27	179	19	225	49	116	14	179	21	146	27	194	39	255	38	332	930
05:30 PM	22	161	20	203	43	105	22	170	25	132	45	202	28	275	50	353	928
05:45 PM	30	148	9	187	42	96	18	156	27	146	40	213	34	259	41	334	890
Total	108	667	59	834	183	419	74	676	99	587	145	831	127	1017	171	1315	3656
Grand Total	208	1246	134	1588	326	869	175	1370	209	1170	271	1650	220	1871	371	2462	7070
Apprch %	13.1	78.5	8.4		23.8	63.4	12.8		12.7	70.9	16.4		8.9	76	15.1		
Total %	2.9	17.6	1.9	22.5	4.6	12.3	2.5	19.4	3	16.5	3.8	23.3	3.1	26.5	5.2	34.8	

	Indian Hill Boulevard Southbound				W Arrow Route Westbound				Indian Hill Boulevard Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	22	138	**20**	180	40	**126**	**26**	**192**	**29**	140	43	212	30	263	39	332	916
05:00 PM	**29**	**179**	11	219	**49**	102	20	171	26	**163**	33	**222**	26	228	42	296	908
05:15 PM	27	179	19	**225**	49	116	14	179	21	146	27	194	**39**	255	38	332	**930**
05:30 PM	22	161	20	203	43	105	22	170	25	132	**45**	202	28	**275**	**50**	**353**	928
Total Volume	100	657	70	827	181	449	82	712	101	581	148	830	123	1021	169	1313	3682
% App. Total	12.1	79.4	8.5		25.4	63.1	11.5		12.2	70	17.8		9.4	77.8	12.9		
PHF	.862	.918	.875	.919	.923	.891	.788	.927	.871	.891	.822	.935	.788	.928	.845	.930	.990

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Claremont
N/S: Indian Hill Boulevard
E/W: W Arrow Route
Weather: Clear

File Name : CMTINARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				04:15 PM				05:00 PM			
+0 mins.	29	**179**	11	219	34	111	**27**	172	**34**	**177**	28	**239**	26	228	42	296
+15 mins.	27	179	19	**225**	40	**126**	26	**192**	20	129	26	175	**39**	255	38	332
+30 mins.	22	161	**20**	203	**49**	102	20	171	29	140	**43**	212	28	**275**	**50**	**353**
+45 mins.	**30**	148	9	187	49	116	14	179	26	163	33	222	34	259	41	334
Total Volume	108	667	59	834	172	455	87	714	109	609	130	848	127	1017	171	1315
% App. Total	12.9	80	7.1		24.1	63.7	12.2		12.9	71.8	15.3		9.7	77.3	13	
PHF	.900	.932	.738	.927	.878	.903	.806	.930	.801	.860	.756	.887	.814	.925	.855	.931

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Claremont
N/S: Claremont Boulevard/Mills Avenue
E/W: W Arrow Route
Weather: Clear

File Name : CMTMIARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

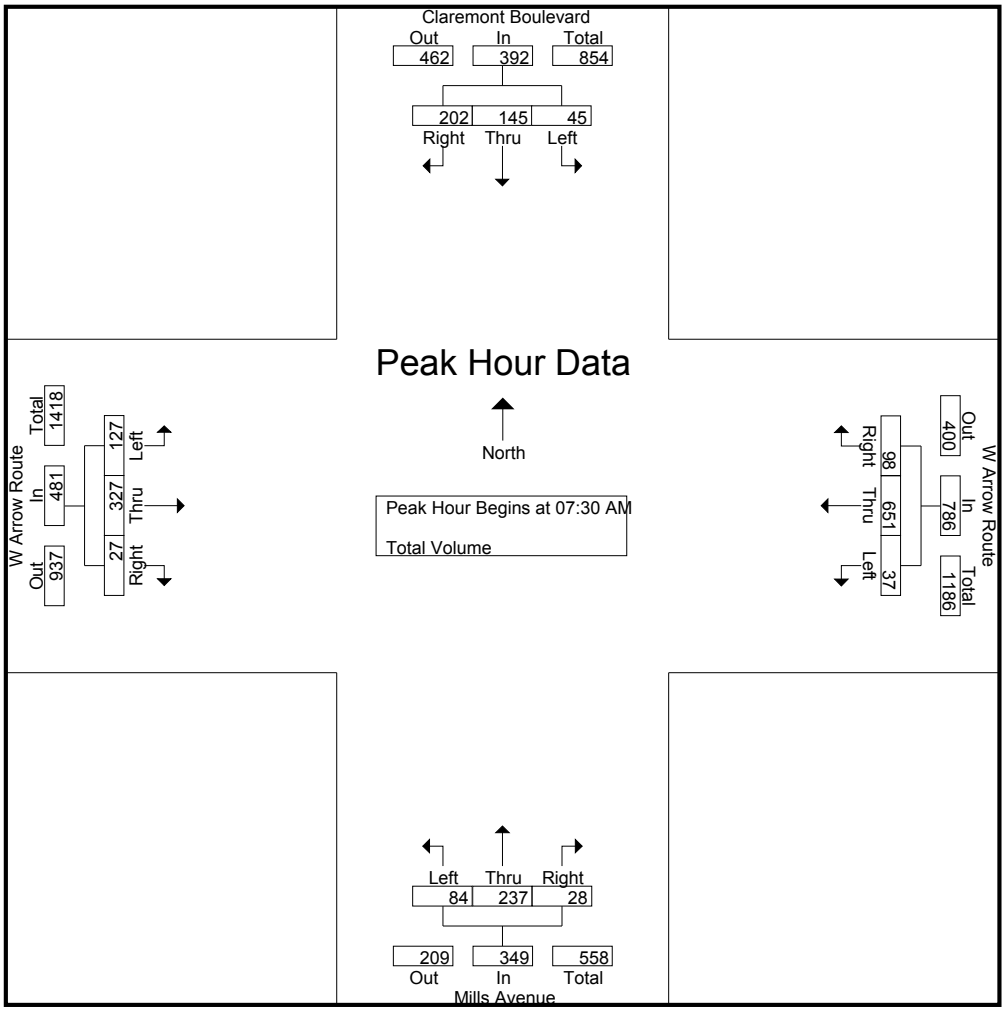
	Claremont Boulevard Southbound				W Arrow Route Westbound				Mills Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	33	38	76	3	128	17	148	18	30	8	56	15	50	5	70	350
07:15 AM	12	30	36	78	7	160	17	184	22	37	0	59	8	51	6	65	386
07:30 AM	8	44	54	106	10	186	27	223	30	55	7	92	29	64	5	98	519
07:45 AM	7	43	60	110	9	196	25	230	25	78	7	110	47	90	7	144	594
Total	32	150	188	370	29	670	86	785	95	200	22	317	99	255	23	377	1849
08:00 AM	15	32	48	95	7	153	26	186	13	54	7	74	26	110	9	145	500
08:15 AM	15	26	40	81	11	116	20	147	16	50	7	73	25	63	6	94	395
08:30 AM	16	32	43	91	4	114	21	139	13	66	4	83	23	72	2	97	410
08:45 AM	16	38	34	88	6	87	16	109	17	39	6	62	32	85	12	129	388
Total	62	128	165	355	28	470	83	581	59	209	24	292	106	330	29	465	1693
Grand Total	94	278	353	725	57	1140	169	1366	154	409	46	609	205	585	52	842	3542
Apprch %	13	38.3	48.7		4.2	83.5	12.4		25.3	67.2	7.6		24.3	69.5	6.2		
Total %	2.7	7.8	10	20.5	1.6	32.2	4.8	38.6	4.3	11.5	1.3	17.2	5.8	16.5	1.5	23.8	

	Claremont Boulevard Southbound				W Arrow Route Westbound				Mills Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	**44**	54	106	10	186	**27**	223	**30**	55	**7**	92	29	64	5	98	519
07:45 AM	7	43	**60**	**110**	9	**196**	25	**230**	25	**78**	7	**110**	**47**	90	7	144	**594**
08:00 AM	**15**	32	48	95	7	153	26	186	13	54	7	74	26	**110**	**9**	**145**	500
08:15 AM	15	26	40	81	**11**	116	20	147	16	50	7	73	25	63	6	94	395
Total Volume	45	145	202	392	37	651	98	786	84	237	28	349	127	327	27	481	2008
% App. Total	11.5	37	51.5		4.7	82.8	12.5		24.1	67.9	8		26.4	68	5.6		
PHF	.750	.824	.842	.891	.841	.830	.907	.854	.700	.760	1.00	.793	.676	.743	.750	.829	.845

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Claremont
N/S: Claremont Boulevard/Mills Avenue
E/W: W Arrow Route
Weather: Clear

File Name : CMTMIARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:30 AM				07:30 AM			
+0 mins.	8	**44**	54	106	7	160	17	184	**30**	55	**7**	92	29	64	5	98
+15 mins.	7	43	**60**	**110**	**10**	186	**27**	223	25	**78**	7	**110**	**47**	90	7	144
+30 mins.	**15**	32	48	95	9	**196**	25	**230**	13	54	7	74	26	**110**	**9**	**145**
+45 mins.	15	26	40	81	7	153	26	186	16	50	7	73	25	63	6	94
Total Volume	45	145	202	392	33	695	95	823	84	237	28	349	127	327	27	481
% App. Total	11.5	37	51.5		4	84.4	11.5		24.1	67.9	8		26.4	68	5.6	
PHF	.750	.824	.842	.891	.825	.886	.880	.895	.700	.760	1.000	.793	.676	.743	.750	.829

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Claremont
N/S: Claremont Boulevard/Mills Avenue
E/W: W Arrow Route
Weather: Clear

File Name : CMTMIARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

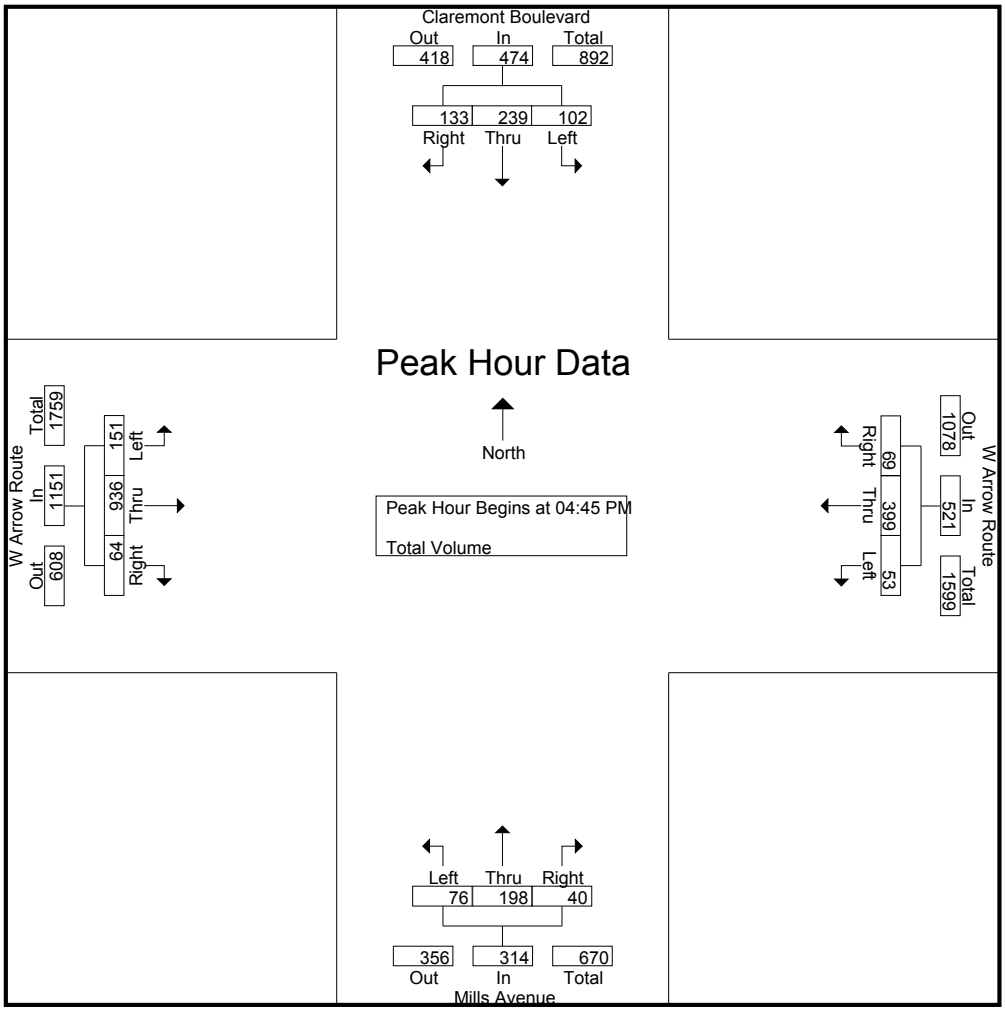
	Claremont Boulevard Southbound				W Arrow Route Westbound				Mills Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	27	42	26	95	13	123	24	160	12	39	10	61	24	159	15	198	514
04:15 PM	20	43	19	82	12	97	15	124	14	30	7	51	34	181	6	221	478
04:30 PM	27	58	30	115	9	108	9	126	19	33	2	54	21	184	10	215	510
04:45 PM	25	56	23	104	15	110	16	141	22	63	9	94	34	224	18	276	615
Total	99	199	98	396	49	438	64	551	67	165	28	260	113	748	49	910	2117
05:00 PM	34	63	33	130	13	106	17	136	23	44	4	71	35	244	16	295	632
05:15 PM	22	63	33	118	12	85	23	120	16	46	16	78	36	240	14	290	606
05:30 PM	21	57	44	122	13	98	13	124	15	45	11	71	46	228	16	290	607
05:45 PM	17	44	22	83	9	93	13	115	19	39	6	64	27	228	16	271	533
Total	94	227	132	453	47	382	66	495	73	174	37	284	144	940	62	1146	2378
Grand Total	193	426	230	849	96	820	130	1046	140	339	65	544	257	1688	111	2056	4495
Apprch %	22.7	50.2	27.1		9.2	78.4	12.4		25.7	62.3	11.9		12.5	82.1	5.4		
Total %	4.3	9.5	5.1	18.9	2.1	18.2	2.9	23.3	3.1	7.5	1.4	12.1	5.7	37.6	2.5	45.7	

	Claremont Boulevard Southbound				W Arrow Route Westbound				Mills Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	25	56	23	104	**15**	**110**	16	**141**	22	**63**	9	**94**	34	224	**18**	276	615
05:00 PM	**34**	**63**	33	**130**	13	106	17	136	**23**	44	4	71	35	**244**	16	**295**	**632**
05:15 PM	22	63	33	118	12	85	**23**	120	16	46	**16**	78	36	240	14	290	606
05:30 PM	21	57	**44**	122	13	98	13	124	15	45	11	71	**46**	228	16	290	607
Total Volume	102	239	133	474	53	399	69	521	76	198	40	314	151	936	64	1151	2460
% App. Total	21.5	50.4	28.1		10.2	76.6	13.2		24.2	63.1	12.7		13.1	81.3	5.6		
PHF	.750	.948	.756	.912	.883	.907	.750	.924	.826	.786	.625	.835	.821	.959	.889	.975	.973

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Claremont
N/S: Claremont Boulevard/Mills Avenue
E/W: W Arrow Route
Weather: Clear

File Name : CMTMIARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:00 PM				04:45 PM				04:45 PM			
+0 mins.	25	56	23	104	13	**123**	**24**	**160**	22	**63**	9	**94**	34	224	**18**	276
+15 mins.	**34**	**63**	33	**130**	12	97	15	124	**23**	44	4	71	35	**244**	16	**295**
+30 mins.	22	63	33	118	9	108	9	126	16	46	**16**	78	36	240	14	290
+45 mins.	21	57	**44**	122	**15**	110	16	141	15	45	11	71	**46**	228	16	290
Total Volume	102	239	133	474	49	438	64	551	76	198	40	314	151	936	64	1151
% App. Total	21.5	50.4	28.1		8.9	79.5	11.6		24.2	63.1	12.7		13.1	81.3	5.6	
PHF	.750	.948	.756	.912	.817	.890	.667	.861	.826	.786	.625	.835	.821	.959	.889	.975

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Monte Vista Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : UPLMOFOAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

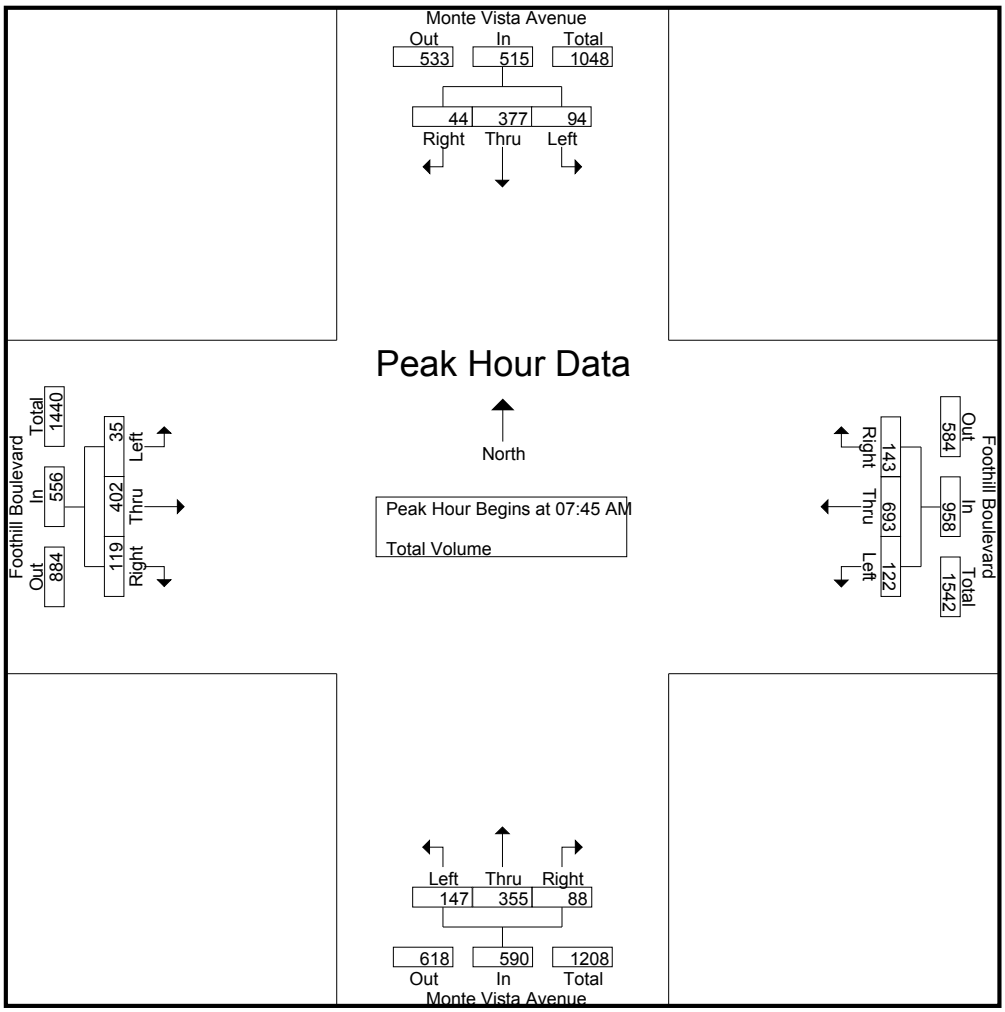
	Monte Vista Avenue Southbound				Foothill Boulevard Westbound				Monte Vista Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	20	92	3	115	27	142	23	192	15	67	12	94	2	44	17	63	464
07:15 AM	19	86	8	113	24	189	33	246	24	65	12	101	2	56	23	81	541
07:30 AM	16	82	6	104	34	200	25	259	29	75	18	122	2	71	22	95	580
07:45 AM	24	105	8	137	30	210	46	286	40	102	23	165	11	106	29	146	734
Total	79	365	25	469	115	741	127	983	108	309	65	482	17	277	91	385	2319
08:00 AM	30	78	12	120	41	166	32	239	37	80	13	130	7	117	30	154	643
08:15 AM	15	119	10	144	26	169	35	230	23	90	33	146	11	86	29	126	646
08:30 AM	25	75	14	114	25	148	30	203	47	83	19	149	6	93	31	130	596
08:45 AM	34	93	13	140	20	155	24	199	30	80	13	123	11	108	31	150	612
Total	104	365	49	518	112	638	121	871	137	333	78	548	35	404	121	560	2497
Grand Total	183	730	74	987	227	1379	248	1854	245	642	143	1030	52	681	212	945	4816
Apprch %	18.5	74	7.5		12.2	74.4	13.4		23.8	62.3	13.9		5.5	72.1	22.4		
Total %	3.8	15.2	1.5	20.5	4.7	28.6	5.1	38.5	5.1	13.3	3	21.4	1.1	14.1	4.4	19.6	

	Monte Vista Avenue Southbound				Foothill Boulevard Westbound				Monte Vista Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	24	105	8	137	30	**210**	**46**	**286**	40	**102**	23	**165**	**11**	106	29	146	**734**
08:00 AM	**30**	78	12	120	**41**	166	32	239	37	80	13	130	7	**117**	30	**154**	643
08:15 AM	15	**119**	10	**144**	26	169	35	230	23	90	**33**	146	11	86	29	126	646
08:30 AM	25	75	**14**	114	25	148	30	203	**47**	83	19	149	6	93	**31**	130	596
Total Volume	94	377	44	515	122	693	143	958	147	355	88	590	35	402	119	556	2619
% App. Total	18.3	73.2	8.5		12.7	72.3	14.9		24.9	60.2	14.9		6.3	72.3	21.4		
PHF	.783	.792	.786	.894	.744	.825	.777	.837	.782	.870	.667	.894	.795	.859	.960	.903	.892

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Monte Vista Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : UPLMOFOAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				07:15 AM				07:45 AM				08:00 AM			
+0 mins.	30	78	12	120	24	189	33	246	40	**102**	23	**165**	7	**117**	30	**154**
+15 mins.	15	**119**	10	**144**	34	200	25	259	37	80	13	130	**11**	86	29	126
+30 mins.	25	75	**14**	114	30	**210**	**46**	**286**	23	90	**33**	146	6	93	**31**	130
+45 mins.	**34**	93	13	140	**41**	166	32	239	**47**	83	19	149	11	108	31	150
Total Volume	104	365	49	518	129	765	136	1030	147	355	88	590	35	404	121	560
% App. Total	20.1	70.5	9.5		12.5	74.3	13.2		24.9	60.2	14.9		6.2	72.1	21.6	
PHF	.765	.767	.875	.899	.787	.911	.739	.900	.782	.870	.667	.894	.795	.863	.976	.909

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Monte Vista Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : UPLMOFOPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

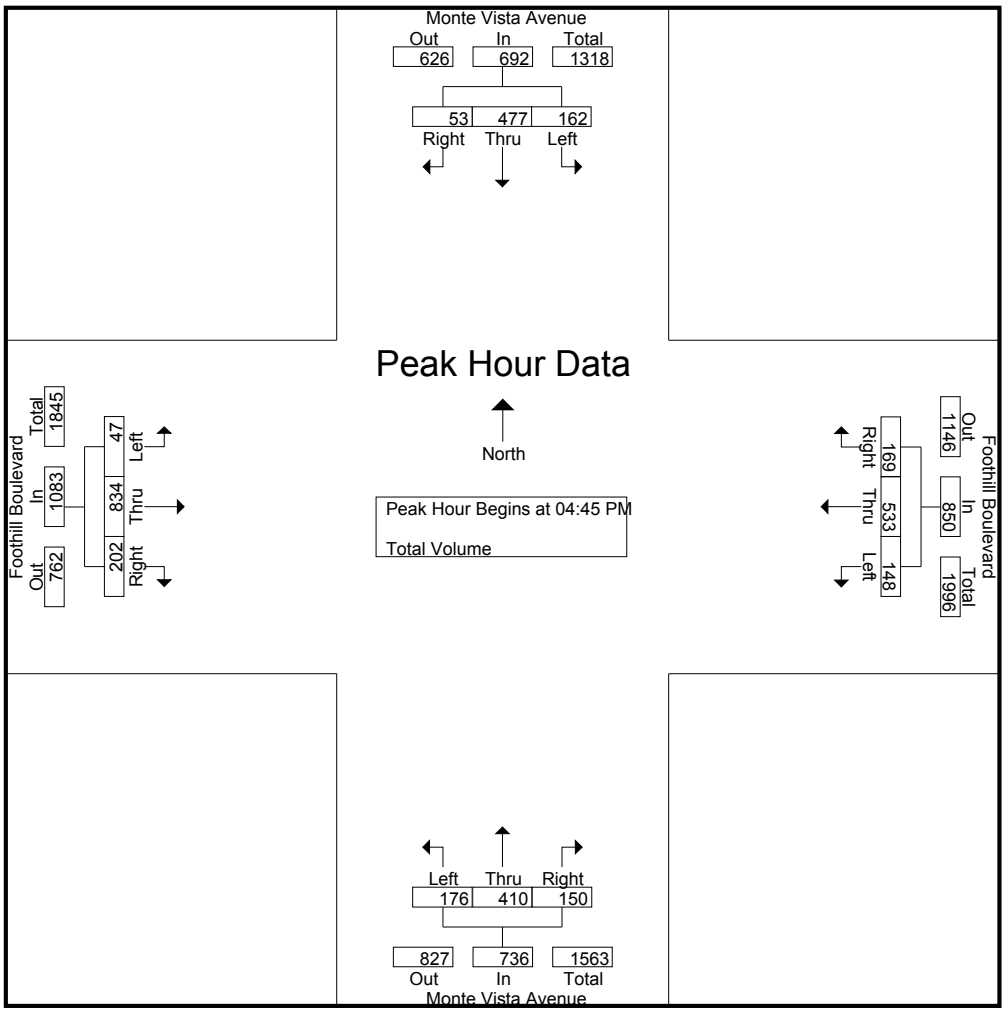
	Monte Vista Avenue Southbound				Foothill Boulevard Westbound				Monte Vista Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	45	84	10	139	40	141	48	229	45	87	34	166	9	210	44	263	797
04:15 PM	44	74	15	133	41	126	41	208	51	102	29	182	16	164	34	214	737
04:30 PM	33	91	14	138	45	149	34	228	40	86	22	148	14	216	42	272	786
04:45 PM	40	121	10	171	36	144	31	211	51	115	38	204	7	183	37	227	813
Total	162	370	49	581	162	560	154	876	187	390	123	700	46	773	157	976	3133
05:00 PM	43	124	19	186	46	130	49	225	47	97	34	178	10	235	50	295	884
05:15 PM	51	126	12	189	29	120	50	199	43	91	46	180	13	223	54	290	858
05:30 PM	28	106	12	146	37	139	39	215	35	107	32	174	17	193	61	271	806
05:45 PM	22	91	19	132	36	124	36	196	54	95	29	178	18	178	66	262	768
Total	144	447	62	653	148	513	174	835	179	390	141	710	58	829	231	1118	3316
Grand Total	306	817	111	1234	310	1073	328	1711	366	780	264	1410	104	1602	388	2094	6449
Apprch %	24.8	66.2	9		18.1	62.7	19.2		26	55.3	18.7		5	76.5	18.5		
Total %	4.7	12.7	1.7	19.1	4.8	16.6	5.1	26.5	5.7	12.1	4.1	21.9	1.6	24.8	6	32.5	

	Monte Vista Avenue Southbound				Foothill Boulevard Westbound				Monte Vista Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	40	121	10	171	36	**144**	31	211	**51**	**115**	38	**204**	7	183	37	227	813
05:00 PM	43	124	**19**	186	**46**	130	49	**225**	47	97	34	178	10	**235**	50	**295**	**884**
05:15 PM	**51**	**126**	12	**189**	29	120	**50**	199	43	91	**46**	180	13	223	54	290	858
05:30 PM	28	106	12	146	37	139	39	215	35	107	32	174	**17**	193	**61**	271	806
Total Volume	162	477	53	692	148	533	169	850	176	410	150	736	47	834	202	1083	3361
% App. Total	23.4	68.9	7.7		17.4	62.7	19.9		23.9	55.7	20.4		4.3	77	18.7		
PHF	.794	.946	.697	.915	.804	.925	.845	.944	.863	.891	.815	.902	.691	.887	.828	.918	.951

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Monte Vista Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : UPLMOFOPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:00 PM				04:45 PM				05:00 PM			
+0 mins.	40	121	10	171	40	141	**48**	**229**	**51**	**115**	38	**204**	10	**235**	50	**295**
+15 mins.	43	124	**19**	186	41	126	41	208	47	97	34	178	13	223	54	290
+30 mins.	**51**	**126**	12	**189**	**45**	**149**	34	228	43	91	**46**	180	17	193	61	271
+45 mins.	28	106	12	146	36	144	31	211	35	107	32	174	**18**	178	**66**	262
Total Volume	162	477	53	692	162	560	154	876	176	410	150	736	58	829	231	1118
% App. Total	23.4	68.9	7.7		18.5	63.9	17.6		23.9	55.7	20.4		5.2	74.2	20.7	
PHF	.794	.946	.697	.915	.900	.940	.802	.956	.863	.891	.815	.902	.806	.882	.875	.947

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Monte Vista Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLMOARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

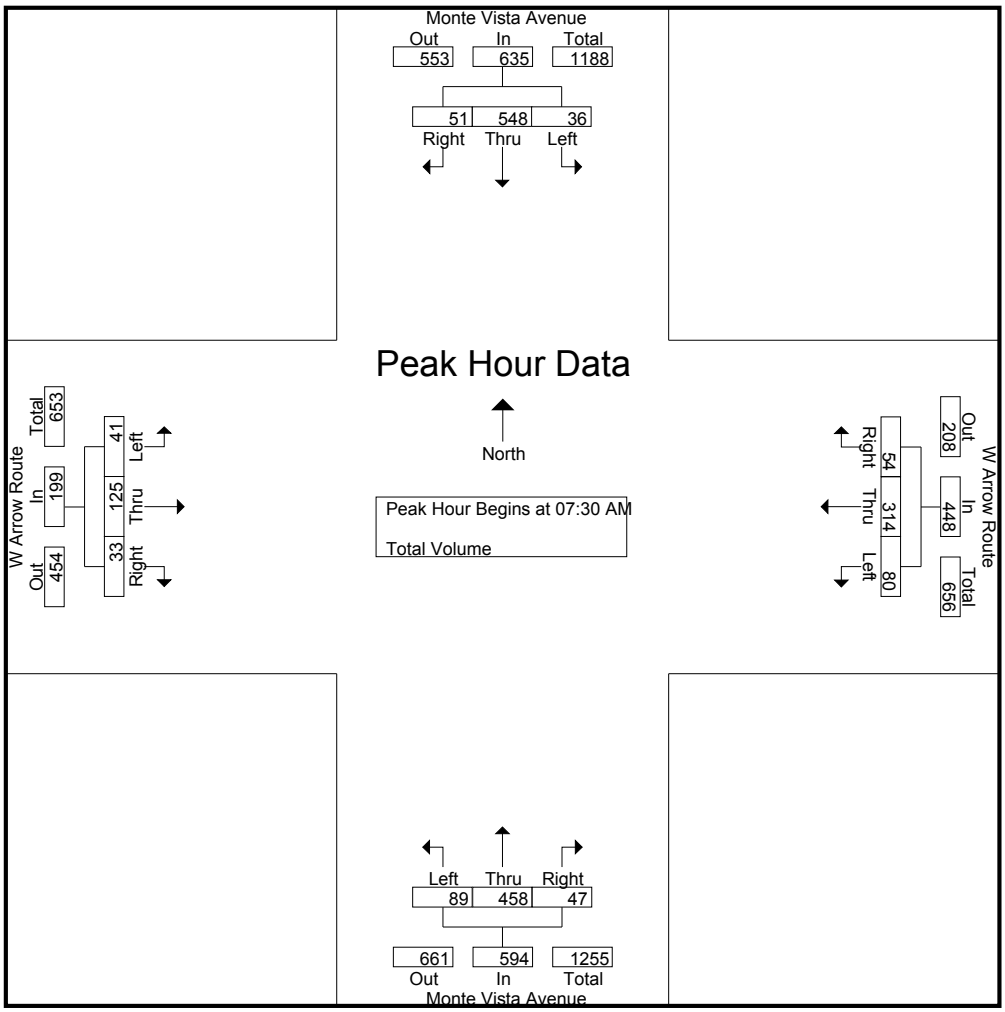
	Monte Vista Avenue Southbound				W Arrow Route Westbound				Monte Vista Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	7	107	7	121	16	47	9	72	10	78	6	94	8	5	7	20	307
07:15 AM	2	114	15	131	27	64	12	103	20	78	5	103	11	13	10	34	371
07:30 AM	2	136	15	153	15	86	13	114	26	109	10	145	11	28	2	41	453
07:45 AM	10	137	12	159	29	113	20	162	25	123	16	164	10	38	9	57	542
Total	21	494	49	564	87	310	54	451	81	388	37	506	40	84	28	152	1673
08:00 AM	12	133	17	162	18	66	9	93	22	109	15	146	8	36	11	55	456
08:15 AM	12	142	7	161	18	49	12	79	16	117	6	139	12	23	11	46	425
08:30 AM	8	123	4	135	19	59	12	90	20	136	13	169	10	19	10	39	433
08:45 AM	8	129	7	144	16	51	8	75	17	95	6	118	9	35	8	52	389
Total	40	527	35	602	71	225	41	337	75	457	40	572	39	113	40	192	1703
Grand Total	61	1021	84	1166	158	535	95	788	156	845	77	1078	79	197	68	344	3376
Apprch %	5.2	87.6	7.2		20.1	67.9	12.1		14.5	78.4	7.1		23	57.3	19.8		
Total %	1.8	30.2	2.5	34.5	4.7	15.8	2.8	23.3	4.6	25	2.3	31.9	2.3	5.8	2	10.2	

	Monte Vista Avenue Southbound				W Arrow Route Westbound				Monte Vista Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	2	136	15	153	15	86	13	114	**26**	109	10	145	11	28	2	41	453
07:45 AM	10	137	12	159	**29**	**113**	**20**	**162**	25	**123**	**16**	**164**	10	**38**	9	**57**	**542**
08:00 AM	**12**	133	**17**	**162**	18	66	9	93	22	109	15	146	8	36	**11**	55	456
08:15 AM	12	**142**	7	161	18	49	12	79	16	117	6	139	**12**	23	11	46	425
Total Volume	36	548	51	635	80	314	54	448	89	458	47	594	41	125	33	199	1876
% App. Total	5.7	86.3	8		17.9	70.1	12.1		15	77.1	7.9		20.6	62.8	16.6		
PHF	.750	.965	.750	.980	.690	.695	.675	.691	.856	.931	.734	.905	.854	.822	.750	.873	.865

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Monte Vista Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLMOARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:45 AM				07:30 AM			
+0 mins.	2	136	15	153	27	64	12	103	**25**	123	**16**	164	11	28	2	41
+15 mins.	10	137	12	159	15	86	13	114	22	109	15	146	10	**38**	9	**57**
+30 mins.	**12**	133	**17**	**162**	**29**	**113**	**20**	**162**	16	117	6	139	8	36	**11**	55
+45 mins.	12	**142**	7	161	18	66	9	93	20	**136**	13	**169**	**12**	23	11	46
Total Volume	36	548	51	635	89	329	54	472	83	485	50	618	41	125	33	199
% App. Total	5.7	86.3	8		18.9	69.7	11.4		13.4	78.5	8.1		20.6	62.8	16.6	
PHF	.750	.965	.750	.980	.767	.728	.675	.728	.830	.892	.781	.914	.854	.822	.750	.873

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Monte Vista Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLMOARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

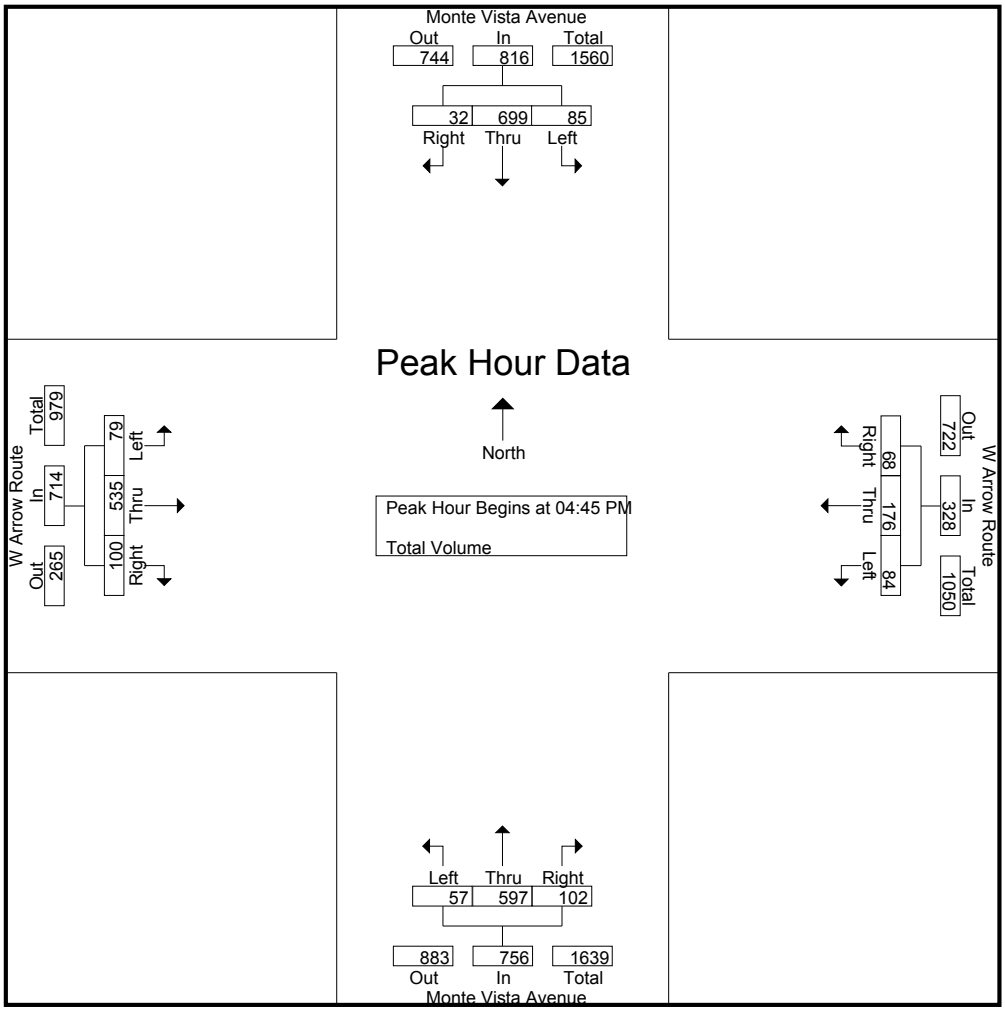
	Monte Vista Avenue Southbound				W Arrow Route Westbound				Monte Vista Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	15	144	9	168	17	42	15	74	21	136	27	184	13	85	13	111	537
04:15 PM	17	111	7	135	18	37	10	65	12	151	25	188	11	92	13	116	504
04:30 PM	11	141	12	164	17	50	12	79	16	128	29	173	11	98	22	131	547
04:45 PM	17	159	8	184	21	37	16	74	18	167	24	209	20	119	21	160	627
Total	60	555	36	651	73	166	53	292	67	582	105	754	55	394	69	518	2215
05:00 PM	20	200	9	229	20	46	15	81	15	153	25	193	23	132	30	185	688
05:15 PM	16	169	9	194	20	44	18	82	9	135	25	169	20	157	31	208	653
05:30 PM	32	171	6	209	23	49	19	91	15	142	28	185	16	127	18	161	646
05:45 PM	27	152	5	184	27	47	17	91	17	158	18	193	15	125	18	158	626
Total	95	692	29	816	90	186	69	345	56	588	96	740	74	541	97	712	2613
Grand Total	155	1247	65	1467	163	352	122	637	123	1170	201	1494	129	935	166	1230	4828
Apprch %	10.6	85	4.4		25.6	55.3	19.2		8.2	78.3	13.5		10.5	76	13.5		
Total %	3.2	25.8	1.3	30.4	3.4	7.3	2.5	13.2	2.5	24.2	4.2	30.9	2.7	19.4	3.4	25.5	

	Monte Vista Avenue Southbound				W Arrow Route Westbound				Monte Vista Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	17	159	8	184	21	37	16	74	**18**	**167**	24	**209**	20	119	21	160	627
05:00 PM	20	**200**	**9**	**229**	20	46	15	81	15	153	25	193	**23**	132	30	185	**688**
05:15 PM	16	169	9	194	20	44	18	82	9	135	25	169	20	**157**	**31**	**208**	653
05:30 PM	**32**	171	6	209	**23**	**49**	**19**	**91**	15	142	**28**	185	16	127	18	161	646
Total Volume	85	699	32	816	84	176	68	328	57	597	102	756	79	535	100	714	2614
% App. Total	10.4	85.7	3.9		25.6	53.7	20.7		7.5	79	13.5		11.1	74.9	14		
PHF	.664	.874	.889	.891	.913	.898	.895	.901	.792	.894	.911	.904	.859	.852	.806	.858	.950

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Monte Vista Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLMOARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				05:00 PM				04:15 PM				04:45 PM			
+0 mins.	17	159	8	184	20	46	15	81	12	151	25	188	20	119	21	160
+15 mins.	20	**200**	**9**	**229**	20	44	18	82	16	128	**29**	173	**23**	132	30	185
+30 mins.	16	169	9	194	23	**49**	**19**	**91**	**18**	**167**	24	**209**	20	**157**	**31**	**208**
+45 mins.	**32**	171	6	209	**27**	47	17	91	15	153	25	193	16	127	18	161
Total Volume	85	699	32	816	90	186	69	345	61	599	103	763	79	535	100	714
% App. Total	10.4	85.7	3.9		26.1	53.9	20		8	78.5	13.5		11.1	74.9	14	
PHF	.664	.874	.889	.891	.833	.949	.908	.948	.847	.897	.888	.913	.859	.852	.806	.858

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Central Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLCEARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

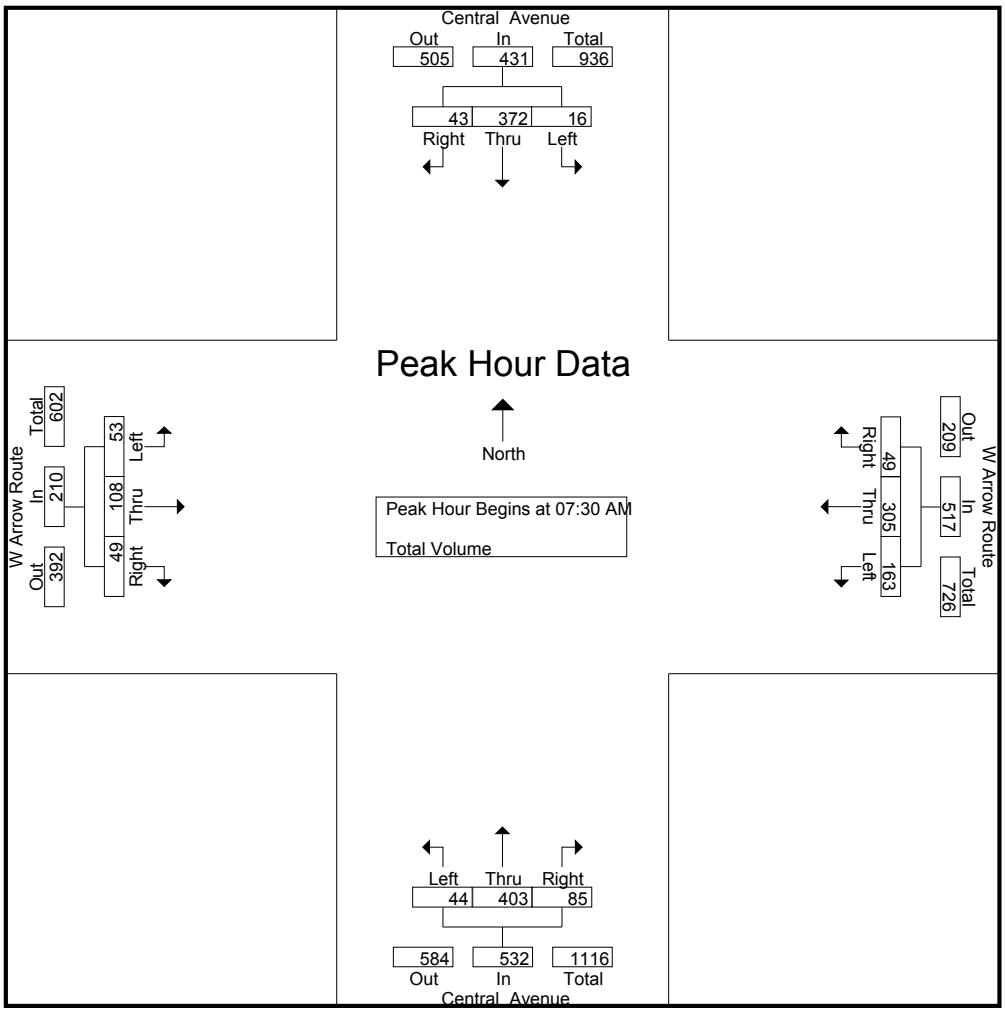
	Central Avenue Southbound				W Arrow Route Westbound				Central Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	60	6	68	35	52	10	97	6	82	17	105	1	12	9	22	292
07:15 AM	2	48	14	64	45	57	11	113	10	71	18	99	5	11	7	23	299
07:30 AM	5	87	11	103	54	88	15	157	11	97	9	117	11	27	14	52	429
07:45 AM	4	104	11	119	41	98	14	153	6	128	21	155	24	31	8	63	490
Total	13	299	42	354	175	295	50	520	33	378	65	476	41	81	38	160	1510
08:00 AM	3	96	10	109	31	61	12	104	14	87	30	131	10	27	14	51	395
08:15 AM	4	85	11	100	37	58	8	103	13	91	25	129	8	23	13	44	376
08:30 AM	6	77	8	91	30	64	15	109	15	72	19	106	13	27	6	46	352
08:45 AM	4	87	6	97	40	48	17	105	15	71	17	103	11	29	15	55	360
Total	17	345	35	397	138	231	52	421	57	321	91	469	42	106	48	196	1483
Grand Total	30	644	77	751	313	526	102	941	90	699	156	945	83	187	86	356	2993
Apprch %	4	85.8	10.3		33.3	55.9	10.8		9.5	74	16.5		23.3	52.5	24.2		
Total %	1	21.5	2.6	25.1	10.5	17.6	3.4	31.4	3	23.4	5.2	31.6	2.8	6.2	2.9	11.9	

	Central Avenue Southbound				W Arrow Route Westbound				Central Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**5**	87	**11**	103	**54**	88	**15**	**157**	11	97	9	117	11	27	**14**	52	429
07:45 AM	4	**104**	11	**119**	41	**98**	14	153	6	**128**	21	**155**	**24**	**31**	8	**63**	**490**
08:00 AM	3	96	10	109	31	61	12	104	**14**	87	**30**	131	10	27	14	51	395
08:15 AM	4	85	11	100	37	58	8	103	13	91	25	129	8	23	13	44	376
Total Volume	16	372	43	431	163	305	49	517	44	403	85	532	53	108	49	210	1690
% App. Total	3.7	86.3	10		31.5	59	9.5		8.3	75.8	16		25.2	51.4	23.3		
PHF	.800	.894	.977	.905	.755	.778	.817	.823	.786	.787	.708	.858	.552	.871	.875	.833	.862

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Central Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLCEARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:30 AM				07:30 AM			
+0 mins.	**5**	87	**11**	103	45	57	11	113	11	97	9	117	11	27	**14**	52
+15 mins.	4	**104**	11	**119**	**54**	88	**15**	**157**	6	**128**	21	**155**	**24**	**31**	8	**63**
+30 mins.	3	96	10	109	41	**98**	14	153	**14**	87	**30**	131	10	27	14	51
+45 mins.	4	85	11	100	31	61	12	104	13	91	25	129	8	23	13	44
Total Volume	16	372	43	431	171	304	52	527	44	403	85	532	53	108	49	210
% App. Total	3.7	86.3	10		32.4	57.7	9.9		8.3	75.8	16		25.2	51.4	23.3	
PHF	.800	.894	.977	.905	.792	.776	.867	.839	.786	.787	.708	.858	.552	.871	.875	.833

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Central Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLCEARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

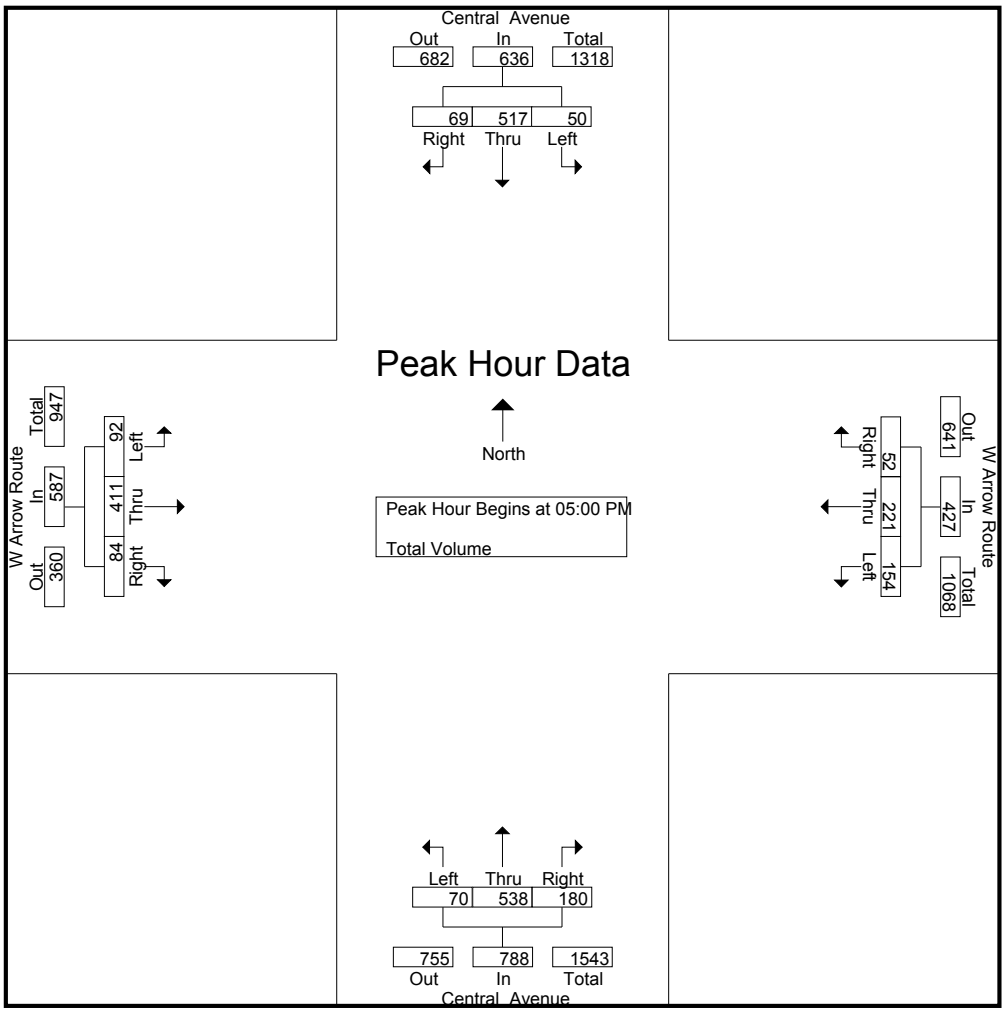
	Central Avenue Southbound				W Arrow Route Westbound				Central Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	13	141	17	171	26	38	12	76	11	123	34	168	24	67	24	115	530
04:15 PM	14	125	18	157	33	38	6	77	10	135	39	184	16	61	23	100	518
04:30 PM	14	117	13	144	43	50	12	105	21	135	41	197	19	74	28	121	567
04:45 PM	12	128	12	152	26	55	11	92	16	120	58	194	19	67	20	106	544
Total	53	511	60	624	128	181	41	350	58	513	172	743	78	269	95	442	2159
05:00 PM	21	132	20	173	46	51	18	115	13	155	39	207	23	91	23	137	632
05:15 PM	13	136	15	164	36	50	9	95	26	142	51	219	23	121	20	164	642
05:30 PM	11	116	18	145	30	74	9	113	14	135	50	199	23	103	19	145	602
05:45 PM	5	133	16	154	42	46	16	104	17	106	40	163	23	96	22	141	562
Total	50	517	69	636	154	221	52	427	70	538	180	788	92	411	84	587	2438
Grand Total	103	1028	129	1260	282	402	93	777	128	1051	352	1531	170	680	179	1029	4597
Apprch %	8.2	81.6	10.2		36.3	51.7	12		8.4	68.6	23		16.5	66.1	17.4		
Total %	2.2	22.4	2.8	27.4	6.1	8.7	2	16.9	2.8	22.9	7.7	33.3	3.7	14.8	3.9	22.4	

	Central Avenue Southbound				W Arrow Route Westbound				Central Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**21**	132	**20**	**173**	**46**	51	**18**	**115**	13	**155**	39	207	**23**	91	**23**	137	632
05:15 PM	13	**136**	15	164	36	50	9	95	**26**	142	**51**	**219**	23	**121**	20	**164**	**642**
05:30 PM	11	116	18	145	30	**74**	9	113	14	135	50	199	23	103	19	145	602
05:45 PM	5	133	16	154	42	46	16	104	17	106	40	163	23	96	22	141	562
Total Volume	50	517	69	636	154	221	52	427	70	538	180	788	92	411	84	587	2438
% App. Total	7.9	81.3	10.8		36.1	51.8	12.2		8.9	68.3	22.8		15.7	70	14.3		
PHF	.595	.950	.863	.919	.837	.747	.722	.928	.673	.868	.882	.900	1.00	.849	.913	.895	.949

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Central Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLCEARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:45 PM				05:00 PM			
+0 mins.	**21**	132	**20**	**173**	**46**	51	**18**	**115**	16	120	**58**	194	**23**	91	**23**	137
+15 mins.	13	**136**	15	164	36	50	9	95	13	**155**	39	207	23	**121**	20	**164**
+30 mins.	11	116	18	145	30	**74**	9	113	**26**	142	51	**219**	23	103	19	145
+45 mins.	5	133	16	154	42	46	16	104	14	135	50	199	23	96	22	141
Total Volume	50	517	69	636	154	221	52	427	69	552	198	819	92	411	84	587
% App. Total	7.9	81.3	10.8		36.1	51.8	12.2		8.4	67.4	24.2		15.7	70	14.3	
PHF	.595	.950	.863	.919	.837	.747	.722	.928	.663	.890	.853	.935	1.000	.849	.913	.895

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Mountain Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLMTARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

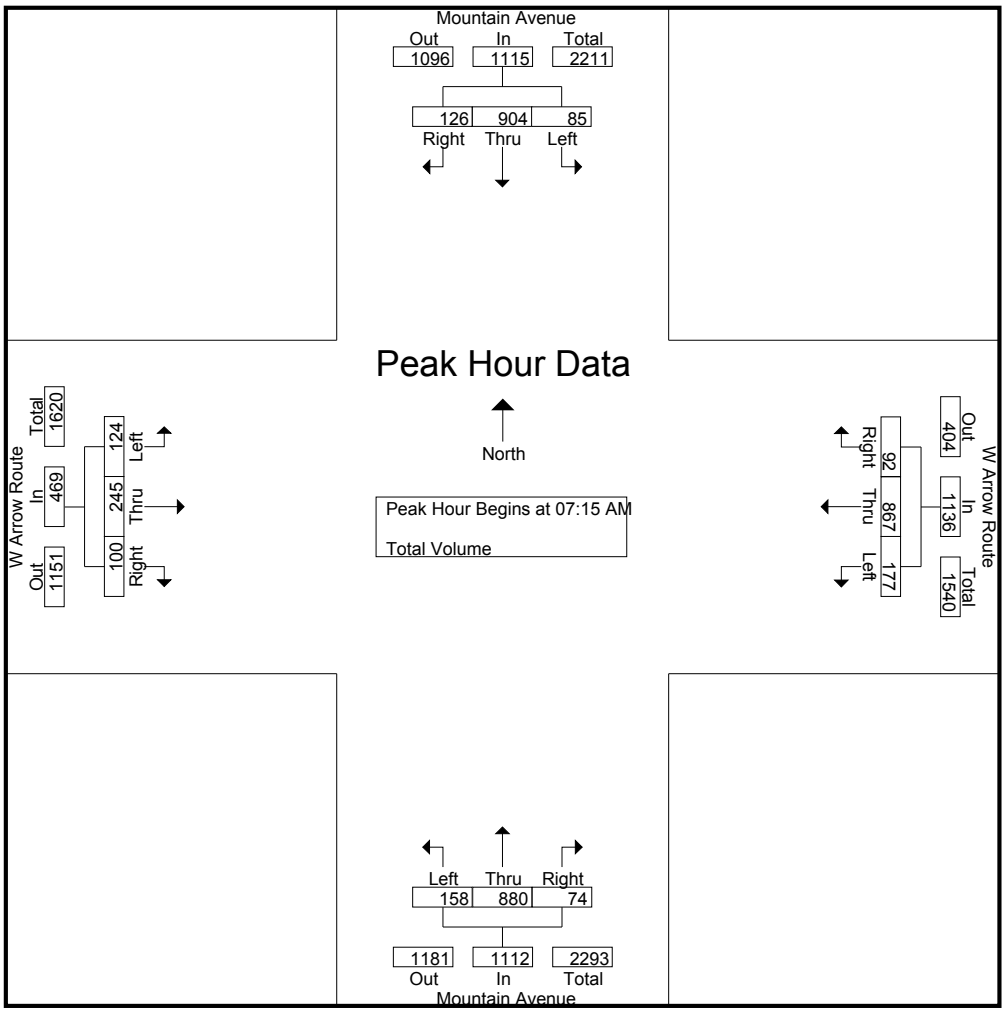
	Mountain Avenue Southbound				W Arrow Route Westbound				Mountain Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	11	205	19	235	62	219	12	293	18	138	7	163	13	22	23	58	749
07:15 AM	15	227	26	268	57	193	18	268	37	187	20	244	32	62	25	119	899
07:30 AM	26	201	28	255	36	237	34	307	33	209	16	258	52	77	27	156	976
07:45 AM	25	250	45	320	37	243	16	296	47	257	22	326	22	48	35	105	1047
Total	77	883	118	1078	192	892	80	1164	135	791	65	991	119	209	110	438	3671
08:00 AM	19	226	27	272	47	194	24	265	41	227	16	284	18	58	13	89	910
08:15 AM	22	169	17	208	44	135	30	209	31	221	13	265	28	69	22	119	801
08:30 AM	17	212	16	245	43	109	28	180	19	176	13	208	23	59	24	106	739
08:45 AM	6	211	19	236	38	83	14	135	17	205	19	241	19	36	17	72	684
Total	64	818	79	961	172	521	96	789	108	829	61	998	88	222	76	386	3134
Grand Total	141	1701	197	2039	364	1413	176	1953	243	1620	126	1989	207	431	186	824	6805
Apprch %	6.9	83.4	9.7		18.6	72.4	9		12.2	81.4	6.3		25.1	52.3	22.6		
Total %	2.1	25	2.9	30	5.3	20.8	2.6	28.7	3.6	23.8	1.9	29.2	3	6.3	2.7	12.1	

	Mountain Avenue Southbound				W Arrow Route Westbound				Mountain Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	15	227	26	268	**57**	193	18	268	37	187	20	244	32	62	25	119	899
07:30 AM	**26**	201	28	255	36	237	**34**	**307**	33	209	16	258	**52**	**77**	27	**156**	976
07:45 AM	25	**250**	**45**	**320**	37	**243**	16	296	**47**	**257**	**22**	**326**	22	48	**35**	105	**1047**
08:00 AM	19	226	27	272	47	194	24	265	41	227	16	284	18	58	13	89	910
Total Volume	85	904	126	1115	177	867	92	1136	158	880	74	1112	124	245	100	469	3832
% App. Total	7.6	81.1	11.3		15.6	76.3	8.1		14.2	79.1	6.7		26.4	52.2	21.3		
PHF	.817	.904	.700	.871	.776	.892	.676	.925	.840	.856	.841	.853	.596	.795	.714	.752	.915

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Mountain Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLMTARAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:30 AM				07:15 AM			
+0 mins.	15	227	26	268	**62**	219	12	293	33	209	16	258	32	62	25	119
+15 mins.	**26**	201	28	255	57	193	18	268	**47**	**257**	**22**	**326**	**52**	**77**	27	**156**
+30 mins.	25	**250**	**45**	**320**	36	237	**34**	**307**	41	227	16	284	22	48	**35**	105
+45 mins.	19	226	27	272	37	**243**	16	296	31	221	13	265	18	58	13	89
Total Volume	85	904	126	1115	192	892	80	1164	152	914	67	1133	124	245	100	469
% App. Total	7.6	81.1	11.3		16.5	76.6	6.9		13.4	80.7	5.9		26.4	52.2	21.3	
PHF	.817	.904	.700	.871	.774	.918	.588	.948	.809	.889	.761	.869	.596	.795	.714	.752

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Mountain Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLMTARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

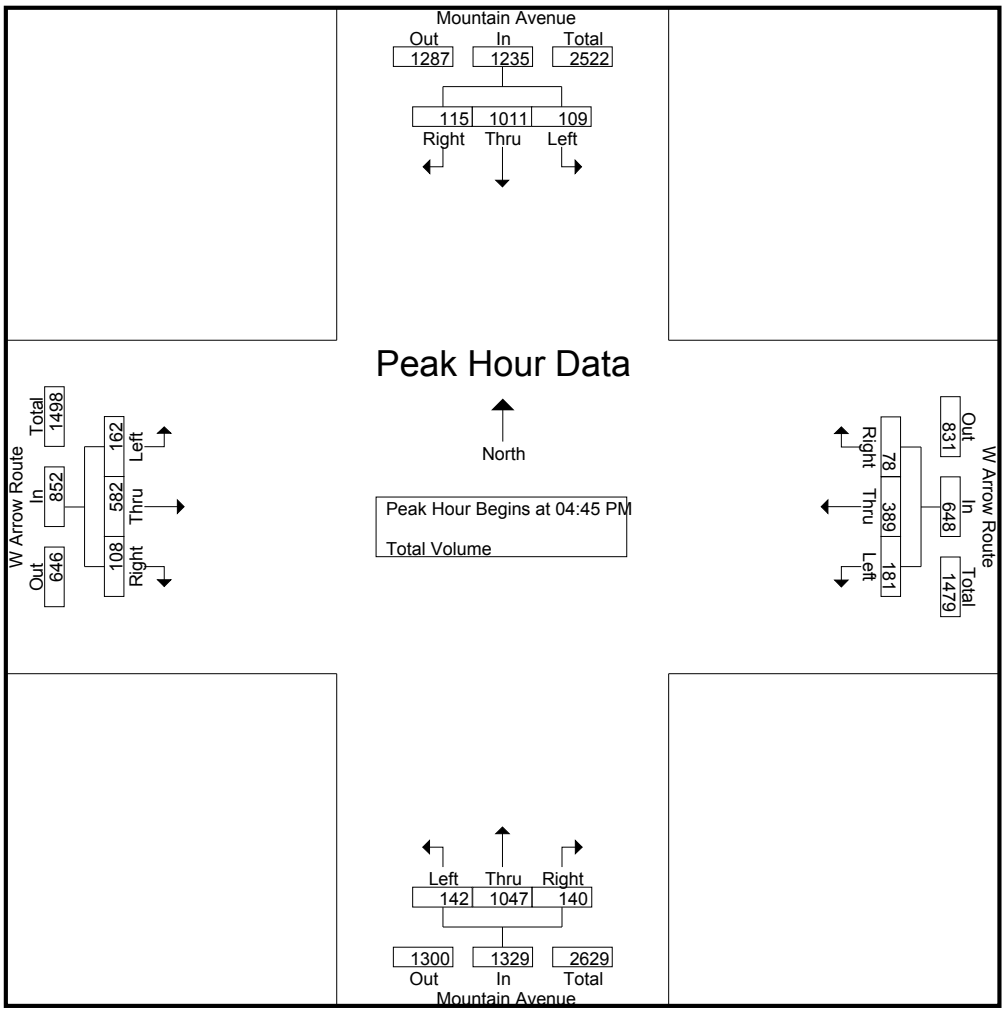
	Mountain Avenue Southbound				W Arrow Route Westbound				Mountain Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	27	231	36	294	39	49	20	108	26	296	35	357	28	109	30	167	926
04:15 PM	34	211	18	263	45	86	23	154	36	261	28	325	37	109	29	175	917
04:30 PM	26	202	23	251	42	96	27	165	46	264	31	341	46	128	19	193	950
04:45 PM	34	245	31	310	44	126	16	186	48	263	36	347	34	142	28	204	1047
Total	121	889	108	1118	170	357	86	613	156	1084	130	1370	145	488	106	739	3840
05:00 PM	20	292	21	333	53	95	17	165	30	239	27	296	40	131	27	198	992
05:15 PM	27	239	28	294	43	83	29	155	29	271	37	337	38	151	21	210	996
05:30 PM	28	235	35	298	41	85	16	142	35	274	40	349	50	158	32	240	1029
05:45 PM	22	219	32	273	31	84	24	139	27	275	39	341	40	155	23	218	971
Total	97	985	116	1198	168	347	86	601	121	1059	143	1323	168	595	103	866	3988
Grand Total	218	1874	224	2316	338	704	172	1214	277	2143	273	2693	313	1083	209	1605	7828
Apprch %	9.4	80.9	9.7		27.8	58	14.2		10.3	79.6	10.1		19.5	67.5	13		
Total %	2.8	23.9	2.9	29.6	4.3	9	2.2	15.5	3.5	27.4	3.5	34.4	4	13.8	2.7	20.5	

	Mountain Avenue Southbound				W Arrow Route Westbound				Mountain Avenue Northbound				W Arrow Route Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**34**	245	31	310	44	**126**	16	**186**	**48**	263	36	347	34	142	28	204	**1047**
05:00 PM	20	**292**	21	**333**	**53**	95	17	165	30	239	27	296	40	131	27	198	992
05:15 PM	27	239	28	294	43	83	**29**	155	29	271	37	337	38	151	21	210	996
05:30 PM	28	235	**35**	298	41	85	16	142	35	**274**	**40**	**349**	**50**	**158**	**32**	**240**	1029
Total Volume	109	1011	115	1235	181	389	78	648	142	1047	140	1329	162	582	108	852	4064
% App. Total	8.8	81.9	9.3		27.9	60	12		10.7	78.8	10.5		19	68.3	12.7		
PHF	.801	.866	.821	.927	.854	.772	.672	.871	.740	.955	.875	.952	.810	.921	.844	.888	.970

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Upland
N/S: Mountain Avenue
E/W: W Arrow Route
Weather: Clear

File Name : UPLMTARPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:30 PM				04:00 PM				05:00 PM			
+0 mins.	**34**	245	31	310	42	96	27	165	26	**296**	35	**357**	40	131	27	198
+15 mins.	20	**292**	21	**333**	44	**126**	16	**186**	36	261	28	325	38	151	21	210
+30 mins.	27	239	28	294	**53**	95	17	165	46	264	31	341	**50**	**158**	**32**	**240**
+45 mins.	28	235	**35**	298	43	83	**29**	155	**48**	263	**36**	347	40	155	23	218
Total Volume	109	1011	115	1235	182	400	89	671	156	1084	130	1370	168	595	103	866
% App. Total	8.8	81.9	9.3		27.1	59.6	13.3		11.4	79.1	9.5		19.4	68.7	11.9	
PHF	.801	.866	.821	.927	.858	.794	.767	.902	.813	.916	.903	.959	.840	.941	.805	.902

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Montclair
N/S: Central Avenue
E/W: Holt Boulevard
Weather: Clear

File Name : MONCEHOAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

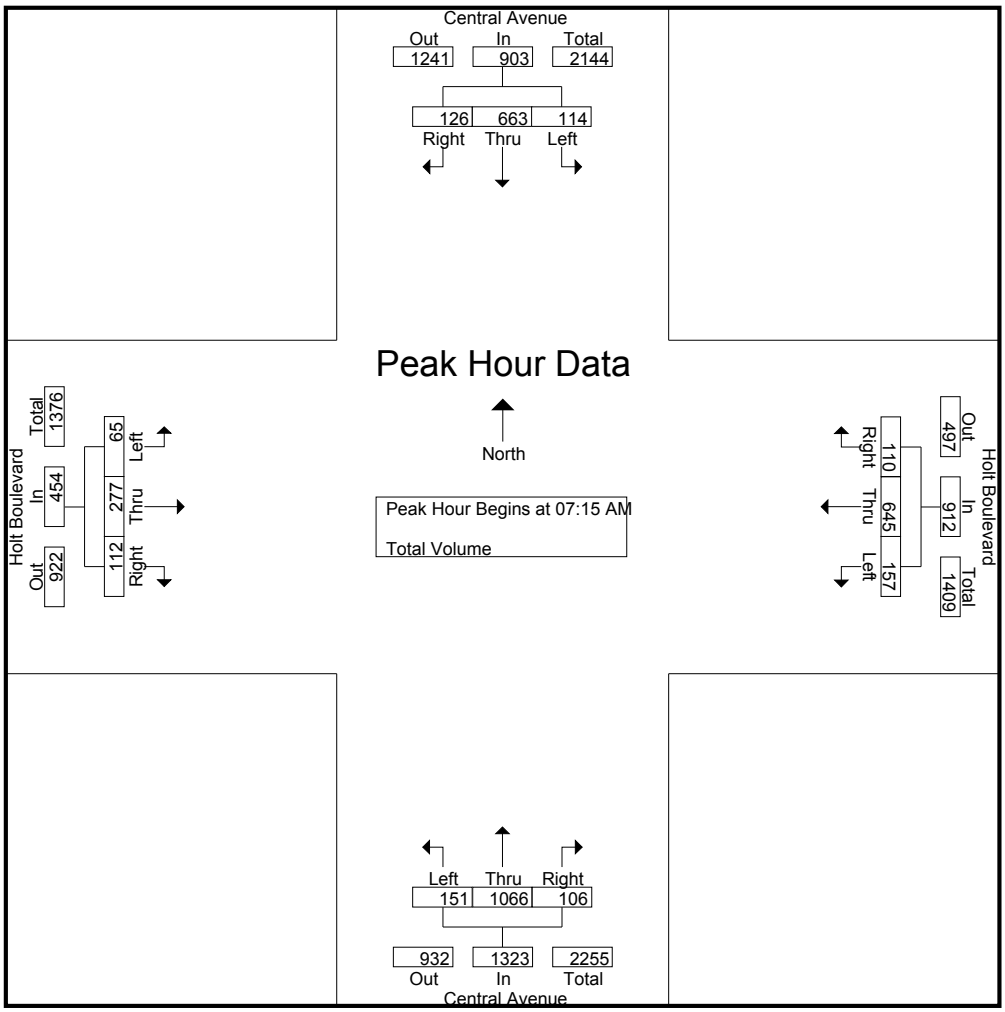
	Central Avenue Southbound				Holt Boulevard Westbound				Central Avenue Northbound				Holt Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	20	129	18	167	29	141	17	187	29	173	19	221	14	36	24	74	649
07:15 AM	20	135	20	175	50	178	23	251	27	245	20	292	16	57	12	85	803
07:30 AM	35	160	33	228	33	146	36	215	41	289	29	359	13	66	31	110	912
07:45 AM	33	179	35	247	36	183	25	244	43	308	32	383	25	79	29	133	1007
Total	108	603	106	817	148	648	101	897	140	1015	100	1255	68	238	96	402	3371
08:00 AM	26	189	38	253	38	138	26	202	40	224	25	289	11	75	40	126	870
08:15 AM	20	150	35	205	29	93	22	144	30	215	34	279	9	72	26	107	735
08:30 AM	16	137	15	168	28	85	24	137	50	193	21	264	16	44	24	84	653
08:45 AM	22	141	34	197	28	79	31	138	37	194	43	274	23	61	35	119	728
Total	84	617	122	823	123	395	103	621	157	826	123	1106	59	252	125	436	2986
Grand Total	192	1220	228	1640	271	1043	204	1518	297	1841	223	2361	127	490	221	838	6357
Apprch %	11.7	74.4	13.9		17.9	68.7	13.4		12.6	78	9.4		15.2	58.5	26.4		
Total %	3	19.2	3.6	25.8	4.3	16.4	3.2	23.9	4.7	29	3.5	37.1	2	7.7	3.5	13.2	

	Central Avenue Southbound				Holt Boulevard Westbound				Central Avenue Northbound				Holt Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	20	135	20	175	**50**	178	23	**251**	27	245	20	292	16	57	12	85	803
07:30 AM	**35**	160	33	228	33	146	**36**	215	41	289	29	359	13	66	31	110	912
07:45 AM	33	179	35	247	36	**183**	25	244	**43**	**308**	**32**	**383**	**25**	**79**	29	**133**	**1007**
08:00 AM	26	**189**	**38**	**253**	38	138	26	202	40	224	25	289	11	75	**40**	126	870
Total Volume	114	663	126	903	157	645	110	912	151	1066	106	1323	65	277	112	454	3592
% App. Total	12.6	73.4	14		17.2	70.7	12.1		11.4	80.6	8		14.3	61	24.7		
PHF	.814	.877	.829	.892	.785	.881	.764	.908	.878	.865	.828	.864	.650	.877	.700	.853	.892

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Montclair
N/S: Central Avenue
E/W: Holt Boulevard
Weather: Clear

File Name : MONCEHOAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:15 AM				07:30 AM			
+0 mins.	**35**	160	33	228	**50**	178	23	**251**	27	245	20	292	13	66	31	110
+15 mins.	33	179	35	247	33	146	**36**	215	41	289	29	359	**25**	**79**	29	**133**
+30 mins.	26	**189**	**38**	**253**	36	**183**	25	244	**43**	**308**	**32**	**383**	11	75	**40**	126
+45 mins.	20	150	35	205	38	138	26	202	40	224	25	289	9	72	26	107
Total Volume	114	678	141	933	157	645	110	912	151	1066	106	1323	58	292	126	476
% App. Total	12.2	72.7	15.1		17.2	70.7	12.1		11.4	80.6	8		12.2	61.3	26.5	
PHF	.814	.897	.928	.922	.785	.881	.764	.908	.878	.865	.828	.864	.580	.924	.788	.895

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Montclair
N/S: Central Avenue
E/W: Holt Boulevard
Weather: Clear

File Name : MONCEHOPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

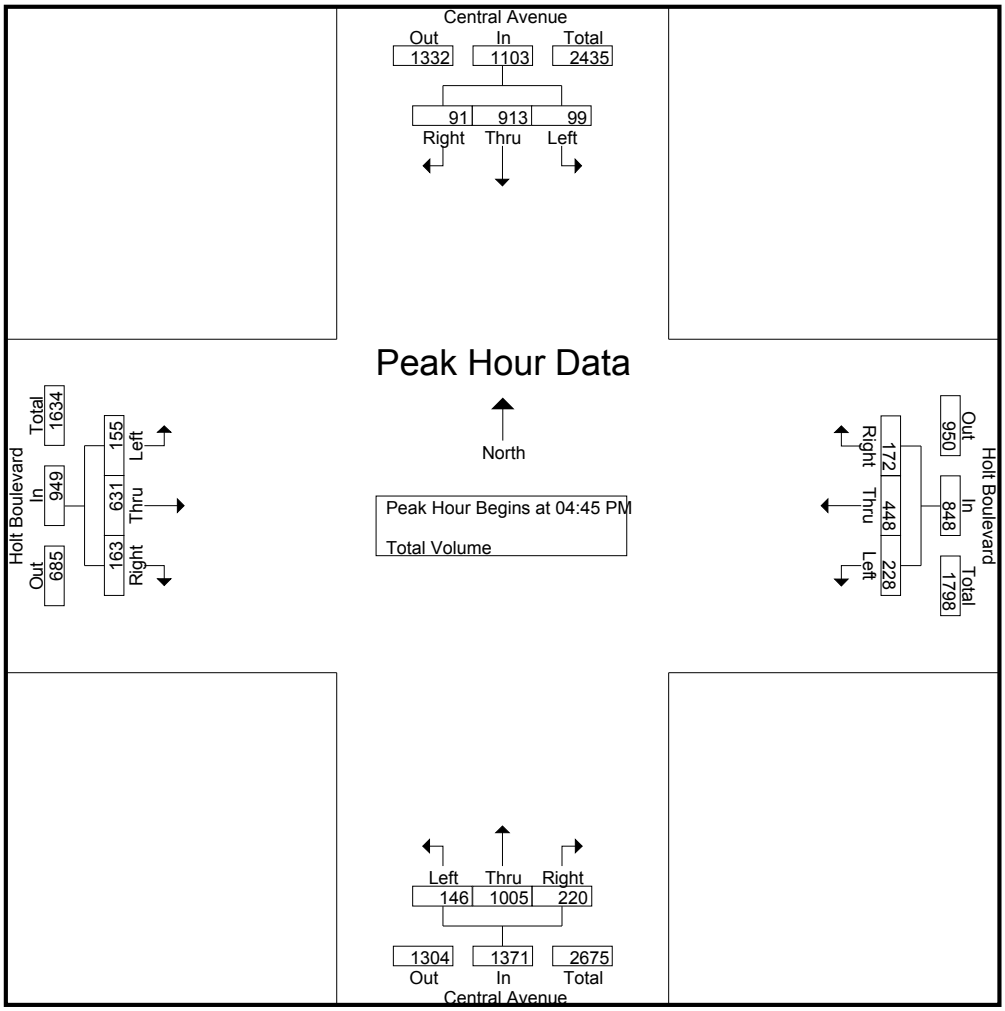
	Central Avenue Southbound				Holt Boulevard Westbound				Central Avenue Northbound				Holt Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	24	175	19	218	64	122	56	242	34	221	47	302	37	147	35	219	981
04:15 PM	30	218	18	266	54	132	27	213	35	266	57	358	37	132	56	225	1062
04:30 PM	19	228	34	281	49	104	40	193	34	220	49	303	44	150	46	240	1017
04:45 PM	25	246	27	298	35	92	41	168	34	256	61	351	27	156	30	213	1030
Total	98	867	98	1063	202	450	164	816	137	963	214	1314	145	585	167	897	4090
05:00 PM	23	200	16	239	63	126	55	244	47	238	54	339	44	163	55	262	1084
05:15 PM	23	242	28	293	63	117	44	224	36	247	46	329	39	148	43	230	1076
05:30 PM	28	225	20	273	67	113	32	212	29	264	59	352	45	164	35	244	1081
05:45 PM	24	214	18	256	54	97	39	190	27	239	47	313	33	161	44	238	997
Total	98	881	82	1061	247	453	170	870	139	988	206	1333	161	636	177	974	4238
Grand Total	196	1748	180	2124	449	903	334	1686	276	1951	420	2647	306	1221	344	1871	8328
Apprch %	9.2	82.3	8.5		26.6	53.6	19.8		10.4	73.7	15.9		16.4	65.3	18.4		
Total %	2.4	21	2.2	25.5	5.4	10.8	4	20.2	3.3	23.4	5	31.8	3.7	14.7	4.1	22.5	

	Central Avenue Southbound				Holt Boulevard Westbound				Central Avenue Northbound				Holt Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	25	**246**	27	**298**	35	92	41	168	34	256	**61**	351	27	156	30	213	1030
05:00 PM	23	200	16	239	63	**126**	**55**	**244**	**47**	238	54	339	44	163	**55**	**262**	**1084**
05:15 PM	23	242	**28**	293	63	117	44	224	36	247	46	329	39	148	43	230	1076
05:30 PM	**28**	225	20	273	**67**	113	32	212	29	**264**	59	**352**	**45**	**164**	35	244	1081
Total Volume	99	913	91	1103	228	448	172	848	146	1005	220	1371	155	631	163	949	4271
% App. Total	9	82.8	8.3		26.9	52.8	20.3		10.6	73.3	16		16.3	66.5	17.2		
PHF	.884	.928	.813	.925	.851	.889	.782	.869	.777	.952	.902	.974	.861	.962	.741	.906	.985

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Montclair
N/S: Central Avenue
E/W: Holt Boulevard
Weather: Clear

File Name : MONCEHOPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				05:00 PM				04:45 PM				05:00 PM			
+0 mins.	19	228	**34**	281	63	**126**	**55**	**244**	34	256	**61**	351	44	163	**55**	**262**
+15 mins.	**25**	**246**	27	**298**	63	117	44	224	**47**	238	54	339	39	148	43	230
+30 mins.	23	200	16	239	**67**	113	32	212	36	247	46	329	**45**	**164**	35	244
+45 mins.	23	242	28	293	54	97	39	190	29	**264**	59	**352**	33	161	44	238
Total Volume	90	916	105	1111	247	453	170	870	146	1005	220	1371	161	636	177	974
% App. Total	8.1	82.4	9.5		28.4	52.1	19.5		10.6	73.3	16		16.5	65.3	18.2	
PHF	.900	.931	.772	.932	.922	.899	.773	.891	.777	.952	.902	.974	.894	.970	.805	.929

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of San Bernardino
N/S: Central Avenue
E/W: Mission Boulevard
Weather: Clear

File Name : CSBCEMIAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

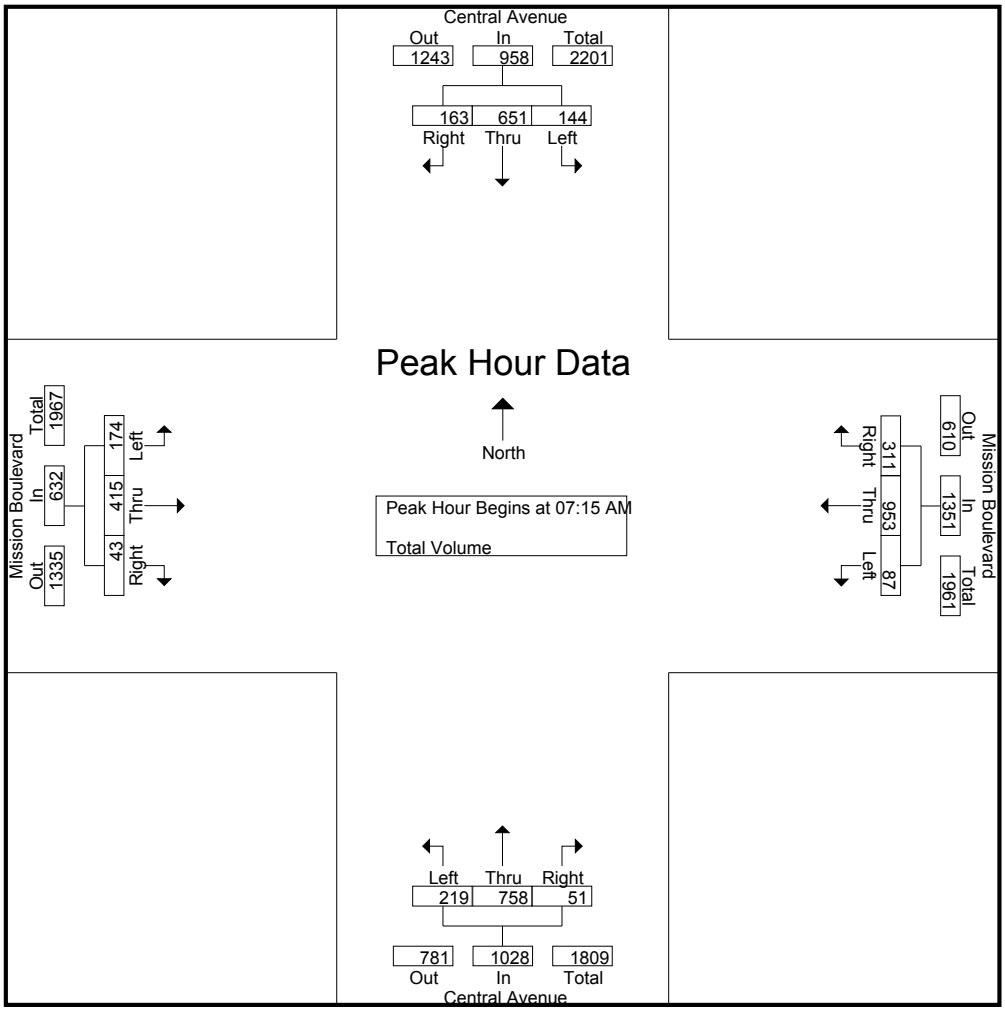
	Central Avenue Southbound				Mission Boulevard Westbound				Central Avenue Northbound				Mission Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	26	141	51	218	17	264	66	347	36	138	17	191	37	67	7	111	867
07:15 AM	36	149	48	233	22	232	55	309	64	190	16	270	35	87	7	129	941
07:30 AM	36	153	37	226	16	281	87	384	52	205	10	267	50	122	10	182	1059
07:45 AM	40	169	43	252	24	245	100	369	53	204	12	269	44	126	12	182	1072
Total	138	612	179	929	79	1022	308	1409	205	737	55	997	166	402	36	604	3939
08:00 AM	32	180	35	247	25	195	69	289	50	159	13	222	45	80	14	139	897
08:15 AM	39	163	28	230	25	195	56	276	37	164	21	222	40	108	17	165	893
08:30 AM	30	153	14	197	37	181	67	285	34	170	15	219	34	84	19	137	838
08:45 AM	22	137	26	185	26	134	67	227	37	138	11	186	38	62	16	116	714
Total	123	633	103	859	113	705	259	1077	158	631	60	849	157	334	66	557	3342
Grand Total	261	1245	282	1788	192	1727	567	2486	363	1368	115	1846	323	736	102	1161	7281
Apprch %	14.6	69.6	15.8		7.7	69.5	22.8		19.7	74.1	6.2		27.8	63.4	8.8		
Total %	3.6	17.1	3.9	24.6	2.6	23.7	7.8	34.1	5	18.8	1.6	25.4	4.4	10.1	1.4	15.9	

	Central Avenue Southbound				Mission Boulevard Westbound				Central Avenue Northbound				Mission Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	36	149	**48**	233	22	232	55	309	**64**	190	**16**	**270**	35	87	7	129	941
07:30 AM	36	153	37	226	16	**281**	87	**384**	52	**205**	10	267	**50**	122	10	**182**	1059
07:45 AM	**40**	169	43	**252**	24	245	**100**	369	53	204	12	269	44	**126**	12	182	**1072**
08:00 AM	32	**180**	35	247	**25**	195	69	289	50	159	13	222	45	80	**14**	139	897
Total Volume	144	651	163	958	87	953	311	1351	219	758	51	1028	174	415	43	632	3969
% App. Total	15	68	17		6.4	70.5	23		21.3	73.7	5		27.5	65.7	6.8		
PHF	.900	.904	.849	.950	.870	.848	.778	.880	.855	.924	.797	.952	.870	.823	.768	.868	.926

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of San Bernardino
N/S: Central Avenue
E/W: Mission Boulevard
Weather: Clear

File Name : CSBCEMIAM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:15 AM				07:30 AM			
+0 mins.	36	149	**48**	233	17	264	66	347	**64**	190	**16**	**270**	**50**	122	10	**182**
+15 mins.	36	153	37	226	22	232	55	309	52	**205**	10	267	44	**126**	12	182
+30 mins.	**40**	169	43	**252**	16	**281**	87	**384**	53	204	12	269	45	80	14	139
+45 mins.	32	**180**	35	247	**24**	245	**100**	369	50	159	13	222	40	108	**17**	165
Total Volume	144	651	163	958	79	1022	308	1409	219	758	51	1028	179	436	53	668
% App. Total	15	68	17		5.6	72.5	21.9		21.3	73.7	5		26.8	65.3	7.9	
PHF	.900	.904	.849	.950	.823	.909	.770	.917	.855	.924	.797	.952	.895	.865	.779	.918

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of San Bernardino
N/S: Central Avenue
E/W: Mission Boulevard
Weather: Clear

File Name : CSBCEMIPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 1

Groups Printed- Total Volume

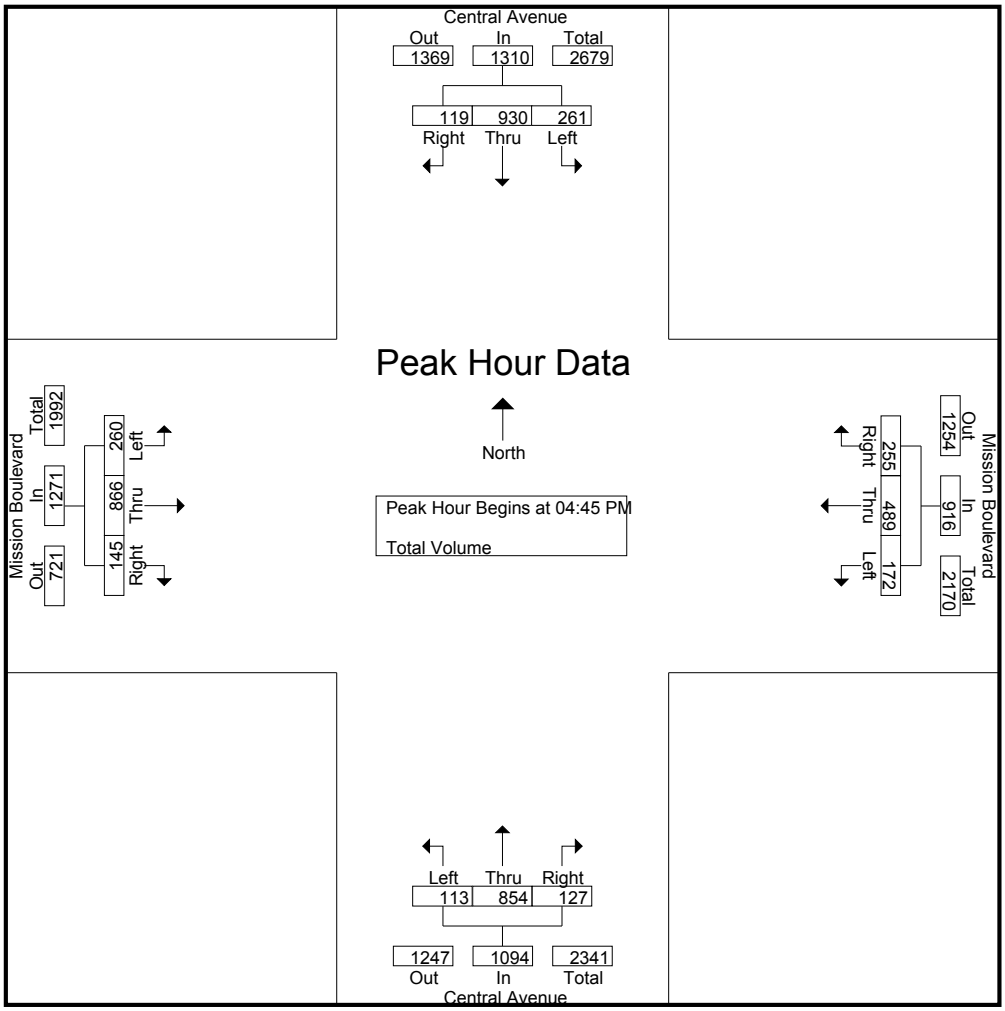
	Central Avenue Southbound				Mission Boulevard Westbound				Central Avenue Northbound				Mission Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	44	185	25	254	38	111	61	210	19	217	34	270	50	186	58	294	1028
04:15 PM	53	249	46	348	45	111	56	212	23	239	28	290	39	155	35	229	1079
04:30 PM	50	270	39	359	34	127	58	219	25	205	31	261	47	191	29	267	1106
04:45 PM	63	234	27	324	39	129	78	246	24	197	38	259	85	208	32	325	1154
Total	210	938	137	1285	156	478	253	887	91	858	131	1080	221	740	154	1115	4367
05:00 PM	60	255	37	352	42	127	56	225	31	222	25	278	56	213	30	299	1154
05:15 PM	67	216	31	314	60	121	61	242	28	214	36	278	62	209	49	320	1154
05:30 PM	71	225	24	320	31	112	60	203	30	221	28	279	57	236	34	327	1129
05:45 PM	60	257	27	344	51	106	53	210	19	223	22	264	59	181	27	267	1085
Total	258	953	119	1330	184	466	230	880	108	880	111	1099	234	839	140	1213	4522
Grand Total	468	1891	256	2615	340	944	483	1767	199	1738	242	2179	455	1579	294	2328	8889
Apprch %	17.9	72.3	9.8		19.2	53.4	27.3		9.1	79.8	11.1		19.5	67.8	12.6		
Total %	5.3	21.3	2.9	29.4	3.8	10.6	5.4	19.9	2.2	19.6	2.7	24.5	5.1	17.8	3.3	26.2	

	Central Avenue Southbound				Mission Boulevard Westbound				Central Avenue Northbound				Mission Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	63	234	27	324	39	**129**	**78**	**246**	24	197	**38**	259	**85**	208	32	325	**1154**
05:00 PM	60	**255**	**37**	**352**	42	127	56	225	**31**	**222**	25	278	56	213	30	299	1154
05:15 PM	67	216	31	314	**60**	121	61	242	28	214	36	278	62	209	**49**	320	1154
05:30 PM	**71**	225	24	320	31	112	60	203	30	221	28	**279**	57	**236**	34	**327**	1129
Total Volume	261	930	119	1310	172	489	255	916	113	854	127	1094	260	866	145	1271	4591
% App. Total	19.9	71	9.1		18.8	53.4	27.8		10.3	78.1	11.6		20.5	68.1	11.4		
PHF	.919	.912	.804	.930	.717	.948	.817	.931	.911	.962	.836	.980	.765	.917	.740	.972	.995

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of San Bernardino
N/S: Central Avenue
E/W: Mission Boulevard
Weather: Clear

File Name : CSBCEMIPM
Site Code : 20616543
Start Date : 10/12/2016
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:30 PM				05:00 PM				04:45 PM			
+0 mins.	53	249	**46**	348	34	127	58	219	**31**	222	25	278	**85**	208	32	325
+15 mins.	50	**270**	39	**359**	39	**129**	**78**	**246**	28	214	**36**	278	56	213	30	299
+30 mins.	**63**	234	27	324	42	127	56	225	30	221	28	**279**	62	209	**49**	320
+45 mins.	60	255	37	352	**60**	121	61	242	19	**223**	22	264	57	**236**	34	**327**
Total Volume	226	1008	149	1383	175	504	253	932	108	880	111	1099	260	866	145	1271
% App. Total	16.3	72.9	10.8		18.8	54.1	27.1		9.8	80.1	10.1		20.5	68.1	11.4	
PHF	.897	.933	.810	.963	.729	.977	.811	.947	.871	.987	.771	.985	.765	.917	.740	.972

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : ARROW HIGHWAY | Site: MONTCLAIR

Segment : W/O MONTE VISTA AVENUE | Date: 08/21/14

Client : STANTEC

Interval	EB				WB				Combined				Day: Thursday
Begin	AM		PM		AM		PM		AM		PM		
12:00	15	41	156	612	11	29	102	451	26	70	258	1,063	
12:15	12		148		8		113		20		261		
12:30	8		154		4		122		12		276		
12:45	6		154		6		114		12		268		
01:00	15	31	154	575	8	16	114	486	23	47	268	1,061	
01:15	4		137		5		128		9		265		
01:30	9		135		2		128		11		263		
01:45	3		149		1		116		4		265		
02:00	14	21	135	612	1	7	128	470	15	28	263	1.082	
02:15	3		166		2		116		5		282		
02:30	1		167		1		106		2		273		
02:45	3		144		3		120		6		264		
03:00	4	29	175	740	2	32	129	458	6	61	304	1,198	
03:15	7		189		11		104		18		293		
03:30	1		192		8		120		9		312		
03:45	17		184		11		105		28		289		
04:00	10	65	186	935	12	78	92	425	22	143	278	1.360	
04:15	13		239		15		112		28		351		
04:30	18		244		17		98		35		342		
04:45	24		266		34		123		58		389		
05:00	20	89	306	1,242	21	208	117	419	41	297	423	1,661	
05:15	18		352		44		102		62		454		
05:30	21		296		61		108		82		404		
05:45	30		288		82		92		112		380		
06:00	18	140	251	772	62	401	106	346	80	541	357	1.118	
06:15	34		201		90		80		124		281		
06:30	42		174		103		82		145		256		
06:45	46		146		146		78		192		224		
07:00	50	281	122	450	128	688	85	284	178	969	207	734	
07:15	78		129		146		82		224		211		
07:30	63		113		184		56		247		169		
07:45	90		86		230		61		320		147		
08:00	100	362	108	316	158	508	64	216	258	870	172	532	
08:15	82		84		130		52		212		136		
08:30	82		63		122		54		204		117		
08:45	98		61		98		46		196		107		
09:00	83	399	49	171	86	349	51	170	169	748	100	341	
09:15	90		49		80		47		170		96		
09:30	96		38		91		38		187		76		
09:45	130		35		92		34		222		69		
10:00	102	422	45	145	106	355	30	107	208	777	75	252	
10:15	92		32		78		24		170		56		
10:30	102		40		88		33		190		73		
10:45	126		28		83		20		209		48		
11:00	139	564	38	100	85	407	20	63	224	971	58	163	
11:15	141		26		105		13		246		39		
11:30	150		20		112		16		262		36		
11:45	134		16		105		14		239		30		
Totals	2.444		6.670		3.078		3.895		5.522		10.565		
Split%	44.3		63.1		55.7		36.9						
Day Totals		9,114				6.973				16.087			
Day Splits		56.7				43.3							
Peak Hour	11:00		05:00		07:15		01:15		07:15		04:45		
Volume	564		1.242		718		500		1.049		1.670		
Factor	0.94		0.88		0.78		0.98		0.82		0.92		

* Data File : D1408050 Printed : 9/10/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location: : MONTE VISTA AVENUE — Site: MONTCLAIR

Segment: : N/O ARROW HIGHWAY — Date: 08/21/14

Client: : STANTEC

Interval	NB				SB				Combined				Day: Thursday
Begin	AM		PM		AM		PM		AM		PM		
12:00	19	54	160	647	14	53	158	624	33	107	318	1,271	
12:15	14		132		15		150		29		282		
12:30	16		162		20		158		36		320		
12:45	5		193		4		158		9		351		
01:00	9	25	149	575	8	32	171	622	17	57	320	1,197	
01:15	6		148		8		151		14		299		
01:30	4		138		10		163		14		301		
01:45	6		140		6		137		12		277		
02:00	1	20	128	644	11	23	148	619	12	43	276	1.263	
02:15	4		160		4		140		8		300		
02:30	6		182		5		173		11		355		
02:45	9		174		3		158		12		332		
03:00	3	26	162	655	5	32	140	640	8	58	302	1,295	
03:15	6		162		8		138		14		300		
03:30	6		160		9		206		15		366		
03:45	11		171		10		156		21		327		
04:00	6	90	172	740	13	79	184	765	19	169	356	1.505	
04:15	30		190		13		185		43		375		
04:30	22		180		23		188		45		368		
04:45	32		198		30		208		62		406		
05:00	33	203	214	858	38	218	214	814	71	421	428	1,672	
05:15	46		214		42		230		88		444		
05:30	60		218		64		202		124		420		
05:45	64		212		74		168		138		380		
06:00	68	408	224	740	81	418	177	717	149	826	401	1.457	
06:15	78		170		93		170		171		340		
06:30	120		166		102		204		222		370		
06:45	142		180		142		166		284		346		
07:00	102	536	157	592	153	609	146	510	255	1.145	303	1.102	
07:15	116		128		156		136		272		264		
07:30	140		161		178		138		318		299		
07:45	178		146		122		90		300		236		
08:00	160	627	146	468	160	549	116	360	320	1,176	262	828	
08:15	137		125		122		104		259		229		
08:30	170		113		133		70		303		183		
08:45	160		84		134		70		294		154		
09:00	143	521	98	321	120	532	74	246	263	1,053	172	567	
09:15	130		89		113		72		243		161		
09:30	126		62		135		54		261		116		
09:45	122		72		164		46		286		118		
10:00	110	476	48	195	100	528	54	171	210	1,004	102	366	
10:15	124		44		136		46		260		90		
10:30	120		50		150		45		270		95		
10:45	122		53		142		26		264		79		
11:00	141	566	51	133	158	597	31	96	299	1,163	82	229	
11:15	137		22		129		31		266		53		
11:30	132		34		158		18		290		52		
11:45	156		26		152		16		308		42		
Totals	3.552		6.568		3.670		6.184		7.222		12.752		
Split%	49.2		51.5		50.8		48.5						
Day Totals		10,120				9,854				19,974			
Day Splits		50.7				49.3							
Peak Hour	07:45		05:15		06:45		04:45		07:15		04:45		
Volume	645		868		629		854		1.210		1.698		
Factor	0.91		0.97		0.88		0.93		0.95		0.96		

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : ARROW HIGHWAY | Site: MONTCLAIR

Segment : E/O MONTE VISTA AVENUE | Date: 08/21/14

Client : STANTEC

Interval	WB				EB				Combined				Day: Thursday
Begin	AM		PM		AM		PM		AM		PM		
12:00	10	24	86	367	11	26	126	482	21	50	212	849	
12:15	4		84		8		136		12		220		
12:30	4		108		5		114		9		222		
12:45	6		89		2		106		8		195		
01:00	7	18	99	389	7	17	112	423	14	35	211	812	
01:15	8		92		4		102		12		194		
01:30	3		100		2		108		5		208		
01:45	0		98		4		101		4		199		
02:00	2	9	89	321	2	3	117	534	4	12	206	855	
02:15	2		66		0		124		2		190		
02:30	1		80		0		151		1		231		
02:45	4		86		1		142		5		228		
03:00	0	8	104	387	3	14	132	633	3	22	236	1,020	
03:15	1		85		3		146		4		231		
03:30	3		106		4		161		7		267		
03:45	4		92		4		194		8		286		
04:00	5	41	84	368	6	24	186	723	11	65	270	1,091	
04:15	8		104		6		148		14		252		
04:30	12		84		4		200		16		284		
04:45	16		96		8		189		24		285		
05:00	20	163	102	389	14	72	216	849	34	235	318	1,238	
05:15	27		104		16		223		43		327		
05:30	56		99		23		220		79		319		
05:45	60		84		19		190		79		274		
06:00	36	255	97	377	20	87	156	571	56	342	253	948	
06:15	54		96		15		162		69		258		
06:30	81		80		18		137		99		217		
06:45	84		104		34		116		118		220		
07:00	95	420	80	268	57	290	90	309	152	710	170	577	
07:15	96		68		50		86		146		154		
07:30	91		58		64		65		155		123		
07:45	138		62		119		68		257		130		
08:00	85	332	70	258	104	358	54	195	189	690	124	453	
08:15	96		56		98		53		194		109		
08:30	82		66		88		41		170		107		
08:45	69		66		68		47		137		113		
09:00	59	264	54	178	51	253	23	115	110	517	77	293	
09:15	67		41		57		25		124		66		
09:30	66		37		70		31		136		68		
09:45	72		46		75		36		147		82		
10:00	85	295	24	82	92	386	21	75	177	681	45	157	
10:15	72		26		98		18		170		44		
10:30	56		16		96		18		152		34		
10:45	82		16		100		18		182		34		
11:00	72	306	16	48	84	454	13	43	156	760	29	91	
11:15	68		8		105		12		173		20		
11:30	77		12		134		7		211		19		
11:45	89		12		131		11		220		23		
Totals	2.135		3.432		1.984		4.952		4.119		8.384		
Split%	51.8		40.9		48.2		59.1						
Day Totals		5.567				6.936				12.503			
Day Splits		44.5				55.5							
Peak Hour	07:00		04:45		11:00		05:00		07:45		04:45		
Volume	420		401		454		849		810		1.249		
Factor	0.76		0.96		0.85		0.95		0.79		0.95		

* Data File : D1408060 Printed : 9/10/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : ARROW HIGHWAY | Site: MONTCLAIR

Segment : W/O CENTRAL AVENUE | Date: 08/26/14

Client : STANTEC

Interval	EB				WB				Combined				Day: Tuesday
Begin	AM		PM		AM		PM		AM		PM		
12:00	8	29	109	448	7	20	70	346	15	49	179	794	
12:15	9		119		1		86		10		205		
12:30	5		114		3		80		8		194		
12:45	7		106		9		110		16		216		
01:00	12	25	104	411	2	10	105	383	14	35	209	794	
01:15	4		104		4		92		8		196		
01:30	6		115		2		98		8		213		
01:45	3		88		2		88		5		176		
02:00	3	8	126	504	2	7	95	341	5	15	221	845	
02:15	0		112		1		90		1		202		
02:30	3		134		2		68		5		202		
02:45	2		132		2		88		4		220		
03:00	4	13	123	596	1	11	86	360	5	24	209	956	
03:15	1		152		4		90		5		242		
03:30	3		142		2		92		5		234		
03:45	5		179		4		92		9		271		
04:00	3	16	142	692	4	42	88	377	7	58	230	1,069	
04:15	4		162		10		104		14		266		
04:30	5		184		10		104		15		288		
04:45	4		204		18		81		22		285		
05:00	11	53	224	838	15	182	104	354	26	235	328	1,192	
05:15	8		218		33		86		41		304		
05:30	16		220		57		95		73		315		
05:45	18		176		77		69		95		245		
06:00	18	110	170	572	51	297	95	317	69	407	265	889	
06:15	32		151		60		78		92		229		
06:30	28		122		78		74		106		196		
06:45	32		129		108		70		140		199		
07:00	42	239	118	393	88	459	71	262	130	698	189	655	
07:15	59		106		109		67		168		173		
07:30	74		101		122		64		196		165		
07:45	64		68		140		60		204		128		
08:00	68	267	79	268	102	354	36	165	170	621	115	433	
08:15	70		64		85		44		155		108		
08:30	56		74		79		51		135		125		
08:45	73		51		88		34		161		85		
09:00	64	259	54	146	68	284	54	130	132	543	108	276	
09:15	68		41		66		15		134		56		
09:30	61		23		78		35		139		58		
09:45	66		28		72		26		138		54		
10:00	89	369	39	101	72	287	20	84	161	656	59	185	
10:15	114		28		66		23		180		51		
10:30	82		17		71		24		153		41		
10:45	84		17		78		17		162		34		
11:00	98	393	14	45	92	328	10	36	190	721	24	81	
11:15	83		8		62		12		145		20		
11:30	100		15		84		10		184		25		
11:45	112		8		90		4		202		12		
Totals	1.781		5.014		2.281		3.155		4.062		8.169		
Split%	43.8		61.4		56.2		38.6						
Day Totals		6.795				5.436				12.231			
Day Splits		55.6				44.4							
Peak Hour	11:00		04:45		07:15		12:45		07:15		04:45		
Volume	393		866		473		405		738		1.232		
Factor	0.88		0.97		0.84		0.92		0.90		0.94		

* Data File : D1408065 Printed : 9/4/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

City: : CENTRAL AVENUE | Site: MONTCLAIR

Location: : N/O ARROW HIGHWAY | Date: 08/26/14

Segment: : STANTEC

Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	17	74	216	887	10	46	158	708	27	120	374	1,595
12:15	26		218		14		192		40		410	
12:30	18		233		12		178		30		411	
12:45	13		220		10		180		23		400	
01:00	10	31	218	920	10	44	181	696	20	75	399	1,616
01:15	8		240		13		166		21		406	
01:30	7		240		11		181		18		421	
01:45	6		222		10		168		16		390	
02:00	4	38	216	834	11	35	154	662	15	73	370	1.496
02:15	5		232		8		164		13		396	
02:30	14		176		6		168		20		344	
02:45	15		210		10		176		25		386	
03:00	7	47	209	835	6	32	174	685	13	79	383	1,520
03:15	12		204		8		165		20		369	
03:30	8		214		8		172		16		386	
03:45	20		208		10		174		30		382	
04:00	16	128	189	771	10	92	222	796	26	220	411	1,567
04:15	34		188		17		186		51		374	
04:30	27		178		25		188		52		366	
04:45	51		216		40		200		91		416	
05:00	60	339	200	834	33	208	243	885	93	547	443	1,719
05:15	71		208		44		248		115		456	
05:30	84		222		59		208		143		430	
05:45	124		204		72		186		196		390	
06:00	83	428	200	719	57	295	190	668	140	723	390	1,387
06:15	90		204		66		183		156		387	
06:30	95		159		86		168		181		327	
06:45	160		156		86		127		246		283	
07:00	130	619	158	585	118	510	146	520	248	1.129	304	1.105
07:15	142		146		104		144		246		290	
07:30	155		133		138		126		293		259	
07:45	192		148		150		104		342		252	
08:00	186	666	105	479	130	494	84	375	316	1,160	189	854
08:15	155		128		110		107		265		235	
08:30	165		140		116		81		281		221	
08:45	160		106		138		103		298		209	
09:00	168	591	96	338	118	520	87	303	286	1,111	183	641
09:15	140		93		129		70		269		163	
09:30	141		86		136		82		277		168	
09:45	142		63		137		64		279		127	
10:00	155	619	72	201	145	610	48	184	300	1,229	120	385
10:15	126		54		148		44		274		98	
10:30	152		41		162		57		314		98	
10:45	186		34		155		35		341		69	
11:00	186	779	44	124	170	664	33	98	356	1,443	77	222
11:15	168		36		143		23		311		59	
11:30	215		28		176		32		391		60	
11:45	210		16		175		10		385		26	
Totals	4.359		7.527		3.550		6.580		7.909		14.107	
Split%	55.1		53.4		44.9		46.6					
Day Totals		11,886				10,130				22,016		
Day Splits		54.0				46.0						
Peak Hour	11:00		01:00		11:00		04:45		11:00		04:45	
Volume	779		920		664		899		1.443		1.745	
Factor	0.91		0.96		0.94		0.91		0.92		0.96	

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : ARROW HIGHWAY | Site: MONTCLAIR

Segment : E/O CENTRAL AVENUE | Date: 08/26/14

Client : STANTEC

Day: Tuesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	11	30	80	367	5	19	90	381	16	49	170	748
12:15	7		95		3		94		10		189	
12:30	4		95		4		80		8		175	
12:45	8		97		7		117		15		214	
01:00	11	28	88	393	6	12	98	368	17	40	186	761
01:15	4		98		3		88		7		186	
01:30	9		108		1		88		10		196	
01:45	4		99		2		94		6		193	
02:00	4	8	127	485	2	10	92	370	6	18	219	855
02:15	1		98		2		88		3		186	
02:30	2		132		3		80		5		212	
02:45	1		128		3		110		4		238	
03:00	1	12	134	543	0	14	92	388	1	26	226	931
03:15	1		145		6		93		7		238	
03:30	4		131		2		104		6		235	
03:45	6		133		6		99		12		232	
04:00	3	18	126	599	8	53	88	363	11	71	214	962
04:15	8		150		13		100		21		250	
04:30	4		162		10		90		14		252	
04:45	3		161		22		85		25		246	
05:00	6	49	161	700	18	138	108	391	24	187	269	1,091
05:15	8		196		30		104		38		300	
05:30	12		186		38		97		50		283	
05:45	23		157		52		82		75		239	
06:00	15	91	136	473	56	246	94	315	71	337	230	788
06:15	30		122		44		76		74		198	
06:30	20		113		60		75		80		188	
06:45	26		102		86		70		112		172	
07:00	42	216	106	337	69	403	68	239	111	619	174	576
07:15	46		103		86		58		132		161	
07:30	56		66		114		64		170		130	
07:45	72		62		134		49		206		111	
08:00	66	259	72	263	94	352	44	151	160	611	116	414
08:15	76		64		96		44		172		108	
08:30	53		65		75		34		128		99	
08:45	64		62		87		29		151		91	
09:00	69	263	41	156	78	285	49	128	147	548	90	284
09:15	67		39		62		24		129		63	
09:30	59		42		70		27		129		69	
09:45	68		34		75		28		143		62	
10:00	76	304	36	98	68	289	11	59	144	593	47	157
10:15	80		27		65		18		145		45	
10:30	70		10		78		14		148		24	
10:45	78		25		78		16		156		41	
11:00	88	332	19	54	92	327	2	14	180	659	21	68
11:15	78		12		59		5		137		17	
11:30	86		13		80		5		166		18	
11:45	80		10		96		2		176		12	
Totals	1.610		4.468		2.148		3.167		3.758		7.635	
Split%	42.8		58.5		57.2		41.5					
Day Totals		6.078				5.315				11.393		
Day Splits		53.3				46.7						
Peak Hour	11:00		04:45		07:30		02:45		07:30		04:45	
Volume	332		704		438		399		708		1.098	
Factor	0.94		0.90		0.82		0.91		0.86		0.92	

* Data File : D1408074 | Printed : 9/4/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : MONTE VISTA AVENUE — Site: MONTCLAIR

Segment : MORENO TO ARROW HIGHWAY — Date: 08/21/14

Client : STANTEC

Interval	NB				SB				Combined				Day: Thursday
Begin	AM		PM		AM		PM		AM		PM		
12:00	17	46	130	538	14	54	153	595	31	100	283	1,133	
12:15	12		120		19		154		31		274		
12:30	14		146		16		156		30		302		
12:45	3		142		5		132		8		274		
01:00	6	19	128	522	14	43	178	610	20	62	306	1,132	
01:15	6		136		11		126		17		262		
01:30	3		134		12		166		15		300		
01:45	4		124		6		140		10		264		
02:00	1	20	126	599	12	23	134	594	13	43	260	1.193	
02:15	4		151		4		138		8		289		
02:30	6		160		4		176		10		336		
02:45	9		162		3		146		12		308		
03:00	5	26	133	570	4	28	132	661	9	54	265	1,231	
03:15	4		142		8		166		12		308		
03:30	8		138		4		194		12		332		
03:45	9		157		12		169		21		326		
04:00	6	82	136	604	10	65	182	768	16	147	318	1.372	
04:15	23		170		12		184		35		354		
04:30	23		130		19		196		42		326		
04:45	30		168		24		206		54		374		
05:00	34	208	158	632	34	182	212	813	68	390	370	1,445	
05:15	46		154		34		218		80		372		
05:30	64		176		50		203		114		379		
05:45	64		144		64		180		128		324		
06:00	66	395	164	601	68	341	170	711	134	736	334	1.312	
06:15	85		142		74		177		159		319		
06:30	128		142		80		206		208		348		
06:45	116		153		119		158		235		311		
07:00	86	501	128	522	132	518	152	513	218	1.019	280	1.035	
07:15	118		122		138		138		256		260		
07:30	139		136		158		134		297		270		
07:45	158		136		90		89		248		225		
08:00	139	521	111	388	128	468	119	362	267	989	230	750	
08:15	112		95		106		96		218		191		
08:30	134		107		110		65		244		172		
08:45	136		75		124		82		260		157		
09:00	110	415	76	262	96	474	70	238	206	889	146	500	
09:15	109		76		102		74		211		150		
09:30	102		62		126		54		228		116		
09:45	94		48		150		40		244		88		
10:00	108	399	41	174	110	506	53	169	218	905	94	343	
10:15	90		41		120		47		210		88		
10:30	97		40		150		40		247		80		
10:45	104		52		126		29		230		81		
11:00	96	455	32	106	164	610	32	100	260	1,065	64	206	
11:15	113		17		140		32		253		49		
11:30	104		30		158		19		262		49		
11:45	142		27		148		17		290		44		
Totals	3.087		5.518		3.312		6.134		6.399		11.652		
Split%	48.2		47.4		51.8		52.6						
Day Totals		8,605				9,446				18,051			
Day Splits		47.7				52.3							
Peak Hour	07:15		04:45		11:00		04:45		07:15		04:45		
Volume	554		656		610		839		1.068		1.495		
Factor	0.88		0.93		0.93		0.96		0.90		0.99		

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

City: : CENTRAL AVENUE | Site: MONTCLAIR

Location: : N/O MORENO STREET | Date: 08/26/14

Segment: : STANTEC

Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	22	78	221	955	20	68	208	871	42	146	429	1,826
12:15	24		228		17		215		41		443	
12:30	18		254		20		213		38		467	
12:45	14		252		11		235		25		487	
01:00	11	35	234	967	16	49	246	883	27	84	480	1,850
01:15	10		239		14		203		24		442	
01:30	6		254		7		226		13		480	
01:45	8		240		12		208		20		448	
02:00	10	56	242	936	14	41	193	904	24	97	435	1.840
02:15	10		258		12		242		22		500	
02:30	22		199		6		242		28		441	
02:45	14		237		9		227		23		464	
03:00	6	63	243	956	14	47	232	1,002	20	110	475	1,958
03:15	13		248		11		226		24		474	
03:30	16		257		13		266		29		523	
03:45	28		208		9		278		37		486	
04:00	20	148	240	908	18	113	258	1,053	38	261	498	1.961
04:15	40		227		17		257		57		484	
04:30	35		196		28		264		63		460	
04:45	53		245		50		274		103		519	
05:00	67	417	244	968	52	252	318	1,216	119	669	562	2,184
05:15	80		211		52		328		132		539	
05:30	106		247		73		295		179		542	
05:45	164		266		75		275		239		541	
06:00	110	524	230	832	80	372	262	991	190	896	492	1.823
06:15	103		234		74		270		177		504	
06:30	119		186		107		240		226		426	
06:45	192		182		111		219		303		401	
07:00	172	770	172	650	149	575	204	802	321	1.345	376	1.452
07:15	178		174		128		229		306		403	
07:30	187		138		154		210		341		348	
07:45	233		166		144		159		377		325	
08:00	223	785	121	541	154	566	164	626	377	1,351	285	1,167
08:15	202		138		146		180		348		318	
08:30	178		162		130		152		308		314	
08:45	182		120		136		130		318		250	
09:00	188	707	95	360	142	582	150	511	330	1,289	245	871
09:15	169		92		130		115		299		207	
09:30	170		107		160		134		330		241	
09:45	180		66		150		112		330		178	
10:00	182	731	72	208	176	736	76	262	358	1,467	148	470
10:15	146		62		192		58		338		120	
10:30	189		44		192		76		381		120	
10:45	214		30		176		52		390		82	
11:00	218	864	50	144	206	798	48	127	424	1,662	98	271
11:15	200		42		176		25		376		67	
11:30	233		34		186		36		419		70	
11:45	213		18		230		18		443		36	
Totals	5.178		8.425		4.199		9.248		9.377		17.673	
Split%	55.2		47.7		44.8		52.3					
Day Totals		13,603				13,447				27,050		
Day Splits		50.3				49.7						
Peak Hour	10:45		01:30		11:00		05:00		11:00		05:00	
Volume	865		994		798		1.216		1.662		2.184	
Factor	0.93		0.96		0.87		0.93		0.94		0.97	

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location: : MORENO STREET | Site: MONTCLAIR

Segment: : W/O MONTE VISTA AVENUE | Date: 08/21/14

Client: : STANTEC

Interval	EB				WB				Combined				Day: Thursday
Begin	AM		PM		AM		PM		AM		PM		
12:00	2	6	48	156	8	16	38	183	10	22	86	339	
12:15	2		33		6		45		8		78		
12:30	2		32		1		60		3		92		
12:45	0		43		1		40		1		83		
01:00	2	6	44	163	2	8	48	223	4	14	92	386	
01:15	0		36		1		48		1		84		
01:30	2		34		3		56		5		90		
01:45	2		49		2		71		4		120		
02:00	1	6	60	251	1	4	70	231	2	10	130	482	
02:15	1		114		1		66		2		180		
02:30	1		38		2		51		3		89		
02:45	3		39		0		44		3		83		
03:00	2	6	49	172	1	3	40	172	3	9	89	344	
03:15	3		30		1		36		4		66		
03:30	0		38		0		50		0		88		
03:45	1		55		1		46		2		101		
04:00	3	16	58	172	0	2	47	187	3	18	105	359	
04:15	3		34		0		48		3		82		
04:30	4		41		1		50		5		91		
04:45	6		39		1		42		7		81		
05:00	10	33	46	196	0	10	45	189	10	43	91	385	
05:15	7		62		3		50		10		112		
05:30	6		45		2		42		8		87		
05:45	10		43		5		52		15		95		
06:00	6	55	52	167	8	79	40	156	14	134	92	323	
06:15	4		40		14		36		18		76		
06:30	10		42		19		42		29		84		
06:45	35		33		38		38		73		71		
07:00	80	265	44	139	68	173	48	187	148	438	92	326	
07:15	113		38		69		48		182		86		
07:30	52		26		11		43		63		69		
07:45	20		31		25		48		45		79		
08:00	24	116	32	85	32	98	44	181	56	214	76	266	
08:15	30		20		35		47		65		67		
08:30	32		23		11		47		43		70		
08:45	30		10		20		43		50		53		
09:00	24	107	22	58	17	91	34	113	41	198	56	171	
09:15	21		15		28		34		49		49		
09:30	36		11		21		22		57		33		
09:45	26		10		25		23		51		33		
10:00	30	153	14	36	32	126	22	68	62	279	36	104	
10:15	40		7		30		23		70		30		
10:30	38		8		33		12		71		20		
10:45	45		7		31		11		76		18		
11:00	44	171	4	11	28	156	13	34	72	327	17	45	
11:15	28		0		54		9		82		9		
11:30	60		3		37		7		97		10		
11:45	39		4		37		5		76		9		
Totals	940		1.606		766		1.924		1.706		3.530		
Split%	55.1		45.5		44.9		54.5						
Day Totals		2.546				2.690				5.236			
Day Splits		48.6				51.4							
Peak Hour	06:45		01:45		06:30		01:30		06:45		01:30		
Volume	280		261		194		263		466		520		
Factor	0.62		0.57		0.70		0.93		0.64		0.72		

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : MORENO STREET | Site: MONTCLAIR

Segment : BET LINDERO & FREMONT | Date: 08/21/14

Client : STANTEC

Interval	EB				WB				Combined				Day: Thursday
Begin	AM		PM		AM		PM		AM		PM		
12:00	4	12	102	411	12	23	91	435	16	35	193	846	
12:15	4		110		7		112		11		222		
12:30	4		100		3		110		7		210		
12:45	0		99		1		122		1		221		
01:00	1	9	119	475	2	8	99	435	3	17	218	910	
01:15	2		126		1		104		3		230		
01:30	4		120		1		104		5		224		
01:45	2		110		4		128		6		238		
02:00	2	6	108	451	2	4	114	465	4	10	222	916	
02:15	1		132		0		136		1		268		
02:30	2		123		2		110		4		233		
02:45	1		88		0		105		1		193		
03:00	0	9	110	456	1	8	93	429	1	17	203	885	
03:15	2		112		1		100		3		212		
03:30	4		116		2		113		6		229		
03:45	3		118		4		123		7		241		
04:00	0	4	124	438	0	10	112	434	0	14	236	872	
04:15	2		99		3		104		5		203		
04:30	0		107		5		100		5		207		
04:45	2		108		2		118		4		226		
05:00	5	31	122	518	5	30	126	472	10	61	248	990	
05:15	4		146		8		112		12		258		
05:30	10		130		6		108		16		238		
05:45	12		120		11		126		23		246		
06:00	9	56	105	467	12	95	126	456	21	151	231	923	
06:15	8		122		24		100		32		222		
06:30	14		119		28		106		42		225		
06:45	25		121		31		124		56		245		
07:00	32	167	126	427	64	194	95	460	96	361	221	887	
07:15	31		106		48		114		79		220		
07:30	56		102		32		120		88		222		
07:45	48		93		50		131		98		224		
08:00	60	196	100	333	50	179	114	438	110	375	214	771	
08:15	42		79		45		108		87		187		
08:30	43		90		38		110		81		200		
08:45	51		64		46		106		97		170		
09:00	58	240	56	199	46	248	63	228	104	488	119	427	
09:15	55		69		68		70		123		139		
09:30	63		35		65		52		128		87		
09:45	64		39		69		43		133		82		
10:00	71	311	40	100	80	327	46	136	151	638	86	236	
10:15	78		22		88		30		166		52		
10:30	78		18		71		38		149		56		
10:45	84		20		88		22		172		42		
11:00	105	377	11	36	70	367	23	62	175	744	34	98	
11:15	68		5		94		13		162		18		
11:30	108		8		98		8		206		16		
11:45	96		12		105		18		201		30		
Totals	1.418		4.311		1.493		4.450		2.911		8.761		
Split%	48.7		49.2		51.3		50.8						
Day Totals		5.729				5.943				11.672			
Day Splits		49.1				50.9							
Peak Hour	11:00		05:00		11:00		01:45		11:00		05:00		
Volume	377		518		367		488		744		990		
Factor	0.87		0.89		0.87		0.90		0.90		0.96		

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : MORENO STREET | Site: MONTCLAIR

Segment : E/O CENTRAL AVENUE | Date: 09/09/14

Client : STANTEC

Day: Tuesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	12	35	122	458	9	23	126	506	21	58	248	964
12:15	7		122		3		138		10		260	
12:30	7		103		6		130		13		233	
12:45	9		111		5		112		14		223	
01:00	2	9	123	466	4	18	128	523	6	27	251	989
01:15	2		124		5		122		7		246	
01:30	3		112		5		147		8		259	
01:45	2		107		4		126		6		233	
02:00	4	12	106	472	3	9	120	537	7	21	226	1.009
02:15	3		112		4		139		7		251	
02:30	2		134		2		140		4		274	
02:45	3		120		0		138		3		258	
03:00	0	6	130	526	0	18	150	557	0	24	280	1,083
03:15	1		134		5		138		6		272	
03:30	3		126		5		146		8		272	
03:45	2		136		8		123		10		259	
04:00	5	16	138	547	8	45	126	546	13	61	264	1.093
04:15	2		140		10		146		12		286	
04:30	4		136		10		136		14		272	
04:45	5		133		17		138		22		271	
05:00	7	62	152	583	29	105	161	559	36	167	313	1,142
05:15	12		137		22		146		34		283	
05:30	24		144		24		124		48		268	
05:45	19		150		30		128		49		278	
06:00	16	83	148	544	29	174	123	470	45	257	271	1.014
06:15	13		136		32		128		45		264	
06:30	15		126		60		109		75		235	
06:45	39		134		53		110		92		244	
07:00	30	181	130	429	62	325	90	402	92	506	220	831
07:15	46		105		80		118		126		223	
07:30	46		114		64		108		110		222	
07:45	59		80		119		86		178		166	
08:00	56	233	94	334	60	254	92	286	116	487	186	620
08:15	52		87		70		76		122		163	
08:30	68		96		58		62		126		158	
08:45	57		57		66		56		123		113	
09:00	78	280	64	221	66	298	45	154	144	578	109	375
09:15	74		61		64		36		138		97	
09:30	64		54		80		31		144		85	
09:45	64		42		88		42		152		84	
10:00	79	384	28	90	92	424	29	75	171	808	57	165
10:15	96		24		103		17		199		41	
10:30	100		17		120		12		220		29	
10:45	109		21		109		17		218		38	
11:00	93	427	14	52	94	453	15	54	187	880	29	106
11:15	121		21		130		15		251		36	
11:30	118		7		123		8		241		15	
11:45	95		10		106		16		201		26	
Totals	1.728		4.722		2.146		4.669		3.874		9.391	
Split%	44.6		50.3		55.4		49.7					
Day Totals		6.450				6.815				13.265		
Day Splits		48.6				51.4						
Peak Hour	10:45		05:00		10:45		04:15		10:45		04:15	
Volume	441		583		456		581		897		1.142	
Factor	0.91		0.96		0.88		0.90		0.89		0.91	

* Data File : D1408073

Printed : 9/10/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : MONTE VISTA AVENUE — Site: MONTCLAIR

Segment : N/O MONTCLAIR PLAZA — Date: 08/21/14

Client : STANTEC

Day: Thursday

Interval	SB				NB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	24	70	160	679	23	53	132	628	47	123	292	1,307
12:15	25		176		17		156		42		332	
12:30	15		172		10		174		25		346	
12:45	6		171		3		166		9		337	
01:00	16	49	214	714	12	33	171	644	28	82	385	1.358
01:15	13		156		10		171		23		327	
01:30	11		174		5		158		16		332	
01:45	9		170		6		144		15		314	
02:00	11	26	169	756	3	25	166	694	14	51	335	1.450
02:15	4		222		8		187		12		409	
02:30	6		197		3		183		9		380	
02:45	5		168		11		158		16		326	
03:00	5	35	168	798	7	35	170	706	12	70	338	1,504
03:15	12		190		5		182		17		372	
03:30	6		244		12		169		18		413	
03:45	12		196		11		185		23		381	
04:00	14	91	220	850	5	87	157	676	19	178	377	1.526
04:15	17		208		26		171		43		379	
04:30	26		202		22		154		48		356	
04:45	34		220		34		194		68		414	
05:00	44	229	224	912	36	215	201	781	80	444	425	1,693
05:15	50		252		43		198		93		450	
05:30	55		230		70		207		125		437	
05:45	80		206		66		175		146		381	
06:00	78	386	206	822	66	398	172	710	144	784	378	1.532
06:15	88		188		82		180		170		368	
06:30	94		222		132		176		226		398	
06:45	126		206		118		182		244		388	
07:00	184	716	178	668	134	631	158	651	318	1.347	336	1.319
07:15	200		170		149		174		349		344	
07:30	223		169		151		170		374		339	
07:45	109		151		197		149		306		300	
08:00	142	539	158	539	166	583	128	476	308	1.122	286	1.015
08:15	127		134		122		128		249		262	
08:30	142		117		145		118		287		235	
08:45	128		130		150		102		278		232	
09:00	118	539	94	319	130	484	84	321	248	1.023	178	640
09:15	117		99		123		100		240		199	
09:30	138		74		107		70		245		144	
09:45	166		52		124		67		290		119	
10:00	126	557	68	214	126	481	63	209	252	1.038	131	423
10:15	140		60		108		49		248		109	
10:30	150		54		110		45		260		99	
10:45	141		32		137		52		278		84	
11:00	174	677	39	126	120	542	38	136	294	1.219	77	262
11:15	159		36		126		22		285		58	
11:30	170		26		142		44		312		70	
11:45	174		25		154		32		328		57	
Totals	3.914		7.397		3.567		6.632		7.481		14.029	
Split%	52.3		52.7		47.7		47.3					
Day Totals		11.311				10.199				21.510		
Day Splits		52.6				47.4						
Peak Hour	06:45		04:45		07:15		04:45		07:00		04:45	
Volume	733		926		663		800		1.347		1.726	
Factor	0.82		0.92		0.84		0.97		0.90		0.96	

* Data File : D1408053 — Printed : 8/29/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : CENTRAL AVENUE — Site: MONTCLAIR

Segment : S/O MORENO STREET — Date: 09/09/14

Client : STANTEC

Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	28	80	414	1,539	32	79	426	1,772	60	159	840	3,311
12:15	21		391		23		449		44		840	
12:30	16		384		13		435		29		819	
12:45	15		350		11		462		26		812	
01:00	13	64	424	1,555	14	72	472	1,858	27	136	896	3,413
01:15	26		376		18		456		44		832	
01:30	12		366		18		508		30		874	
01:45	13		389		22		422		35		811	
02:00	18	61	380	1.513	9	61	554	2.172	27	122	934	3.685
02:15	19		367		24		582		43		949	
02:30	6		386		18		556		24		942	
02:45	18		380		10		480		28		860	
03:00	12	75	375	1,575	11	69	471	2,003	23	144	846	3,578
03:15	10		394		16		520		26		914	
03:30	24		398		22		516		46		914	
03:45	29		408		20		496		49		904	
04:00	28	209	400	1,542	30	161	512	2,075	58	370	912	3,617
04:15	34		400		28		508		62		908	
04:30	56		356		41		501		97		857	
04:45	91		386		62		554		153		940	
05:00	88	531	385	1,584	100	418	589	2,291	188	949	974	3,875
05:15	104		392		110		680		214		1.072	
05:30	119		392		98		518		217		910	
05:45	220		415		110		504		330		919	
06:00	144	658	370	1,435	112	596	486	1,877	256	1,254	856	3,312
06:15	142		379		110		472		252		851	
06:30	164		362		192		482		356		844	
06:45	208		324		182		437		390		761	
07:00	224	1.054	284	1.056	218	954	422	1.434	442	2.008	706	2.490
07:15	206		270		248		378		454		648	
07:30	262		296		216		331		478		627	
07:45	362		206		272		303		634		509	
08:00	297	1,168	212	712	257	955	315	1,089	554	2,123	527	1,801
08:15	264		200		252		282		516		482	
08:30	298		168		238		270		536		438	
08:45	309		132		208		222		517		354	
09:00	269	1,087	126	513	204	1,014	225	756	473	2,101	351	1,269
09:15	262		142		252		189		514		331	
09:30	262		133		294		192		556		325	
09:45	294		112		264		150		558		262	
10:00	296	1,289	90	289	312	1,390	104	434	608	2,679	194	723
10:15	318		78		328		102		646		180	
10:30	302		57		370		134		672		191	
10:45	373		64		380		94		753		158	
11:00	322	1,432	52	189	361	1,617	78	227	683	3,049	130	416
11:15	366		46		394		52		760		98	
11:30	387		45		390		45		777		90	
11:45	357		46		472		52		829		98	
Totals	7.708		13.502		7.386		17.988		15.094		31.490	
Split%	51.1		42.9		48.9		57.1					
Day Totals		21,210				25,374				46,584		
Day Splits		45.5				54.5						
Peak Hour	10:45		03:30		11:00		04:45		11:00		04:45	
Volume	1.448		1.606		1.617		2.341		3.049		3.896	
Factor	0.94		0.98		0.86		0.86		0.92		0.91	

* Data File : D1408067 — Printed : 9/10/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : SAN JOSE STREET

Segment : W/O MONTE VISTA AVENUE

Client : STANTEC

Site: MONTCLAIR

Date: 08/21/14

Day: Thursday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	4	11	39	144	16	36	33	122	20	47	72	266
12:15	4		30		7		21		11		51	
12:30	0		35		10		28		10		63	
12:45	3		40		3		40		6		80	
01:00	1	16	41	125	3	19	34	159	4	35	75	284
01:15	4		32		9		40		13		72	
01:30	8		28		3		29		11		57	
01:45	3		24		4		56		7		80	
02:00	1	7	47	303	2	9	56	240	3	16	103	543
02:15	2		120		1		104		3		224	
02:30	0		92		2		42		2		134	
02:45	4		44		4		38		8		82	
03:00	3	17	40	147	0	5	44	143	3	22	84	290
03:15	5		38		2		28		7		66	
03:30	5		28		2		29		7		57	
03:45	4		41		1		42		5		83	
04:00	1	29	42	198	0	6	39	190	1	35	81	388
04:15	9		50		4		43		13		93	
04:30	9		54		1		42		10		96	
04:45	10		52		1		66		11		118	
05:00	11	79	52	271	6	26	66	316	17	105	118	587
05:15	19		71		6		100		25		171	
05:30	31		79		6		82		37		161	
05:45	18		69		8		68		26		137	
06:00	20	153	74	241	8	102	82	231	28	255	156	472
06:15	16		54		9		55		25		109	
06:30	53		53		42		46		95		99	
06:45	64		60		43		48		107		108	
07:00	62	531	64	373	50	338	66	212	112	869	130	585
07:15	66		102		72		57		138		159	
07:30	145		131		112		47		257		178	
07:45	258		76		104		42		362		118	
08:00	51	129	32	111	32	80	40	147	83	209	72	258
08:15	22		32		18		38		40		70	
08:30	26		31		14		39		40		70	
08:45	30		16		16		30		46		46	
09:00	21	103	20	105	24	83	30	93	45	186	50	198
09:15	29		30		26		28		55		58	
09:30	22		28		17		16		39		44	
09:45	31		27		16		19		47		46	
10:00	36	106	23	58	18	91	24	72	54	197	47	130
10:15	18		13		25		21		43		34	
10:30	30		14		22		13		52		27	
10:45	22		8		26		14		48		22	
11:00	30	113	6	31	18	74	9	41	48	187	15	72
11:15	19		8		20		11		39		19	
11:30	30		9		18		10		48		19	
11:45	34		8		18		11		52		19	
Totals	1.294		2.107		869		1.966		2.163		4.073	
Split%	59.8		51.7		40.2		48.3					
Day Totals		3.401				2.835				6.236		
Day Splits		54.5				45.5						
Peak Hour	07:00		07:00		07:00		05:15		07:00		05:15	
Volume	531		373		338		332		869		625	
Factor	0.51		0.71		0.75		0.83		0.60		0.91	

Data File : D1408054

Printed : 8/29/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : MONTE VISTA AVENUE — Site: MONTCLAIR

Segment : MONTCLAIR PLAZA TO I-10 — Date: 08/21/14

Client : STANTEC

Day: Thursday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	30	75	229	965	42	99	195	843	72	174	424	1,808
12:15	22		230		30		221		52		451	
12:30	18		249		15		214		33		463	
12:45	5		257		12		213		17		470	
01:00	18	56	254	1,006	26	68	242	916	44	124	496	1,922
01:15	20		250		20		214		40		464	
01:30	8		244		13		224		21		468	
01:45	10		258		9		236		19		494	
02:00	7	43	242	995	14	43	235	1.093	21	86	477	2.088
02:15	8		286		6		302		14		588	
02:30	10		229		14		326		24		555	
02:45	18		238		9		230		27		468	
03:00	7	47	242	1,050	8	52	228	1,006	15	99	470	2,056
03:15	10		272		16		244		26		516	
03:30	17		258		14		290		31		548	
03:45	13		278		14		244		27		522	
04:00	8	103	254	1,030	15	120	263	1,048	23	223	517	2,078
04:15	28		242		24		260		52		502	
04:30	24		250		36		247		60		497	
04:45	43		284		45		278		88		562	
05:00	54	257	284	1,194	58	301	242	1,059	112	558	526	2,253
05:15	56		306		67		289		123		595	
05:30	73		296		86		262		159		558	
05:45	74		308		90		266		164		574	
06:00	78	490	278	1,020	102	532	259	1,091	180	1,022	537	2,111
06:15	94		264		108		250		202		514	
06:30	156		252		136		286		292		538	
06:45	162		226		186		296		348		522	
07:00	168	863	234	838	216	1.041	248	1.110	384	1.904	482	1.948
07:15	181		228		232		269		413		497	
07:30	234		202		304		330		538		532	
07:45	280		174		289		263		569		437	
08:00	203	717	167	619	182	641	232	931	385	1,358	399	1,550
08:15	172		163		146		222		318		385	
08:30	154		160		166		239		320		399	
08:45	188		129		147		238		335		367	
09:00	161	659	108	396	140	596	170	607	301	1,255	278	1,003
09:15	164		108		138		177		302		285	
09:30	148		91		156		136		304		227	
09:45	186		89		162		124		348		213	
10:00	192	753	87	297	146	667	138	403	338	1,420	225	700
10:15	177		78		168		102		345		180	
10:30	174		60		183		87		357		147	
10:45	210		72		170		76		380		148	
11:00	183	838	59	189	198	792	74	234	381	1,630	133	423
11:15	202		38		188		58		390		96	
11:30	224		50		221		44		445		94	
11:45	229		42		185		58		414		100	
Totals	4.901		9.599		4.952		10.341		9.853		19.940	
Split%	49.7		48.1		50.3		51.9					
Day Totals		14.500				15.293				29.793		
Day Splits		48.7				51.3						
Peak Hour	07:15		05:00		07:00		06:45		07:15		05:15	
Volume	898		1.194		1.041		1.143		1.905		2.264	
Factor	0.80		0.97		0.86		0.87		0.84		0.95	

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

City: : CENTRAL AVENUE | Site: MONTCLAIR

Location: : I-10 FREEWAY TO COSTCO | Date: 08/26/14

Segment: : STANTEC

Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	22	79	355	1,575	40	120	372	1,662	62	199	727	3,237
12:15	22		376		24		412		46		788	
12:30	18		434		32		438		50		872	
12:45	17		410		24		440		41		850	
01:00	19	63	382	1,752	21	78	435	1,755	40	141	817	3,507
01:15	11		500		26		466		37		966	
01:30	18		448		17		444		35		892	
01:45	15		422		14		410		29		832	
02:00	10	66	493	1.814	14	52	448	1.860	24	118	941	3.674
02:15	18		452		16		444		34		896	
02:30	19		405		12		516		31		921	
02:45	19		464		10		452		29		916	
03:00	7	90	496	1,970	12	74	484	2,027	19	164	980	3,997
03:15	15		492		18		530		33		1,022	
03:30	30		532		22		498		52		1.030	
03:45	38		450		22		515		60		965	
04:00	34	281	462	1,817	30	145	469	1,865	64	426	931	3,682
04:15	65		468		24		502		89		970	
04:30	78		437		31		412		109		849	
04:45	104		450		60		482		164		932	
05:00	104	547	470	1,866	46	298	552	2,051	150	845	1,022	3,917
05:15	122		458		54		489		176		947	
05:30	162		442		68		518		230		960	
05:45	159		496		130		492		289		988	
06:00	193	923	466	1,663	90	557	464	1,883	283	1,480	930	3,546
06:15	171		420		112		478		283		898	
06:30	246		417		161		478		407		895	
06:45	313		360		194		463		507		823	
07:00	283	1.504	378	1.259	209	850	443	1.587	492	2.354	821	2.846
07:15	373		300		176		400		549		700	
07:30	398		296		224		406		622		702	
07:45	450		285		241		338		691		623	
08:00	360	1,265	276	935	229	911	300	1,083	589	2,176	576	2,018
08:15	324		252		236		298		560		550	
08:30	284		237		204		250		488		487	
08:45	297		170		242		235		539		405	
09:00	305	1,153	167	522	243	998	166	641	548	2,151	333	1,163
09:15	260		144		214		181		474		325	
09:30	276		117		272		176		548		293	
09:45	312		94		269		118		581		212	
10:00	315	1,312	88	307	338	1,305	100	374	653	2,617	188	681
10:15	359		82		330		98		689		180	
10:30	313		70		312		93		625		163	
10:45	325		67		325		83		650		150	
11:00	334	1.504	50	165	384	1.489	72	214	718	2,993	122	379
11:15	402		43		365		46		767		89	
11:30	386		44		367		56		753		100	
11:45	382		28		373		40		755		68	
Totals	8.787		15.645		6.877		17.002		15.664		32.647	
Split%	56.1		47.9		43.9		52.1					
Day Totals		24,432				23,879				48,311		
Day Splits		50.6				49.4						
Peak Hour	07:15		02:45		11:00		05:00		11:00		03:00	
Volume	1.581		1.984		1.489		2.051		2.993		3.997	
Factor	0.88		0.93		0.97		0.93		0.98		0.97	

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

City: : CENTRAL AVENUE — Site: MONTCLAIR

Location: : COSTCO TO PALO VERDE ST — Date: 08/26/14

Segment: : STANTEC

Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	25	82	270	1,187	39	120	262	1,171	64	202	532	2,358
12:15	19		290		27		300		46		590	
12:30	20		331		36		302		56		633	
12:45	18		296		18		307		36		603	
01:00	16	58	311	1,297	22	74	311	1,234	38	132	622	2,531
01:15	13		348		22		337		35		685	
01:30	9		332		17		294		26		626	
01:45	20		306		13		292		33		598	
02:00	6	60	330	1.283	14	53	334	1.316	20	113	664	2.599
02:15	20		331		15		298		35		629	
02:30	17		294		14		358		31		652	
02:45	17		328		10		326		27		654	
03:00	6	92	344	1,371	11	68	323	1,379	17	160	667	2,750
03:15	18		332		20		366		38		698	
03:30	29		351		17		334		46		685	
03:45	39		344		20		356		59		700	
04:00	42	272	334	1,320	17	117	331	1,300	59	389	665	2,620
04:15	66		318		20		332		86		650	
04:30	78		348		36		292		114		640	
04:45	86		320		44		345		130		665	
05:00	108	533	364	1,386	38	268	370	1,364	146	801	734	2,750
05:15	127		368		50		348		177		716	
05:30	140		332		74		323		214		655	
05:45	158		322		106		323		264		645	
06:00	158	785	350	1,197	62	440	319	1,277	220	1,225	669	2,474
06:15	146		305		96		330		242		635	
06:30	213		286		122		348		335		634	
06:45	268		256		160		280		428		536	
07:00	262	1.207	266	938	176	736	308	1.146	438	1.943	574	2.084
07:15	273		228		152		282		425		510	
07:30	323		232		203		276		526		508	
07:45	349		212		205		280		554		492	
08:00	270	1,027	196	681	210	770	251	910	480	1,797	447	1,591
08:15	262		186		186		252		448		438	
08:30	253		161		174		222		427		383	
08:45	242		138		200		185		442		323	
09:00	259	984	131	435	186	773	169	610	445	1,757	300	1,045
09:15	190		128		186		174		376		302	
09:30	261		96		203		165		464		261	
09:45	274		80		198		102		472		182	
10:00	282	1,064	81	288	220	918	92	366	502	1,982	173	654
10:15	264		73		223		98		487		171	
10:30	264		72		229		92		493		164	
10:45	254		62		246		84		500		146	
11:00	274	1,158	44	148	273	1,032	76	217	547	2,190	120	365
11:15	288		38		244		46		532		84	
11:30	298		30		243		57		541		87	
11:45	298		36		272		38		570		74	
Totals	7.322		11.531		5.369		12.290		12.691		23.821	
Split%	57.7		48.4		42.3		51.6					
Day Totals		18,853				17,659				36,512		
Day Splits		51.6				48.4						
Peak Hour	07:15		04:30		11:00		03:15		11:00		04:45	
Volume	1.215		1.400		1.032		1.387		2.190		2.770	
Factor	0.87		0.95		0.95		0.95		0.96		0.94	

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : PALO VERDE STREET

Segment : W/O CENTRAL AVENUE

Client : STANTEC

Site: MONTCLAIR

Date: 08/21/14

Day: Thursday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	7	33	57	250	4	13	53	255	11	46	110	505
12:15	7		68		3		68		10		136	
12:30	12		64		4		76		16		140	
12:45	7		61		2		58		9		119	
01:00	8	22	46	232	4	10	58	268	12	32	104	500
01:15	6		62		2		72		8		134	
01:30	2		58		4		70		6		128	
01:45	6		66		0		68		6		134	
02:00	3	7	66	296	1	5	62	260	4	12	128	556
02:15	0		86		1		69		1		155	
02:30	4		72		2		59		6		131	
02:45	0		72		1		70		1		142	
03:00	3	13	58	266	3	16	62	273	6	29	120	539
03:15	2		76		3		85		5		161	
03:30	4		66		2		61		6		127	
03:45	4		66		8		65		12		131	
04:00	2	16	80	319	7	42	49	253	9	58	129	572
04:15	1		71		8		73		9		144	
04:30	9		76		19		64		28		140	
04:45	4		92		8		67		12		159	
05:00	4	27	96	345	16	67	89	296	20	94	185	641
05:15	6		94		17		72		23		166	
05:30	9		72		21		55		30		127	
05:45	8		83		13		80		21		163	
06:00	8	83	62	243	20	114	82	280	28	197	144	523
06:15	16		55		20		72		36		127	
06:30	23		68		37		55		60		123	
06:45	36		58		37		71		73		129	
07:00	44	196	68	222	50	292	53	200	94	488	121	422
07:15	43		56		60		62		103		118	
07:30	43		54		90		52		133		106	
07:45	66		44		92		33		158		77	
08:00	50	154	36	177	56	181	42	166	106	335	78	343
08:15	35		58		41		48		76		106	
08:30	31		47		38		38		69		85	
08:45	38		36		46		38		84		74	
09:00	40	174	34	130	58	195	26	96	98	369	60	226
09:15	38		35		46		39		84		74	
09:30	36		38		46		15		82		53	
09:45	60		23		45		16		105		39	
10:00	49	202	34	118	52	209	29	62	101	411	63	180
10:15	45		32		56		9		101		41	
10:30	55		24		52		17		107		41	
10:45	53		28		49		7		102		35	
11:00	56	204	14	53	63	244	6	31	119	448	20	84
11:15	42		14		64		12		106		26	
11:30	59		9		58		7		117		16	
11:45	47		16		59		6		106		22	
Totals	1.131		2.651		1.388		2.440		2.519		5.091	
Split%	44.9		52.1		55.1		47.9					
Day Totals		3.782				3.828				7.610		
Day Splits		49.7				50.3						
Peak Hour	10:45		04:30		07:15		05:00		07:15		04:30	
Volume	210		358		298		296		500		650	
Factor	0.89		0.93		0.81		0.83		0.79		0.88	

Data File : D1408062

Printed : 8/29/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : PALO VERDE STREET

Segment : E/O CENTRAL STREET

Client : STANTEC

Site: MONTCLAIR

Date: 08/26/14

Day: Tuesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	9	22	56	229	3	9	45	194	12	31	101	423
12:15	6		45		3		56		9		101	
12:30	4		57		2		59		6		116	
12:45	3		71		1		34		4		105	
01:00	2	7	61	241	4	10	66	249	6	17	127	490
01:15	2		67		0		67		2		134	
01:30	3		60		4		64		7		124	
01:45	0		53		2		52		2		105	
02:00	1	7	54	235	0	8	60	218	1	15	114	453
02:15	3		51		2		50		5		101	
02:30	0		70		4		46		4		116	
02:45	3		60		2		62		5		122	
03:00	2	5	77	288	2	13	57	207	4	18	134	495
03:15	0		70		2		44		2		114	
03:30	1		65		5		57		6		122	
03:45	2		76		4		49		6		125	
04:00	1	13	76	266	8	47	54	199	9	60	130	465
04:15	5		72		10		45		15		117	
04:30	3		57		12		54		15		111	
04:45	4		61		17		46		21		107	
05:00	4	15	84	301	19	83	58	209	23	98	142	510
05:15	4		68		24		59		28		127	
05:30	2		67		22		46		24		113	
05:45	5		82		18		46		23		128	
06:00	6	47	70	312	24	139	71	224	30	186	141	536
06:15	8		97		22		53		30		150	
06:30	19		73		50		60		69		133	
06:45	14		72		43		40		57		112	
07:00	32	129	70	263	66	318	48	197	98	447	118	460
07:15	32		58		78		55		110		113	
07:30	35		62		90		46		125		108	
07:45	30		73		84		48		114		121	
08:00	34	112	61	218	56	177	40	125	90	289	101	343
08:15	27		55		39		23		66		78	
08:30	24		55		46		28		70		83	
08:45	27		47		36		34		63		81	
09:00	23	104	49	163	48	184	32	98	71	288	81	261
09:15	16		44		44		23		60		67	
09:30	35		36		48		26		83		62	
09:45	30		34		44		17		74		51	
10:00	30	151	22	84	39	160	24	65	69	311	46	149
10:15	38		24		46		20		84		44	
10:30	41		21		37		4		78		25	
10:45	42		17		38		17		80		34	
11:00	51	195	23	58	34	198	8	21	85	393	31	79
11:15	47		13		56		4		103		17	
11:30	51		9		58		6		109		15	
11:45	46		13		50		3		96		16	
Totals	807		2.658		1.346		2.006		2.153		4.664	
Split%	37.5		57.0		62.5		43.0					
Day Totals		3.465				3.352				6.817		
Day Splits		50.8				49.2						
Peak Hour	11:00		05:45		07:00		01:00		07:00		05:45	
Volume	195		322		318		249		447		552	
Factor	0.96		0.83		0.88		0.93		0.89		0.92	

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : MONTE VISTA AVENUE — Site: MONTCLAIR

Segment : PALO VERDE TO SAN BERNARDINO — Date: 08/21/14

Client : STANTEC

Day: Thursday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	28	70	128	566	54	151	164	691	82	221	292	1,257
12:15	12		134		40		181		52		315	
12:30	20		152		37		168		57		320	
12:45	10		152		20		178		30		330	
01:00	14	55	128	590	28	88	158	679	42	143	286	1,269
01:15	16		138		24		163		40		301	
01:30	11		166		18		164		29		330	
01:45	14		158		18		194		32		352	
02:00	9	47	167	675	22	71	180	954	31	118	347	1.629
02:15	8		176		20		234		28		410	
02:30	18		160		16		288		34		448	
02:45	12		172		13		252		25		424	
03:00	16	99	215	757	9	57	239	973	25	156	454	1,730
03:15	20		188		16		246		36		434	
03:30	37		170		16		240		53		410	
03:45	26		184		16		248		42		432	
04:00	28	218	190	736	16	87	243	968	44	305	433	1.704
04:15	50		174		21		254		71		428	
04:30	68		180		20		211		88		391	
04:45	72		192		30		260		102		452	
05:00	85	486	216	828	28	206	222	1,003	113	692	438	1,831
05:15	126		230		36		296		162		526	
05:30	160		194		64		254		224		448	
05:45	115		188		78		231		193		419	
06:00	106	582	180	656	70	422	198	878	176	1,004	378	1,534
06:15	108		166		76		223		184		389	
06:30	198		163		108		232		306		395	
06:45	170		147		168		225		338		372	
07:00	166	904	157	502	147	886	238	936	313	1.790	395	1.438
07:15	192		127		178		212		370		339	
07:30	268		117		253		266		521		383	
07:45	278		101		308		220		586		321	
08:00	191	637	125	432	188	582	192	748	379	1,219	317	1,180
08:15	158		112		138		183		296		295	
08:30	138		102		104		188		242		290	
08:45	150		93		152		185		302		278	
09:00	130	536	70	280	104	523	146	552	234	1,059	216	832
09:15	134		72		148		154		282		226	
09:30	142		72		126		126		268		198	
09:45	130		66		145		126		275		192	
10:00	130	492	46	184	132	556	96	381	262	1,048	142	565
10:15	120		50		150		108		270		158	
10:30	132		44		136		103		268		147	
10:45	110		44		138		74		248		118	
11:00	142	560	42	117	172	652	104	269	314	1,212	146	386
11:15	143		23		158		64		301		87	
11:30	128		25		162		50		290		75	
11:45	147		27		160		51		307		78	
Totals	4.686		6.323		4.281		9.032		8.967		15.355	
Split%	52.3		41.2		47.7		58.8					
Day Totals		11,009				13,313				24,322		
Day Splits		45.3				54.7						
Peak Hour	07:15		04:45		07:15		04:45		07:15		04:45	
Volume	929		832		927		1.032		1.856		1.864	
Factor	0.84		0.90		0.75		0.87		0.79		0.89	

* Data File : D1408057 — Printed : 8/29/2014

Transportation Studies, Inc.

2640 Walnut Aveenue, Suite H

Tustin, CA. 92780

Location : CENTRAL AVENUE — Site: MONTCLAIR

Segment : SAN BERNARDINO TO PALO VERDE — Date: 09/09/14

Client : STANTEC

Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	30	88	294	1,136	34	105	292	1,052	64	193	586	2,188
12:15	19		262		32		240		51		502	
12:30	18		300		20		254		38		554	
12:45	21		280		19		266		40		546	
01:00	20	91	289	1,115	15	68	257	1,107	35	159	546	2,222
01:15	25		283		20		276		45		559	
01:30	22		270		12		272		34		542	
01:45	24		273		21		302		45		575	
02:00	22	78	294	1.273	6	49	274	1.224	28	127	568	2.497
02:15	16		322		14		292		30		614	
02:30	14		330		14		318		28		648	
02:45	26		327		15		340		41		667	
03:00	10	88	351	1,384	12	63	342	1,260	22	151	693	2,644
03:15	17		344		16		314		33		658	
03:30	27		360		18		286		45		646	
03:45	34		329		17		318		51		647	
04:00	48	259	350	1.415	17	110	312	1.230	65	369	662	2.645
04:15	51		344		22		298		73		642	
04:30	76		352		36		280		112		632	
04:45	84		369		35		340		119		709	
05:00	90	494	310	1,341	44	256	360	1,331	134	750	670	2,672
05:15	126		358		48		321		174		679	
05:30	130		340		82		344		212		684	
05:45	148		333		82		306		230		639	
06:00	156	756	358	1.215	66	430	324	1.209	222	1.186	682	2.424
06:15	158		286		80		318		238		604	
06:30	208		288		118		304		326		592	
06:45	234		283		166		263		400		546	
07:00	240	1.236	268	810	164	762	246	926	404	1.998	514	1.736
07:15	277		199		172		244		449		443	
07:30	341		185		200		228		541		413	
07:45	378		158		226		208		604		366	
08:00	338	1,159	161	553	203	810	218	766	541	1,969	379	1,319
08:15	271		140		191		184		462		324	
08:30	258		136		216		198		474		334	
08:45	292		116		200		166		492		282	
09:00	248	952	96	418	182	747	143	490	430	1,699	239	908
09:15	250		110		189		134		439		244	
09:30	236		108		180		120		416		228	
09:45	218		104		196		93		414		197	
10:00	276	1,025	82	282	188	847	89	317	464	1,872	171	599
10:15	270		68		216		86		486		154	
10:30	241		78		215		82		456		160	
10:45	238		54		228		60		466		114	
11:00	274	1,094	38	154	247	972	72	206	521	2,066	110	360
11:15	260		38		228		46		488		84	
11:30	295		43		240		44		535		87	
11:45	265		35		257		44		522		79	
Totals	7.320		11.096		5.219		11.118		12.539		22.214	
Split%	58.4		50.0		41.6		50.0					
Day Totals		18,416				16,337				34,753		
Day Splits		53.0				47.0						
Peak Hour	07:15		04:00		11:00		04:45		07:30		04:45	
Volume	1.334		1.415		972		1.365		2.148		2.742	
Factor	0.88		0.96		0.95		0.95		0.89		0.97	

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Claremont
Arrow Highway
E/ College Avenue
24 Hour Directional Volume Count

CMT010
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		11	124			13	135				
12:15		9	126			8	119				
12:30		5	135			1	153				
12:45		11	178	36	563	6	156	28	563	64	1126
01:00		8	159			10	139				
01:15		5	146			0	106				
01:30		3	134			5	119				
01:45		3	153	19	592	6	131	21	495	40	1087
02:00		3	168			4	141				
02:15		3	202			1	140				
02:30		2	161			0	135				
02:45		6	203	14	734	6	148	11	564	25	1298
03:00		4	229			4	128				
03:15		2	220			6	122				
03:30		7	234			9	144				
03:45		9	229	22	912	11	158	30	552	52	1464
04:00		5	264			14	130				
04:15		4	263			29	151				
04:30		11	268			25	**157**				
04:45		10	**339**	30	1134	48	**143**	116	581	146	1715
05:00		23	**318**			73	**153**				
05:15		20	**315**			115	**156**				
05:30		28	**288**			186	122				
05:45		25	267	96	1188	122	119	496	550	592	1738
06:00		49	229			146	113				
06:15		45	245			168	124				
06:30		58	229			203	135				
06:45		61	187	213	890	193	112	710	484	923	1374
07:00		62	138			**266**	81				
07:15		121	119			**309**	84				
07:30		147	114			**299**	70				
07:45		135	87	465	458	**225**	78	1099	313	1564	771
08:00		108	80			177	65				
08:15		107	60			181	72				
08:30		126	65			137	49				
08:45		101	59	442	264	114	59	609	245	1051	509
09:00		99	61			88	51				
09:15		80	52			96	50				
09:30		112	51			110	45				
09:45		100	43	391	207	94	39	388	185	779	392
10:00		100	52			125	28				
10:15		124	31			75	26				
10:30		121	29			101	23				
10:45		104	27	449	139	96	16	397	93	846	232
11:00		**143**	17			103	18				
11:15		**122**	19			113	24				
11:30		**134**	16			104	13				
11:45		**141**	19	540	71	125	11	445	66	985	137
Total		2717	7152	2717	7152	4350	4691	4350	4691	7067	11843
Combined Total		9869		9869		9041		9041		18910	
AM Peak	-	11:00	-	-	-	07:00	-	-	-	-	-
Vol.	-	540	-	-	-	1099	-	-	-	-	-
P.H.F.		0.918				0.889					
PM Peak	-	-	04:45	-	-	-	04:30	-	-	-	-
Vol.	-	-	1260	-	-	-	609	-	-	-	-
P.H.F.			0.929				0.970				
Percentage		27.5%	72.5%			48.1%	51.9%				
ADT/AADT		ADT 18,910		AADT 18,910							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Claremont
Arrow Highway
W/ Indian Hill Boulevard
24 Hour Directional Volume Count

CMT011
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		15	161			12	127				
12:15		18	130			11	130				
12:30		8	136			7	**151**				
12:45		4	139	45	566	6	**168**	36	576	81	1142
01:00		11	148			2	**177**				
01:15		9	164			7	**157**				
01:30		3	151			7	132				
01:45		3	142	26	605	4	156	20	622	46	1227
02:00		5	158			4	131				
02:15		3	170			6	157				
02:30		7	220			2	146				
02:45		2	175	17	723	5	148	17	582	34	1305
03:00		10	175			2	138				
03:15		5	213			5	137				
03:30		2	222			5	125				
03:45		6	266	23	876	10	143	22	543	45	1419
04:00		4	247			10	165				
04:15		4	275			9	143				
04:30		5	299			26	136				
04:45		16	**338**	29	1159	35	171	80	615	109	1774
05:00		10	**300**			42	150				
05:15		19	**349**			65	163				
05:30		21	**342**			125	141				
05:45		29	333	79	1324	216	137	448	591	527	1915
06:00		26	268			153	139				
06:15		44	254			154	147				
06:30		40	258			182	139				
06:45		76	269	186	1049	215	136	704	561	890	1610
07:00		79	226			203	118				
07:15		93	151			**240**	89				
07:30		131	107			**318**	100				
07:45		139	118	442	602	**340**	84	1101	391	1543	993
08:00		150	82			**244**	78				
08:15		128	69			204	83				
08:30		135	56			204	64				
08:45		125	67	538	274	172	63	824	288	1362	562
09:00		114	54			127	70				
09:15		113	59			133	53				
09:30		106	48			78	58				
09:45		98	47	431	208	106	50	444	231	875	439
10:00		125	44			92	47				
10:15		110	49			134	34				
10:30		133	33			116	36				
10:45		124	23	492	149	91	26	433	143	925	292
11:00		**129**	23			103	14				
11:15		**151**	18			124	21				
11:30		**152**	19			114	28				
11:45		**138**	13	570	73	130	17	471	80	1041	153
Total		2878	7608	2878	7608	4600	5223	4600	5223	7478	12831
Combined Total		10486		10486		9823		9823		20309	
AM Peak	-	11:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	570	-	-	-	1142	-	-	-	-	-
P.H.F.		0.938				0.840					
PM Peak	-	-	04:45	-	-	-	00:30	-	-	-	-
Vol.	-	-	1329	-	-	-	653	-	-	-	-
P.H.F.			0.952				0.922				
Percentage		27.4%	72.6%			46.8%	53.2%				
ADT/AADT		ADT 20,309		AADT 20,309							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Claremont
Claremont Boulevard
N/ Arrow Highway
24 Hour Directional Volume Count

CMT009
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		8	65			8	76				
12:15		6	102			13	75				
12:30		5	76			7	82				
12:45		2	81	21	324	5	73	33	306	54	630
01:00		5	91			1	92				
01:15		5	82			4	95				
01:30		3	88			2	66				
01:45		2	94	15	355	1	67	8	320	23	675
02:00		2	80			1	83				
02:15		0	75			4	94				
02:30		1	83			2	68				
02:45		2	106	5	344	0	87	7	332	12	676
03:00		0	91			0	98				
03:15		2	106			0	101				
03:30		1	98			4	93				
03:45		2	76	5	371	2	84	6	376	11	747
04:00		3	100			4	100				
04:15		2	108			1	80				
04:30		5	82			8	**100**				
04:45		8	**137**	18	427	13	**90**	26	370	44	797
05:00		9	**133**			12	**111**				
05:15		18	**141**			20	**110**				
05:30		15	**132**			16	100				
05:45		33	115	75	521	41	89	89	410	164	931
06:00		22	107			25	87				
06:15		16	93			32	93				
06:30		33	99			55	98				
06:45		38	100	109	399	79	71	191	349	300	748
07:00		46	77			81	88				
07:15		50	73			87	71				
07:30		82	55			**128**	59				
07:45		**110**	57	288	262	**158**	58	454	276	742	538
08:00		**125**	64			**127**	31				
08:15		**79**	64			**111**	56				
08:30		**100**	50			112	36				
08:45		91	48	395	226	102	49	452	172	847	398
09:00		65	41			88	31				
09:15		75	30			77	38				
09:30		50	38			56	34				
09:45		55	31	245	140	76	30	297	133	542	273
10:00		54	26			68	26				
10:15		68	18			75	23				
10:30		65	30			70	17				
10:45		63	15	250	89	60	16	273	82	523	171
11:00		53	18			69	16				
11:15		64	10			58	9				
11:30		60	11			58	14				
11:45		74	13	251	52	65	10	250	49	501	101
Total		1677	3510	1677	3510	2086	3175	2086	3175	3763	6685
Combined Total		5187		5187		5261		5261		10448	
AM Peak	-	07:45	-	-	-	07:30	-	-	-	-	-
Vol.	-	414	-	-	-	524	-	-	-	-	-
P.H.F.		0.828				0.829					
PM Peak	-	-	04:45	-	-	-	04:30	-	-	-	-
Vol.	-	-	543	-	-	-	411	-	-	-	-
P.H.F.			0.963				0.926				
Percentage		32.3%	67.7%			39.7%	60.3%				
ADT/AADT		ADT 10,448		AADT 10,448							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Claremont
Foothill Boulevard
W Monte Vista Avenue
24 Hour Directional Volume Count

CMT003
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		18	208			19	200				
12:15		22	188			10	**217**				
12:30		20	188			10	**224**				
12:45		13	198	73	782	14	**233**	53	874	126	1656
01:00		13	181			6	**203**				
01:15		12	195			8	180				
01:30		12	181			5	170				
01:45		3	205	40	762	5	165	24	718	64	1480
02:00		3	201			9	180				
02:15		8	185			6	184				
02:30		3	209			4	194				
02:45		2	186	16	781	7	198	26	756	42	1537
03:00		3	187			6	169				
03:15		6	247			3	179				
03:30		11	212			10	188				
03:45		6	177	26	823	1	182	20	718	46	1541
04:00		6	261			8	200				
04:15		10	212			11	185				
04:30		9	263			18	203				
04:45		21	244	46	980	36	199	73	787	119	1767
05:00		18	268			31	200				
05:15		20	292			47	166				
05:30		16	257			57	186				
05:45		30	274	84	1091	96	188	231	740	315	1831
06:00		30	**268**			86	184				
06:15		48	**335**			85	188				
06:30		46	**329**			122	155				
06:45		50	**328**	174	1260	163	132	456	659	630	1919
07:00		62	217			159	130				
07:15		88	165			**216**	127				
07:30		100	137			**224**	108				
07:45		153	103	403	622	**261**	111	860	476	1263	1098
08:00		138	120			**209**	104				
08:15		128	102			209	96				
08:30		127	128			200	86				
08:45		142	87	535	437	192	103	810	389	1345	826
09:00		127	78			144	75				
09:15		121	85			138	65				
09:30		134	83			141	49				
09:45		135	44	517	290	124	79	547	268	1064	558
10:00		143	51			116	57				
10:15		140	47			155	38				
10:30		160	44			149	44				
10:45		136	34	579	176	157	41	577	180	1156	356
11:00		**156**	32			163	26				
11:15		**164**	20			130	19				
11:30		**145**	35			168	20				
11:45		**166**	30	631	117	201	20	662	85	1293	202
Total		3124	8121	3124	8121	4339	6650	4339	6650	7463	14771
Combined Total		11245		11245		10989		10989		22234	
AM Peak	-	11:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	631	-	-	-	910	-	-	-	-	-
P.H.F.		0.950				0.872					
PM Peak	-	-	06:00	-	-	-	00:15	-	-	-	-
Vol.	-	-	1260	-	-	-	877	-	-	-	-
P.H.F.			0.940				0.941				
Percentage		27.8%	72.2%			39.5%	60.5%				
ADT/AADT		ADT 22,234		AADT 22,234							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Claremont
Indian Hill Bouleaved
N/ Arrow Highway
24 Hour Directional Volume Count

CMT012
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		9	191			20	177				
12:15		9	**221**			17	161				
12:30		11	**168**			15	201				
12:45		7	**212**	36	792	11	171	63	710	99	1502
01:00		7	**198**			13	186				
01:15		4	194			7	213				
01:30		6	180			11	186				
01:45		3	189	20	761	10	173	41	758	61	1519
02:00		4	179			1	179				
02:15		7	158			5	172				
02:30		2	185			3	185				
02:45		1	191	14	713	5	187	14	723	28	1436
03:00		5	211			6	215				
03:15		2	189			2	229				
03:30		1	184			1	218				
03:45		6	183	14	767	4	171	13	833	27	1600
04:00		4	181			8	205				
04:15		5	202			7	176				
04:30		8	155			10	**221**				
04:45		11	191	28	729	20	**187**	45	789	73	1518
05:00		17	211			16	**263**				
05:15		19	196			17	**229**				
05:30		20	183			28	203				
05:45		44	184	100	774	42	172	103	867	203	1641
06:00		49	173			39	197				
06:15		53	155			41	164				
06:30		65	138			45	164				
06:45		81	143	248	609	65	173	190	698	438	1307
07:00		91	131			98	142				
07:15		130	129			111	177				
07:30		162	123			140	126				
07:45		**215**	112	598	495	173	113	522	558	1120	1053
08:00		**211**	104			**163**	137				
08:15		**188**	99			**175**	101				
08:30		**174**	82			**133**	110				
08:45		211	78	784	363	**202**	101	673	449	1457	812
09:00		134	84			129	98				
09:15		138	68			128	101				
09:30		140	51			113	96				
09:45		151	40	563	243	118	100	488	395	1051	638
10:00		112	44			122	75				
10:15		173	35			112	90				
10:30		123	47			125	51				
10:45		142	39	550	165	121	51	480	267	1030	432
11:00		136	33			129	48				
11:15		155	20			125	47				
11:30		155	27			154	37				
11:45		197	9	643	89	148	27	556	159	1199	248
Total		3598	6500	3598	6500	3188	7206	3188	7206	6786	13706
Combined Total		10098		10098		10394		10394		20492	
AM Peak	-	07:45	-	-	-	08:00	-	-	-	-	-
Vol.	-	788	-	-	-	673	-	-	-	-	-
P.H.F.		0.916				0.833					
PM Peak	-	-	00:15	-	-	-	04:30	-	-	-	-
Vol.	-	-	799	-	-	-	900	-	-	-	-
P.H.F.			0.904				0.856				
Percentage		35.6%	64.4%			30.7%	69.3%				
ADT/AADT		ADT 20,492		AADT 20,492							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Claremont
Indian Hill Boulevard
S/ Arrow Highway
24 Hour Directional Volume Count

CMT013
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		18	221			25	195				
12:15		20	233			40	185				
12:30		13	200			21	185				
12:45		10	220	61	874	9	209	95	774	156	1648
01:00		9	**261**			14	172				
01:15		7	**211**			10	238				
01:30		10	**216**			11	201				
01:45		4	**232**	30	920	8	162	43	773	73	1693
02:00		7	197			11	183				
02:15		2	207			6	210				
02:30		7	180			5	223				
02:45		3	236	19	820	7	193	29	809	48	1629
03:00		8	219			9	220				
03:15		4	212			14	231				
03:30		3	219			5	255				
03:45		8	216	23	866	8	230	36	936	59	1802
04:00		9	186			16	237				
04:15		15	236			14	220				
04:30		21	163			15	241				
04:45		15	223	60	808	26	**255**	71	953	131	1761
05:00		32	219			31	**221**				
05:15		40	193			33	**290**				
05:30		47	197			35	**251**				
05:45		94	192	213	801	36	224	135	986	348	1787
06:00		74	224			55	225				
06:15		84	181			66	218				
06:30		85	153			76	187				
06:45		117	149	360	707	87	222	284	852	644	1559
07:00		133	156			135	203				
07:15		129	134			142	180				
07:30		211	148			177	140				
07:45		**274**	140	747	578	**192**	151	646	674	1393	1252
08:00		**254**	135			**197**	153				
08:15		**253**	121			**211**	109				
08:30		**259**	105			**199**	107				
08:45		245	87	1011	448	182	126	789	495	1800	943
09:00		167	106			163	113				
09:15		181	86			144	115				
09:30		151	82			140	104				
09:45		178	55	677	329	142	138	589	470	1266	799
10:00		134	74			133	103				
10:15		183	61			133	95				
10:30		179	51			143	73				
10:45		168	52	664	238	136	57	545	328	1209	566
11:00		165	39			142	68				
11:15		161	35			129	45				
11:30		186	36			172	37				
11:45		205	27	717	137	158	38	601	188	1318	325
Total		4582	7526	4582	7526	3863	8238	3863	8238	8445	15764
Combined Total		12108		12108		12101		12101		24209	
AM Peak	-	07:45	-	-	-	07:45	-	-	-	-	-
Vol.	-	1040	-	-	-	799	-	-	-	-	-
P.H.F.		0.949				0.947					
PM Peak	-	-	01:00	-	-	-	04:45	-	-	-	-
Vol.	-	-	920	-	-	-	1017	-	-	-	-
P.H.F.			0.881				0.877				
Percentage		37.8%	62.2%			31.9%	68.1%				
ADT/AADT		ADT 24,209		AADT 24,209							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Claremont
Mills Avenue
S/ Arrow Highway
24 Hour Directional Volume Count

CMT014
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northboud Morning	Northboud Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		4	47			7	46				
12:15		2	51			5	48				
12:30		4	56			4	43				
12:45		1	49	11	203	5	52	21	189	32	392
01:00		3	46			1	40				
01:15		3	55			1	52				
01:30		1	22			3	55				
01:45		1	68	8	191	1	51	6	198	14	389
02:00		2	34			1	45				
02:15		2	36			3	64				
02:30		0	**66**			2	55				
02:45		1	**67**	5	203	3	56	9	220	14	423
03:00		1	**55**			1	72				
03:15		1	**76**			0	68				
03:30		3	66			2	75				
03:45		2	59	7	256	1	61	4	276	11	532
04:00		2	59			2	70				
04:15		4	46			2	57				
04:30		6	54			6	82				
04:45		11	73	23	232	7	**89**	17	298	40	530
05:00		10	68			7	**92**				
05:15		14	68			7	**90**				
05:30		27	47			7	**88**				
05:45		35	64	86	247	10	68	31	338	117	585
06:00		26	68			8	84				
06:15		28	29			13	64				
06:30		34	57			15	58				
06:45		50	50	138	204	34	53	70	259	208	463
07:00		53	46			41	62				
07:15		**56**	28			**44**	44				
07:30		**89**	20			**58**	33				
07:45		**96**	35	294	129	**59**	35	202	174	496	303
08:00		**74**	30			**50**	26				
08:15		56	35			41	43				
08:30		81	25			37	36				
08:45		57	23	268	113	55	38	183	143	451	256
09:00		35	28			35	34				
09:15		48	15			36	23				
09:30		51	12			41	21				
09:45		34	5	168	60	49	27	161	105	329	165
10:00		31	5			38	21				
10:15		40	1			33	8				
10:30		43	8			36	15				
10:45		46	14	160	28	27	3	134	47	294	75
11:00		51	6			40	10				
11:15		39	3			37	10				
11:30		37	8			22	6				
11:45		51	3	178	20	36	1	135	27	313	47
Total		1346	1886	1346	1886	973	2274	973	2274	2319	4160
Combined Total		3232		3232		3247		3247		6479	
AM Peak	-	07:15	-	-	-	07:15	-	-	-	-	-
Vol.	-	315	-	-	-	211	-	-	-	-	-
P.H.F.		0.820				0.894					
PM Peak	-	-	02:30	-	-	-	04:45	-	-	-	-
Vol.	-	-	264	-	-	-	359	-	-	-	-
P.H.F.			0.868				0.976				
Percentage		41.6%	58.4%			30.0%	70.0%				
ADT/AADT		ADT 6,479		AADT 6,479							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Claremont
Monte Vista Avenue
N/ Foothill Boulevard
24 Hour Directional Volume Count

CMT001
Site Code: 2016-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		12	89			11	131				
12:15		14	122			11	142				
12:30		9	117			3	173				
12:45		8	114	43	442	5	122	30	568	73	1010
01:00		9	103			6	120				
01:15		4	118			2	129				
01:30		6	139			9	105				
01:45		3	115	22	475	6	127	23	481	45	956
02:00		8	119			11	108				
02:15		6	112			5	128				
02:30		4	131			7	116				
02:45		6	129	24	491	12	122	35	474	59	965
03:00		4	142			13	138				
03:15		3	140			7	125				
03:30		13	132			14	143				
03:45		13	162	33	576	14	148	48	554	81	1130
04:00		12	140			32	148				
04:15		14	158			21	133				
04:30		15	134			33	146				
04:45		18	**153**	59	585	60	**169**	146	596	205	1181
05:00		18	**149**			52	**196**				
05:15		22	**149**			48	**174**				
05:30		26	**155**			47	**153**				
05:45		35	145	101	598	57	127	204	650	305	1248
06:00		45	145			69	132				
06:15		54	119			71	121				
06:30		49	118			76	116				
06:45		96	111	244	493	111	97	327	466	571	959
07:00		95	123			112	99				
07:15		99	116			118	94				
07:30		101	117			112	72				
07:45		**153**	95	448	451	125	74	467	339	915	790
08:00		**121**	86			133	74				
08:15		**133**	74			133	58				
08:30		**123**	82			128	66				
08:45		110	55	487	297	138	58	532	256	1019	553
09:00		89	68			123	35				
09:15		79	61			125	51				
09:30		76	49			127	31				
09:45		87	53	331	231	102	32	477	149	808	380
10:00		82	37			120	38				
10:15		84	45			110	34				
10:30		90	29			109	23				
10:45		91	29	347	140	104	17	443	112	790	252
11:00		83	33			**150**	21				
11:15		96	20			**125**	15				
11:30		96	18			**125**	19				
11:45		99	15	374	86	**135**	8	535	63	909	149
Total		2513	4865	2513	4865	3267	4708	3267	4708	5780	9573
Combined Total		7378		7378		7975		7975		15353	
AM Peak	-	07:45	-	-	-	11:00	-	-	-	-	-
Vol.	-	530	-	-	-	535	-	-	-	-	-
P.H.F.		0.866				0.892					
PM Peak	-	-	04:45	-	-	-	04:45	-	-	-	-
Vol.	-	-	606	-	-	-	692	-	-	-	-
P.H.F.			0.959				0.883				
Percentage		34.1%	65.9%			41.0%	59.0%				
ADT/AADT		ADT 15,353		AADT 15,353							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Montclair
Central Avenue
S/ Holt Boulevard
24 Hour Directional Volume Count

MON016
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		37	248			23	241				
12:15		36	279			20	213				
12:30		15	259			24	252				
12:45		24	252	112	1038	19	261	86	967	198	2005
01:00		20	253			22	250				
01:15		14	263			16	223				
01:30		13	289			19	245				
01:45		10	282	57	1087	21	226	78	944	135	2031
02:00		24	273			28	258				
02:15		10	312			20	271				
02:30		13	305			21	292				
02:45		4	305	51	1195	24	274	93	1095	144	2290
03:00		22	302			13	277				
03:15		17	291			20	317				
03:30		25	296			44	281				
03:45		37	324	101	1213	27	290	104	1165	205	2378
04:00		30	316			46	289				
04:15		30	**334**			42	308				
04:30		57	**332**			93	300				
04:45		64	**326**	181	1308	85	**311**	266	1208	447	2516
05:00		70	**351**			74	**341**				
05:15		111	316			101	**345**				
05:30		104	277			178	**306**				
05:45		78	262	363	1206	113	291	466	1283	829	2489
06:00		123	230			112	264				
06:15		201	266			139	271				
06:30		208	262			183	241				
06:45		253	197	785	955	164	253	598	1029	1383	1984
07:00		**299**	186			176	245				
07:15		**371**	196			**194**	219				
07:30		**345**	149			**234**	204				
07:45		**275**	163	1290	694	**232**	197	836	865	2126	1559
08:00		279	136			**254**	187				
08:15		245	124			189	166				
08:30		268	147			208	154				
08:45		257	117	1049	524	193	145	844	652	1893	1176
09:00		201	129			188	160				
09:15		227	111			191	109				
09:30		226	111			200	105				
09:45		226	101	880	452	173	116	752	490	1632	942
10:00		247	94			157	77				
10:15		226	87			194	80				
10:30		208	47			220	70				
10:45		232	57	913	285	204	63	775	290	1688	575
11:00		248	62			213	52				
11:15		226	35			215	52				
11:30		256	34			241	40				
11:45		211	35	941	166	215	36	884	180	1825	346
Total		6723	10123	6723	10123	5782	10168	5782	10168	12505	20291
Combined Total		16846		16846		15950		15950		32796	
AM Peak	-	07:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	1290	-	-	-	914	-	-	-	-	-
P.H.F.		0.869				0.900					
PM Peak	-	-	04:15	-	-	-	04:45	-	-	-	-
Vol.	-	-	1343	-	-	-	1303	-	-	-	-
P.H.F.			0.957				0.944				
Percentage		39.9%	60.1%			36.3%	63.7%				
ADT/AADT		ADT 32,796		AADT 32,796							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Montclair
Central Avenue
S/ Orchard Street
24 Hour Directional Volume Count

MON015
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		29	222			23	219				
12:15		30	244			16	226				
12:30		36	237			14	247				
12:45		17	309	112	1012	14	239	67	931	179	1943
01:00		18	248			23	291				
01:15		18	262			17	228				
01:30		9	248			18	220				
01:45		11	273	56	1031	13	214	71	953	127	1984
02:00		13	265			12	269				
02:15		24	263			12	279				
02:30		15	321			11	255				
02:45		10	307	62	1156	15	248	50	1051	112	2207
03:00		12	285			16	279				
03:15		15	288			12	279				
03:30		26	328			22	268				
03:45		24	305	77	1206	20	271	70	1097	147	2303
04:00		28	301			22	242				
04:15		41	299			29	272				
04:30		38	**310**			47	300				
04:45		69	**315**	176	1225	51	**299**	149	1113	325	2338
05:00		67	**332**			52	**262**				
05:15		77	**324**			66	**324**				
05:30		101	307			115	**308**				
05:45		101	294	346	1257	108	263	341	1157	687	2414
06:00		107	274			92	251				
06:15		104	260			124	291				
06:30		169	247			112	228				
06:45		226	278	606	1059	157	221	485	991	1091	2050
07:00		212	239			164	231				
07:15		**281**	210			160	214				
07:30		**341**	195			**227**	238				
07:45		**383**	156	1217	800	**248**	190	799	873	2016	1673
08:00		**255**	166			**267**	195				
08:15		244	152			**209**	169				
08:30		240	116			172	153				
08:45		265	141	1004	575	193	137	841	654	1845	1229
09:00		211	118			205	134				
09:15		218	112			188	112				
09:30		203	103			174	103				
09:45		225	90	857	423	188	114	755	463	1612	886
10:00		196	101			180	88				
10:15		208	85			186	77				
10:30		243	71			205	62				
10:45		205	49	852	306	191	69	762	296	1614	602
11:00		234	34			212	50				
11:15		215	49			201	52				
11:30		221	31			239	43				
11:45		269	33	939	147	186	33	838	178	1777	325
Total		6304	10197	6304	10197	5228	9757	5228	9757	11532	19954
Combined Total		16501		16501		14985		14985		31486	
AM Peak	-	07:15	-	-	-	07:30	-	-	-	-	-
Vol.	-	1260	-	-	-	951	-	-	-	-	-
P.H.F.		0.822				0.890					
PM Peak	-	-	04:30	-	-	-	04:45	-	-	-	-
Vol.	-	-	1281	-	-	-	1193	-	-	-	-
P.H.F.			0.965				0.921				
Percentage		38.2%	61.8%			34.9%	65.1%				
ADT/AADT		ADT 31,486		AADT 31,486							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Montclair
Holt Boulevard
E/ Central Avenue
24 Hour Directional Volume Count

MON019
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		14	152			28	157				
12:15		13	180			16	164				
12:30		14	169			14	193				
12:45		17	166	58	667	12	222	70	736	128	1403
01:00		11	188			14	207				
01:15		16	178			8	183				
01:30		16	196			9	196				
01:45		13	175	56	737	8	141	39	727	95	1464
02:00		13	177			7	184				
02:15		20	195			9	181				
02:30		7	193			8	199				
02:45		3	192	43	757	6	178	30	742	73	1499
03:00		3	209			6	169				
03:15		13	204			14	**200**				
03:30		6	232			11	**206**				
03:45		20	228	42	873	13	**229**	44	804	86	1677
04:00		8	209			18	**224**				
04:15		15	232			19	196				
04:30		6	213			36	178				
04:45		18	**242**	47	896	47	173	120	771	167	1667
05:00		23	**241**			62	254				
05:15		30	**233**			73	202				
05:30		32	**255**			112	203				
05:45		39	235	124	964	118	188	365	847	489	1811
06:00		45	208			116	185				
06:15		50	224			129	161				
06:30		46	192			188	135				
06:45		64	184	205	808	198	136	631	617	836	1425
07:00		77	142			184	122				
07:15		99	162			**260**	109				
07:30		123	142			**222**	106				
07:45		147	99	446	545	**249**	84	915	421	1361	966
08:00		122	98			**189**	102				
08:15		116	107			161	89				
08:30		86	78			143	81				
08:45		121	92	445	375	133	78	626	350	1071	725
09:00		101	81			162	74				
09:15		113	60			145	62				
09:30		97	51			137	51				
09:45		131	52	442	244	141	50	585	237	1027	481
10:00		141	52			126	58				
10:15		120	38			131	52				
10:30		164	48			156	53				
10:45		121	40	546	178	169	36	582	199	1128	377
11:00		**163**	36			171	33				
11:15		**156**	34			170	29				
11:30		**167**	23			178	26				
11:45		**138**	23	624	116	195	32	714	120	1338	236
Total		3078	7160	3078	7160	4721	6571	4721	6571	7799	13731
Combined Total		10238		10238		11292		11292		21530	
AM Peak	-	11:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	624	-	-	-	920	-	-	-	-	-
P.H.F.		0.934				0.885					
PM Peak	-	-	04:45	-	-	-	03:15	-	-	-	-
Vol.	-	-	971	-	-	-	859	-	-	-	-
P.H.F.			0.952				0.938				
Percentage		30.1%	69.9%			41.8%	58.2%				
ADT/AADT		ADT 21,530		AADT 21,530							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Montclair
Holt Boulevard
W/ Central Avenue
24 Hour Directional Volume Count

MON018
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		22	165			29	146				
12:15		17	183			13	143				
12:30		16	157			16	154				
12:45		19	185	74	690	11	**205**	69	648	143	1338
01:00		16	190			11	**195**				
01:15		21	182			13	**166**				
01:30		15	186			14	**167**				
01:45		19	168	71	726	6	142	44	670	115	1396
02:00		29	168			9	169				
02:15		34	192			12	147				
02:30		12	199			13	174				
02:45		10	183	85	742	11	168	45	658	130	1400
03:00		11	199			6	164				
03:15		10	203			9	182				
03:30		12	251			6	156				
03:45		15	250	48	903	8	161	29	663	77	1566
04:00		11	201			15	178				
04:15		16	237			16	190				
04:30		19	232			21	159				
04:45		25	230	71	900	26	164	78	691	149	1591
05:00		21	**250**			44	185				
05:15		33	**238**			69	190				
05:30		43	**241**			81	171				
05:45		44	**232**	141	961	100	143	294	689	435	1650
06:00		43	205			108	151				
06:15		49	207			130	139				
06:30		58	212			153	136				
06:45		67	197	217	821	197	127	588	553	805	1374
07:00		70	154			187	111				
07:15		85	176			**218**	95				
07:30		106	131			**207**	87				
07:45		132	91	393	552	**261**	104	873	397	1266	949
08:00		130	101			**209**	84				
08:15		103	111			165	73				
08:30		87	63			146	69				
08:45		118	85	438	360	156	71	676	297	1114	657
09:00		104	94			140	57				
09:15		109	70			155	64				
09:30		111	45			127	49				
09:45		113	59	437	268	128	54	550	224	987	492
10:00		119	59			123	58				
10:15		118	43			126	47				
10:30		135	36			111	55				
10:45		125	40	497	178	134	38	494	198	991	376
11:00		**137**	31			155	26				
11:15		**159**	27			150	27				
11:30		**156**	22			147	23				
11:45		**140**	20	592	100	151	28	603	104	1195	204
Total		3064	7201	3064	7201	4343	5792	4343	5792	7407	12993
Combined Total		10265		10265		10135		10135		20400	
AM Peak	-	11:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	592	-	-	-	895	-	-	-	-	-
P.H.F.		0.931				0.857					
PM Peak	-	-	05:00	-	-	-	00:45	-	-	-	-
Vol.	-	-	961	-	-	-	733	-	-	-	-
P.H.F.			0.961				0.894				
Percentage		29.8%	70.2%			42.9%	57.1%				
ADT/AADT		ADT 20,400		AADT 20,400							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Montclair
Mission Boulevard
W/ Central Avenue
24 Hour Directional Volume Count

MON020
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		24	154			20	146				
12:15		17	162			18	142				
12:30		14	145			9	110				
12:45		14	176	69	637	13	152	60	550	129	1187
01:00		8	158			7	168				
01:15		11	173			4	136				
01:30		8	177			7	106				
01:45		11	159	38	667	15	140	33	550	71	1217
02:00		8	186			8	134				
02:15		12	208			7	164				
02:30		3	220			3	154				
02:45		4	183	27	797	16	**174**	34	626	61	1423
03:00		11	229			11	**169**				
03:15		10	238			10	**179**				
03:30		22	227			18	**163**				
03:45		15	230	58	924	12	159	51	670	109	1594
04:00		24	283			15	178				
04:15		24	267			20	182				
04:30		44	265			45	153				
04:45		48	**297**	140	1112	46	163	126	676	266	1788
05:00		35	**281**			54	147				
05:15		68	**287**			116	217				
05:30		90	**296**			158	137				
05:45		79	265	272	1129	171	152	499	653	771	1782
06:00		64	230			188	120				
06:15		88	233			161	130				
06:30		101	207			192	111				
06:45		121	195	374	865	244	124	785	485	1159	1350
07:00		115	188			**254**	114				
07:15		**175**	130			**283**	93				
07:30		**182**	145			**288**	86				
07:45		**188**	89	660	552	**252**	86	1077	379	1737	931
08:00		**145**	91			214	81				
08:15		123	95			211	81				
08:30		121	74			211	68				
08:45		133	70	522	330	170	53	806	283	1328	613
09:00		139	61			164	56				
09:15		119	60			140	57				
09:30		116	62			112	42				
09:45		134	40	508	223	131	45	547	200	1055	423
10:00		138	37			102	39				
10:15		138	31			126	41				
10:30		123	26			129	27				
10:45		169	36	568	130	115	32	472	139	1040	269
11:00		149	32			141	23				
11:15		141	27			138	14				
11:30		145	25			126	25				
11:45		151	15	586	99	121	18	526	80	1112	179
Total		3822	7465	3822	7465	5016	5291	5016	5291	8838	12756
Combined Total		11287		11287		10307		10307		21594	
AM Peak	-	07:15	-	-	-	07:00	-	-	-	-	-
Vol.	-	690	-	-	-	1077	-	-	-	-	-
P.H.F.		0.918				0.935					
PM Peak	-	-	04:45	-	-	-	02:45	-	-	-	-
Vol.	-	-	1161	-	-	-	685	-	-	-	-
P.H.F.			0.977				0.957				
Percentage		33.9%	66.1%			48.7%	51.3%				
ADT/AADT		ADT 21,594		AADT 21,594							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
8th Street
E/ Mountain Avenue
24 Hour Directional Volume Count

UPL023
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		14	96			7	81				
12:15		4	115			7	94				
12:30		11	112			1	116				
12:45		7	137	36	460	5	114	20	405	56	865
01:00		7	135			7	90				
01:15		4	132			4	128				
01:30		0	119			4	135				
01:45		4	115	15	501	4	112	19	465	34	966
02:00		3	103			4	85				
02:15		5	138			4	84				
02:30		2	132			4	105				
02:45		5	136	15	509	4	119	16	393	31	902
03:00		4	118			7	103				
03:15		2	160			3	83				
03:30		1	144			11	98				
03:45		2	179	9	601	11	92	32	376	41	977
04:00		8	164			12	100				
04:15		3	168			18	140				
04:30		7	191			25	95				
04:45		5	**184**	23	707	38	117	93	452	116	1159
05:00		4	**205**			44	**114**				
05:15		10	**199**			87	**112**				
05:30		15	**217**			89	**126**				
05:45		16	164	45	785	73	**121**	293	473	338	1258
06:00		23	158			79	103				
06:15		30	126			119	79				
06:30		39	170			123	70				
06:45		44	139	136	593	**160**	93	481	345	617	938
07:00		93	127			**181**	65				
07:15		**110**	88			**227**	77				
07:30		**109**	94			**216**	63				
07:45		**88**	70	400	379	160	54	784	259	1184	638
08:00		**122**	93			167	55				
08:15		64	65			117	46				
08:30		70	84			79	31				
08:45		61	60	317	302	80	62	443	194	760	496
09:00		84	72			98	37				
09:15		73	43			95	32				
09:30		86	48			69	31				
09:45		68	48	311	211	78	20	340	120	651	331
10:00		73	39			77	20				
10:15		80	33			85	21				
10:30		74	20			64	14				
10:45		105	32	332	124	72	11	298	66	630	190
11:00		92	27			87	17				
11:15		71	17			89	13				
11:30		95	21			87	10				
11:45		90	14	348	79	93	8	356	48	704	127
Total		1987	5251	1987	5251	3175	3596	3175	3596	5162	8847
Combined Total		7238		7238		6771		6771		14009	
AM Peak	-	07:15	-	-	-	06:45	-	-	-	-	-
Vol.	-	429	-	-	-	784	-	-	-	-	-
P.H.F.		0.879				0.863					
PM Peak	-	-	04:45	-	-	-	05:00	-	-	-	-
Vol.	-	-	805	-	-	-	473	-	-	-	-
P.H.F.			0.927				0.938				
Percentage		27.5%	72.5%			46.9%	53.1%				
ADT/AADT		ADT 14,009		AADT 14,009							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
8th Street
W/ Mountain Avenue
24 Hour Directional Volume Count

UPL022
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		9	92			11	72				
12:15		9	100			8	95				
12:30		2	106			4	112				
12:45		5	119	25	417	3	107	26	386	51	803
01:00		4	122			6	106				
01:15		2	105			6	91				
01:30		0	108			4	101				
01:45		5	92	11	427	4	114	20	412	31	839
02:00		0	116			3	97				
02:15		2	113			2	81				
02:30		6	130			1	95				
02:45		7	121	15	480	2	105	8	378	23	858
03:00		1	131			2	105				
03:15		7	156			6	89				
03:30		1	140			7	**109**				
03:45		5	136	14	563	4	**111**	19	414	33	977
04:00		10	161			5	**81**				
04:15		10	177			9	**126**				
04:30		14	146			18	100				
04:45		10	**187**	44	671	36	91	68	398	112	1069
05:00		13	**201**			35	110				
05:15		11	**182**			99	95				
05:30		16	**187**			94	114				
05:45		21	141	61	711	55	102	283	421	344	1132
06:00		35	142			68	99				
06:15		38	162			110	89				
06:30		33	126			99	68				
06:45		49	127	155	557	**113**	87	390	343	545	900
07:00		78	98			**158**	70				
07:15		84	88			**199**	66				
07:30		76	60			**176**	57				
07:45		73	65	311	311	112	56	645	249	956	560
08:00		83	53			116	53				
08:15		46	53			88	42				
08:30		61	55			59	38				
08:45		63	56	253	217	72	51	335	184	588	401
09:00		68	54			53	36				
09:15		58	28			72	30				
09:30		67	33			65	34				
09:45		65	41	258	156	76	21	266	121	524	277
10:00		59	36			66	26				
10:15		62	21			62	22				
10:30		90	15			74	15				
10:45		65	22	276	94	61	9	263	72	539	166
11:00		**85**	12			83	17				
11:15		**79**	16			77	13				
11:30		**93**	11			72	11				
11:45		**95**	15	352	54	74	7	306	48	658	102
Total		1775	4658	1775	4658	2629	3426	2629	3426	4404	8084
Combined Total		6433		6433		6055		6055		12488	
AM Peak	-	11:00	-	-	-	06:45	-	-	-	-	-
Vol.	-	352	-	-	-	646	-	-	-	-	-
P.H.F.		0.926				0.812					
PM Peak	-	-	04:45	-	-	-	03:30	-	-	-	-
Vol.	-	-	757	-	-	-	427	-	-	-	-
P.H.F.			0.942				0.847				
Percentage		27.6%	72.4%			43.4%	56.6%				
ADT/AADT		ADT 12,488		AADT 12,488							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Arrow Route
E/ Central Avenue
24 Hour Directional Volume Count

UPL007
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		10	94			3	87				
12:15		6	93			6	94				
12:30		12	69			2	100				
12:45		8	94	36	350	1	102	12	383	48	733
01:00		6	87			7	64				
01:15		4	99			6	94				
01:30		8	88			0	104				
01:45		3	75	21	349	2	96	15	358	36	707
02:00		1	88			3	82				
02:15		1	82			3	84				
02:30		2	73			0	96				
02:45		3	95	7	338	3	75	9	337	16	675
03:00		1	98			5	81				
03:15		1	104			8	98				
03:30		3	87			4	89				
03:45		4	119	9	408	7	81	24	349	33	757
04:00		7	112			14	84				
04:15		1	129			17	107				
04:30		3	127			36	**105**				
04:45		7	**162**	18	530	24	**110**	91	406	109	936
05:00		3	**193**			33	**95**				
05:15		10	**167**			42	**118**				
05:30		15	**137**			63	89				
05:45		14	135	42	632	48	92	186	394	228	1026
06:00		8	114			60	82				
06:15		20	101			84	69				
06:30		23	117			91	58				
06:45		25	98	76	430	106	52	341	261	417	691
07:00		35	60			**115**	63				
07:15		53	65			**145**	52				
07:30		58	54			**150**	39				
07:45		67	55	213	234	**111**	35	521	189	734	423
08:00		56	63			105	46				
08:15		51	51			91	30				
08:30		53	62			107	53				
08:45		57	45	217	221	78	31	381	160	598	381
09:00		58	49			59	34				
09:15		39	39			72	28				
09:30		48	30			91	17				
09:45		58	34	203	152	73	22	295	101	498	253
10:00		36	44			76	20				
10:15		56	31			77	6				
10:30		64	16			96	11				
10:45		61	15	217	106	93	13	342	50	559	156
11:00		**69**	16			85	13				
11:15		**74**	19			91	5				
11:30		**79**	15			96	9				
11:45		**85**	10	307	60	110	4	382	31	689	91
Total		1366	3810	1366	3810	2599	3019	2599	3019	3965	6829
Combined Total		5176		5176		5618		5618		10794	
AM Peak	-	11:00	-	-	-	07:00	-	-	-	-	-
Vol.	-	307	-	-	-	521	-	-	-	-	-
P.H.F.		0.903				0.868					
PM Peak	-	-	04:45	-	-	-	04:30	-	-	-	-
Vol.	-	-	659	-	-	-	428	-	-	-	-
P.H.F.			0.854				0.907				
Percentage		26.4%	73.6%			46.3%	53.7%				
ADT/AADT		ADT 10,794		AADT 10,794							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Arrow Route
E/ Monte Vista Avenue
24 Hour Directional Volume Count

UPL006
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		9	60			6	63				
12:15		10	63			4	62				
12:30		4	73			2	72				
12:45		6	86	29	282	2	44	14	241	43	523
01:00		5	80			9	68				
01:15		5	80			1	46				
01:30		7	54			2	67				
01:45		1	59	18	273	2	55	14	236	32	509
02:00		2	83			2	71				
02:15		2	66			1	47				
02:30		3	82			3	60				
02:45		2	76	9	307	4	50	10	228	19	535
03:00		1	91			1	88				
03:15		2	87			0	67				
03:30		7	117			2	55				
03:45		5	89	15	384	3	54	6	264	21	648
04:00		4	114			6	80				
04:15		10	111			17	65				
04:30		6	**149**			6	**76**				
04:45		5	**159**	25	533	17	**76**	46	297	71	830
05:00		12	**151**			30	**90**				
05:15		18	**121**			35	**72**				
05:30		6	95			31	69				
05:45		7	74	43	441	41	51	137	282	180	723
06:00		19	72			56	59				
06:15		34	72			73	51				
06:30		23	68			58	41				
06:45		24	57	100	269	**101**	42	288	193	388	462
07:00		42	46			**98**	38				
07:15		56	42			**126**	26				
07:30		64	53			**72**	20				
07:45		35	46	197	187	96	28	392	112	589	299
08:00		39	49			75	35				
08:15		52	50			69	29				
08:30		40	37			59	22				
08:45		41	32	172	168	43	17	246	103	418	271
09:00		39	23			57	12				
09:15		35	27			53	19				
09:30		42	30			44	18				
09:45		35	28	151	108	52	17	206	66	357	174
10:00		38	22			48	10				
10:15		41	11			57	8				
10:30		43	16			55	8				
10:45		54	15	176	64	66	11	226	37	402	101
11:00		**58**	22			46	3				
11:15		**68**	10			57	4				
11:30		**89**	8			74	4				
11:45		**73**	5	288	45	49	3	226	14	514	59
Total		1223	3061	1223	3061	1811	2073	1811	2073	3034	5134
Combined Total		4284		4284		3884		3884		8168	
AM Peak	-	11:00	-	-	-	06:45	-	-	-	-	-
Vol.	-	288	-	-	-	397	-	-	-	-	-
P.H.F.		0.809				0.788					
PM Peak	-	-	04:30	-	-	-	04:30	-	-	-	-
Vol.	-	-	580	-	-	-	314	-	-	-	-
P.H.F.			0.912				0.872				
Percentage		28.5%	71.5%			46.6%	53.4%				

ADT/AADT	ADT 8,168	AADT 8,168

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Arrow Route
W/ Monte Vista Avenue
24 Hour Directional Volume Count

UPL005
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		6	91			8	64				
12:15		6	70			3	47				
12:30		5	68			6	**62**				
12:45		4	51	21	280	2	**77**	19	250	40	530
01:00		5	61			2	**76**				
01:15		2	72			4	**59**				
01:30		3	80			6	55				
01:45		3	60	13	273	0	53	12	243	25	516
02:00		1	39			1	52				
02:15		1	46			1	59				
02:30		4	65			2	57				
02:45		1	44	7	194	1	55	5	223	12	417
03:00		4	70			1	45				
03:15		1	65			1	59				
03:30		0	80			4	60				
03:45		3	73	8	288	4	71	10	235	18	523
04:00		0	85			3	72				
04:15		2	80			3	54				
04:30		1	93			2	72				
04:45		1	**95**	4	353	14	68	22	266	26	619
05:00		6	**148**			7	63				
05:15		4	**153**			14	59				
05:30		8	**110**			21	66				
05:45		5	95	23	506	40	71	82	259	105	765
06:00		8	78			22	57				
06:15		11	70			32	62				
06:30		14	85			50	52				
06:45		18	69	51	302	54	52	158	223	209	525
07:00		17	62			51	34				
07:15		33	45			65	42				
07:30		43	50			**97**	37				
07:45		48	45	141	202	**109**	34	322	147	463	349
08:00		39	56			**89**	22				
08:15		37	49			**78**	27				
08:30		35	45			76	29				
08:45		42	36	153	186	75	27	318	105	471	291
09:00		38	41			61	27				
09:15		42	41			40	30				
09:30		35	30			50	22				
09:45		37	27	152	139	48	15	199	94	351	233
10:00		36	33			45	15				
10:15		34	22			45	17				
10:30		32	14			42	5				
10:45		43	12	145	81	43	5	175	42	320	123
11:00		**39**	13			58	4				
11:15		**37**	11			46	10				
11:30		**52**	13			51	7				
11:45		**66**	7	194	44	49	9	204	30	398	74
Total		912	2848	912	2848	1526	2117	1526	2117	2438	4965
Combined Total		3760		3760		3643		3643		7403	
AM Peak	-	11:00	-	-	-	07:30	-	-	-	-	-
Vol.	-	194	-	-	-	373	-	-	-	-	-
P.H.F.		0.735				0.856					
PM Peak	-	-	04:45	-	-	-	00:30	-	-	-	-
Vol.	-	-	506	-	-	-	274	-	-	-	-
P.H.F.			0.827				0.890				
Percentage		24.3%	75.7%			41.9%	58.1%				
ADT/AADT		ADT 7,403		AADT 7,403							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Central Avenue
N/ Arrow Route
24 Hour Directional Volume Count

UPL008
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		13	151			16	147				
12:15		24	170			14	149				
12:30		10	162			8	145				
12:45		8	151	55	634	6	124	44	565	99	1199
01:00		7	153			9	158				
01:15		4	150			15	130				
01:30		6	144			14	141				
01:45		2	146	19	593	6	143	44	572	63	1165
02:00		4	141			4	122				
02:15		0	133			6	142				
02:30		7	143			4	139				
02:45		6	125	17	542	5	128	19	531	36	1073
03:00		4	125			4	120				
03:15		5	121			5	147				
03:30		2	160			4	130				
03:45		7	149	18	555	10	176	23	573	41	1128
04:00		16	161			8	131				
04:15		19	139			11	**154**				
04:30		34	**156**			18	**141**				
04:45		30	**167**	99	623	22	**185**	59	611	158	1234
05:00		27	**167**			34	**160**				
05:15		53	**152**			36	140				
05:30		61	145			34	144				
05:45		50	140	191	604	57	153	161	597	352	1201
06:00		45	148			63	120				
06:15		65	120			59	131				
06:30		81	157			100	100				
06:45		107	133	298	558	68	107	290	458	588	1016
07:00		83	121			75	89				
07:15		134	95			106	65				
07:30		152	95			121	80				
07:45		119	73	488	384	103	83	405	317	893	701
08:00		99	99			101	63				
08:15		96	84			98	65				
08:30		93	79			104	63				
08:45		100	78	388	340	98	65	401	256	789	596
09:00		78	58			74	49				
09:15		92	51			100	62				
09:30		92	51			117	42				
09:45		109	34	371	194	129	54	420	207	791	401
10:00		121	27			133	34				
10:15		125	38			115	35				
10:30		140	30			123	29				
10:45		128	28	514	123	139	31	510	129	1024	252
11:00		**132**	22			**121**	23				
11:15		**139**	22			**153**	34				
11:30		**136**	15			**138**	27				
11:45		**154**	15	561	74	**174**	30	586	114	1147	188
Total		3019	5224	3019	5224	2962	4930	2962	4930	5981	10154
Combined Total		8243		8243		7892		7892		16135	
AM Peak	-	11:00	-	-	-	11:00	-	-	-	-	-
Vol.	-	561	-	-	-	586	-	-	-	-	-
P.H.F.		0.911				0.842					
PM Peak	-	-	04:30	-	-	-	04:15	-	-	-	-
Vol.	-	-	642	-	-	-	640	-	-	-	-
P.H.F.			0.961				0.865				
Percentage		36.6%	63.4%			37.5%	62.5%				
ADT/AADT		ADT 16,135		AADT 16,135							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Central Avenue
S/ Mission Boulevard
24 Hour Directional Volume Count

UPL017
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		37	178			29	215				
12:15		22	210			23	239				
12:30		24	240			16	241				
12:45		21	225	104	853	23	213	91	908	195	1761
01:00		23	206			17	210				
01:15		14	227			20	241				
01:30		15	235			11	240				
01:45		13	235	65	903	14	269	62	960	127	1863
02:00		7	237			11	243				
02:15		23	206			21	231				
02:30		9	235			10	274				
02:45		15	266	54	944	18	250	60	998	114	1942
03:00		3	257			22	256				
03:15		18	250			10	280				
03:30		22	246			32	302				
03:45		22	239	65	992	35	250	99	1088	164	2080
04:00		24	268			33	234				
04:15		27	277			58	319				
04:30		29	240			67	267				
04:45		42	**264**	122	1049	102	300	260	1120	382	2169
05:00		54	**257**			73	**334**				
05:15		51	**291**			104	**331**				
05:30		89	**244**			162	**300**				
05:45		87	238	281	1030	124	**305**	463	1270	744	2300
06:00		96	235			105	288				
06:15		111	188			116	279				
06:30		174	207			161	256				
06:45		192	218	573	848	146	238	528	1061	1101	1909
07:00		192	171			143	198				
07:15		232	166			181	185				
07:30		**261**	163			205	173				
07:45		**248**	153	933	653	240	166	769	722	1702	1375
08:00		**236**	142			188	155				
08:15		**246**	134			194	152				
08:30		221	124			175	130				
08:45		226	129	929	529	183	116	740	553	1669	1082
09:00		175	103			179	110				
09:15		164	95			184	97				
09:30		188	102			174	72				
09:45		181	111	708	411	177	75	714	354	1422	765
10:00		178	92			194	72				
10:15		206	90			202	55				
10:30		191	85			195	76				
10:45		183	45	758	312	**230**	44	821	247	1579	559
11:00		189	50			**206**	48				
11:15		217	64			**213**	40				
11:30		185	31			**204**	43				
11:45		194	37	785	182	208	32	831	163	1616	345
Total		5377	8706	5377	8706	5438	9444	5438	9444	10815	18150
Combined Total		14083		14083		14882		14882		28965	
AM Peak	-	07:30	-	-	-	10:45	-	-	-	-	-
Vol.	-	991	-	-	-	853	-	-	-	-	-
P.H.F.		0.949				0.927					
PM Peak	-	-	04:45	-	-	-	05:00	-	-	-	-
Vol.	-	-	1056	-	-	-	1270	-	-	-	-
P.H.F.			0.907				0.951				
Percentage		38.2%	61.8%			36.5%	63.5%				
ADT/AADT		ADT 28,965		AADT 28,965							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Foothill Boulevard
E/ Monte Vista Avenue
24 Hour Directional Volume Count

UPL004
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		28	209			17	**221**				
12:15		24	227			18	**231**				
12:30		20	209			15	**253**				
12:45		14	206	86	851	12	**232**	62	937	148	1788
01:00		11	197			10	215				
01:15		8	192			6	220				
01:30		12	185			8	226				
01:45		6	221	37	795	8	162	32	823	69	1618
02:00		4	197			12	200				
02:15		6	226			7	200				
02:30		7	204			8	211				
02:45		7	208	24	835	7	206	34	817	58	1652
03:00		6	173			6	194				
03:15		7	218			6	204				
03:30		15	247			12	180				
03:45		10	213	38	851	12	187	36	765	74	1616
04:00		3	257			8	208				
04:15		11	255			13	213				
04:30		12	259			24	209				
04:45		24	267	50	1038	32	220	77	850	127	1888
05:00		28	288			25	198				
05:15		27	344			53	229				
05:30		14	239			56	199				
05:45		43	251	112	1122	134	193	268	819	380	1941
06:00		44	**251**			117	209				
06:15		48	**303**			107	192				
06:30		56	**344**			130	137				
06:45		74	**314**	222	1212	168	150	522	688	744	1900
07:00		69	247			214	133				
07:15		82	182			**237**	151				
07:30		92	158			**264**	132				
07:45		135	111	378	698	**283**	127	998	543	1376	1241
08:00		176	124			**290**	105				
08:15		139	98			228	99				
08:30		127	116			211	98				
08:45		150	91	592	429	222	111	951	413	1543	842
09:00		134	75			156	86				
09:15		162	78			152	73				
09:30		138	84			149	76				
09:45		173	70	607	307	145	83	602	318	1209	625
10:00		161	58			129	54				
10:15		157	40			141	52				
10:30		159	48			178	42				
10:45		140	36	617	182	185	43	633	191	1250	373
11:00		**167**	29			194	43				
11:15		**191**	33			145	28				
11:30		**172**	32			184	23				
11:45		**193**	30	723	124	216	24	739	118	1462	242
Total		3486	8444	3486	8444	4954	7282	4954	7282	8440	15726
Combined Total		11930		11930		12236		12236		24166	
AM Peak	-	11:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	723	-	-	-	1074	-	-	-	-	-
P.H.F.		0.937				0.926					
PM Peak	-	-	06:00	-	-	-	12:00	-	-	-	-
Vol.	-	-	1212	-	-	-	937	-	-	-	-
P.H.F.			0.881				0.926				
Percentage		29.2%	70.8%			40.5%	59.5%				
ADT/AADT		ADT 24,166		AADT 24,166							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Mission Boulevard
E/ Central Avenue
24 Hour Directional Volume Count

UPL021
Site Code: 206-16543

Start Time	10/12/2016 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		24	139			22	159				
12:15		20	134			24	158				
12:30		9	163			15	141				
12:45		9	161	62	597	14	137	75	595	137	1192
01:00		12	145			9	169				
01:15		14	149			5	148				
01:30		12	156			11	127				
01:45		13	139	51	589	15	150	40	594	91	1183
02:00		10	170			7	171				
02:15		13	174			8	167				
02:30		8	204			7	167				
02:45		2	191	33	739	13	225	35	730	68	1469
03:00		13	193			10	198				
03:15		9	223			12	194				
03:30		26	203			14	199				
03:45		11	230	59	849	12	190	48	781	107	1630
04:00		18	264			24	196				
04:15		24	271			21	223				
04:30		39	252			50	**223**				
04:45		38	**287**	119	1074	57	**200**	152	842	271	1916
05:00		35	**240**			73	**190**				
05:15		50	**291**			132	**234**				
05:30		81	**292**			173	174				
05:45		77	272	243	1095	173	188	551	786	794	1881
06:00		58	224			184	151				
06:15		74	226			172	171				
06:30		94	220			206	139				
06:45		93	184	319	854	242	145	804	606	1123	1460
07:00		100	184			**272**	146				
07:15		**144**	152			**292**	120				
07:30		**166**	153			**312**	78				
07:45		**179**	102	589	591	**317**	94	1193	438	1782	1029
08:00		**147**	128			266	79				
08:15		122	91			229	82				
08:30		101	76			218	67				
08:45		102	92	472	387	215	60	928	288	1400	675
09:00		117	78			194	47				
09:15		88	70			143	66				
09:30		106	65			163	57				
09:45		122	52	433	265	162	51	662	221	1095	486
10:00		104	54			115	41				
10:15		121	38			164	43				
10:30		99	38			156	43				
10:45		136	38	460	168	128	28	563	155	1023	323
11:00		138	36			129	31				
11:15		125	23			156	21				
11:30		111	28			134	22				
11:45		134	23	508	110	165	18	584	92	1092	202
Total		3348	7318	3348	7318	5635	6128	5635	6128	8983	13446
Combined Total		10666		10666		11763		11763		22429	
AM Peak	-	07:15	-	-	-	07:00	-	-	-	-	-
Vol.	-	636	-	-	-	1193	-	-	-	-	-
P.H.F.		0.888				0.941					
PM Peak	-	-	04:45	-	-	-	04:30	-	-	-	-
Vol.	-	-	1110	-	-	-	847	-	-	-	-
P.H.F.			0.950				0.905				
Percentage		31.4%	68.6%			47.9%	52.1%				
ADT/AADT		ADT 22,429		AADT 22,429							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Monte Vista Avenue
S/ Foothill Boulevard
24 Hour Directional Volume Count

UPL002
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		17	133			10	136				
12:15		16	133			8	160				
12:30		9	135			10	120				
12:45		6	136	48	537	6	133	34	549	82	1086
01:00		11	121			2	149				
01:15		4	122			12	136				
01:30		3	146			10	129				
01:45		6	134	24	523	11	103	35	517	59	1040
02:00		4	123			6	134				
02:15		8	136			6	142				
02:30		6	148			11	127				
02:45		8	155	26	562	10	176	33	579	59	1141
03:00		4	161			10	141				
03:15		8	163			15	142				
03:30		10	170			20	147				
03:45		8	180	30	674	26	166	71	596	101	1270
04:00		11	172			22	131				
04:15		13	167			42	171				
04:30		20	161			55	156				
04:45		21	**188**	65	688	42	**198**	161	656	226	1344
05:00		35	**183**			55	**192**				
05:15		23	**157**			65	**178**				
05:30		32	**186**			81	**165**				
05:45		49	182	139	708	80	158	281	693	420	1401
06:00		53	167			78	153				
06:15		48	130			79	130				
06:30		79	132			104	129				
06:45		118	124	298	553	130	121	391	533	689	1086
07:00		95	165			123	112				
07:15		99	103			**138**	84				
07:30		131	128			**134**	77				
07:45		**168**	91	493	487	**156**	84	551	357	1044	844
08:00		**125**	95			**132**	69				
08:15		**139**	89			129	69				
08:30		**150**	86			142	72				
08:45		124	47	538	317	112	59	515	269	1053	586
09:00		96	73			104	50				
09:15		94	58			108	43				
09:30		90	47			126	26				
09:45		104	64	384	242	113	37	451	156	835	398
10:00		83	43			108	42				
10:15		113	38			113	24				
10:30		95	35			137	25				
10:45		99	30	390	146	142	33	500	124	890	270
11:00		106	36			120	20				
11:15		111	20			130	22				
11:30		115	17			128	11				
11:45		119	21	451	94	140	19	518	72	969	166
Total		2886	5531	2886	5531	3541	5101	3541	5101	6427	10632
Combined Total		8417		8417		8642		8642		17059	
AM Peak	-	07:45	-	-	-	07:15	-	-	-	-	-
Vol.	-	582	-	-	-	560	-	-	-	-	-
P.H.F.		0.866				0.897					
PM Peak	-	-	04:45	-	-	-	04:45	-	-	-	-
Vol.	-	-	714	-	-	-	733	-	-	-	-
P.H.F.			0.949				0.926				
Percentage		34.3%	65.7%			41.0%	59.0%				
ADT/AADT		ADT 17,059		AADT 17,059							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Mountain Avenue
N/ 8th Street
24 Hour Directional Volume Count

UPL024
Site Code: 206-16543

Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		43	305			39	308				
12:15		29	287			25	294				
12:30		18	324			27	284				
12:45		28	311	118	1227	31	296	122	1182	240	2409
01:00		21	331			22	335				
01:15		28	335			27	330				
01:30		24	361			33	298				
01:45		15	306	88	1333	23	303	105	1266	193	2599
02:00		22	297			25	316				
02:15		20	323			15	311				
02:30		18	295			24	297				
02:45		17	345	77	1260	18	274	82	1198	159	2458
03:00		23	362			21	280				
03:15		15	303			21	302				
03:30		21	**321**			28	296				
03:45		28	**340**	87	1326	29	295	99	1173	186	2499
04:00		35	**337**			33	283				
04:15		28	**362**			50	294				
04:30		38	300			85	**317**				
04:45		62	318	163	1317	101	**319**	269	1213	432	2530
05:00		54	265			92	**329**				
05:15		69	331			86	**355**				
05:30		62	333			122	298				
05:45		84	304	269	1233	123	300	423	1282	692	2515
06:00		108	305			122	275				
06:15		103	289			148	309				
06:30		131	317			210	276				
06:45		145	288	487	1199	216	243	696	1103	1183	2302
07:00		171	283			226	258				
07:15		236	270			**262**	249				
07:30		**315**	282			**277**	208				
07:45		**322**	217	1044	1052	**302**	176	1067	891	2111	1943
08:00		**262**	202			**307**	180				
08:15		**289**	205			238	157				
08:30		223	205			237	183				
08:45		237	171	1011	783	225	153	1007	673	2018	1456
09:00		267	171			223	169				
09:15		193	149			214	142				
09:30		240	134			243	117				
09:45		235	122	935	576	238	102	918	530	1853	1106
10:00		264	122			241	79				
10:15		228	103			230	80				
10:30		242	90			244	97				
10:45		262	69	996	384	230	54	945	310	1941	694
11:00		240	80			254	47				
11:15		265	52			268	60				
11:30		266	45			255	50				
11:45		279	53	1050	230	274	59	1051	216	2101	446
Total		6325	11920	6325	11920	6784	11037	6784	11037	13109	22957
Combined Total		18245		18245		17821		17821		36066	
AM Peak	-	07:30	-	-	-	07:15	-	-	-	-	-
Vol.	-	1188	-	-	-	1148	-	-	-	-	-
P.H.F.		0.922				0.935					
PM Peak	-	-	03:30	-	-	-	04:30	-	-	-	-
Vol.	-	-	1360	-	-	-	1320	-	-	-	-
P.H.F.			0.939				0.930				
Percentage		34.7%	65.3%			38.1%	61.9%				
ADT/AADT		ADT 36,066		AADT 36,066							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Upland
Mountain Avenue
S/ 8th Street
24 Hour Directional Volume Count

UPL025
Site Code: 206-16543

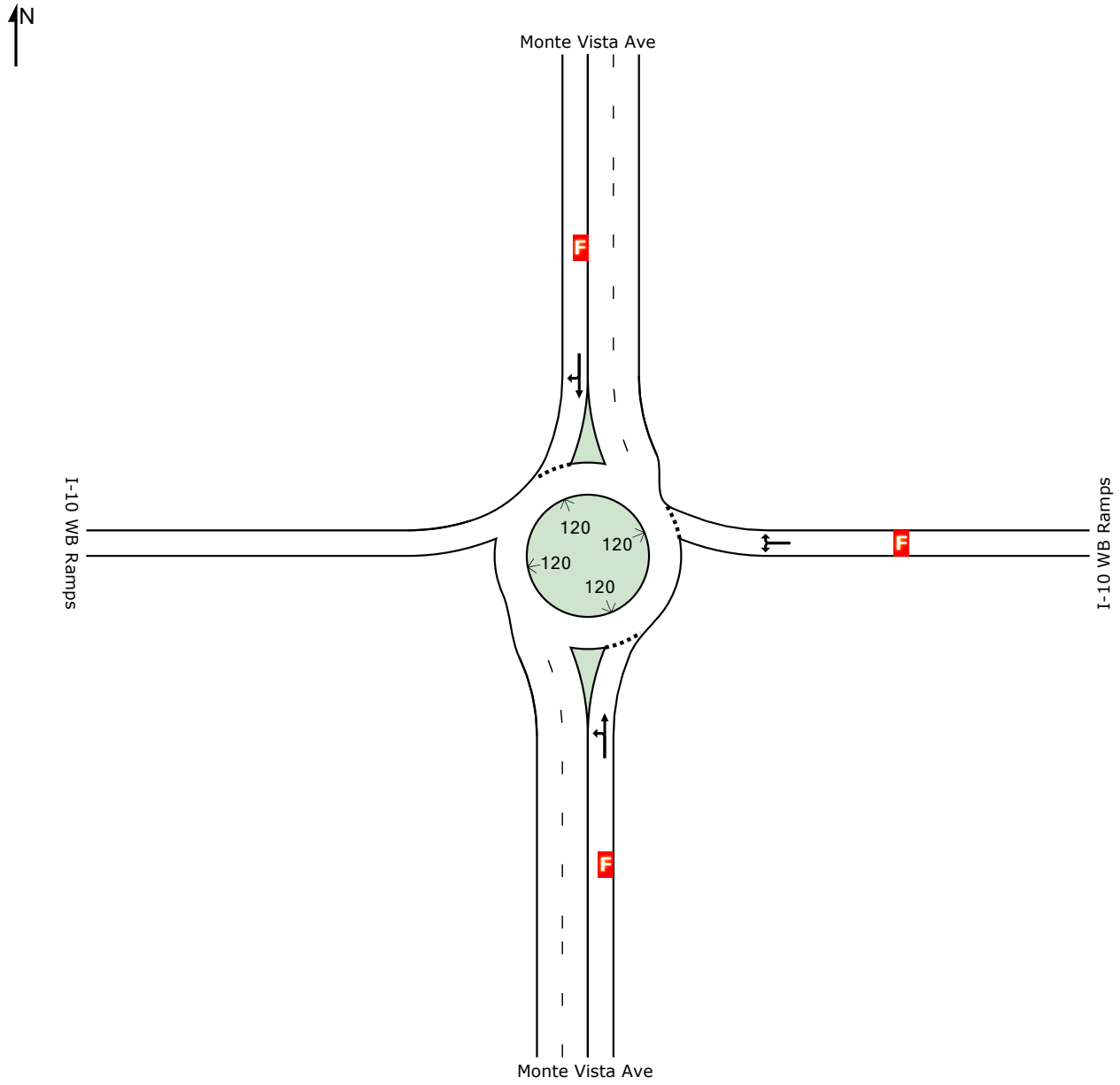
Start Time	10/12/2016 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		29	301			16	260				
12:15		24	315			29	295				
12:30		26	294			25	262				
12:45		30	322	109	1232	24	284	94	1101	203	2333
01:00		25	334			35	291				
01:15		26	300			18	287				
01:30		12	311			27	293				
01:45		22	296	85	1241	21	310	101	1181	186	2422
02:00		19	291			20	268				
02:15		20	331			19	287				
02:30		12	343			25	260				
02:45		25	339	76	1304	23	274	87	1089	163	2393
03:00		15	279			27	288				
03:15		14	**344**			41	298				
03:30		42	**329**			30	273				
03:45		25	**335**	96	1287	41	263	139	1122	235	2409
04:00		37	**330**			68	267				
04:15		50	324			97	**342**				
04:30		67	322			88	**268**				
04:45		49	297	203	1273	96	**362**	349	1239	552	2512
05:00		63	317			98	**330**				
05:15		86	308			119	316				
05:30		112	324			128	288				
05:45		124	302	385	1251	122	269	467	1203	852	2454
06:00		121	321			188	292				
06:15		133	254			222	230				
06:30		176	288			221	209				
06:45		178	264	608	1127	**268**	261	899	992	1507	2119
07:00		247	275			**265**	233				
07:15		**282**	239			**291**	208				
07:30		**292**	212			**288**	198				
07:45		**275**	205	1096	931	266	193	1110	832	2206	1763
08:00		**258**	211			236	160				
08:15		229	193			234	149				
08:30		248	191			201	154				
08:45		234	163	969	758	211	176	882	639	1851	1397
09:00		217	143			250	149				
09:15		230	131			217	108				
09:30		247	140			215	102				
09:45		250	104	944	518	246	91	928	450	1872	968
10:00		241	110			214	102				
10:15		246	91			230	77				
10:30		237	73			228	48				
10:45		256	67	980	341	231	47	903	274	1883	615
11:00		253	49			251	57				
11:15		264	53			215	51				
11:30		289	50			297	48				
11:45		287	36	1093	188	277	28	1040	184	2133	372
Total		6644	11451	6644	11451	6999	10306	6999	10306	13643	21757
Combined Total		18095		18095		17305		17305		35400	
AM Peak	-	07:15	-	-	-	06:45	-	-	-	-	-
Vol.	-	1107	-	-	-	1112	-	-	-	-	-
P.H.F.		0.948				0.955					
PM Peak	-	-	03:15	-	-	-	04:15	-	-	-	-
Vol.	-	-	1338	-	-	-	1302	-	-	-	-
P.H.F.			0.972				0.899				
Percentage		36.7%	63.3%			40.4%	59.6%				
ADT/AADT		ADT 35,400		AADT 35,400							

Appendix C SIDRA WORKSHEETS

LEVEL OF SERVICE

Site: Monte Vista Ave & I-10 WB Ramps-Existing-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	E	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Existing-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
3	L2	345	2.0	1.009	48.6	LOS F	3.0	75.3	1.00	0.08	17.6
8	T1	773	2.0	1.009	48.6	LOS F	3.0	75.3	1.00	0.08	17.6
Approach		1117	2.0	1.009	48.6	LOS E	3.0	75.3	1.00	0.04	17.6
East: I-10 WB Ramps											
1	L2	285	2.0	1.540	283.9	LOS F	68.8	1746.3	1.00	6.84	5.3
16	R2	266	2.0	1.540	283.9	LOS F	68.8	1746.3	1.00	6.84	5.3
Approach		551	2.0	1.540	283.9	LOS F	68.8	1746.3	1.00	3.42	5.3
North: Monte Vista Ave											
4	T1	836	2.0	1.739	355.8	LOS F	164.9	4188.0	1.00	9.59	4.3
14	R2	290	2.0	1.739	355.8	LOS F	164.9	4188.0	1.00	9.59	4.3
Approach		1126	2.0	1.739	355.8	LOS F	164.9	4188.0	1.00	4.80	4.3
All Vehicles		2795	2.0	1.739	218.8	LOS F	164.9	4188.0	1.00	2.62	6.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Existing-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2795	veh/h	3353	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.739			
Practical Spare Capacity	-51.1	%		
Effective Intersection Capacity	1607	veh/h		
Control Delay (Total)	169.86	veh-h/h	203.83	pers-h/h
Control Delay (Average)	218.8	sec	218.8	sec
Control Delay (Worst Lane)	355.8	sec		
Control Delay (Worst Movement)	355.8	sec	355.8	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	218.8	sec		
Idling Time (Average)	167.7	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	164.9	veh		
95% Back of Queue - Distance (Worst Lane)	4188.0	ft		
Queue Storage Ratio (Worst Lane)	2.76			
Total Effective Stops	7331	veh/h	8798	pers/h
Effective Stop Rate	2.62	per veh	2.62	per pers
Proportion Queued	1.00		1.00	
Performance Index	625.5		625.5	
Travel Distance (Total)	1366.3	veh-mi/h	1639.5	pers-mi/h
Travel Distance (Average)	2581	ft	2581	ft
Travel Time (Total)	209.6	veh-h/h	251.5	pers-h/h
Travel Time (Average)	270.0	sec	270.0	sec
Travel Speed	6.5	mph	6.5	mph
Cost (Total)	3078.06	$/h	3078.06	$/h
Fuel Consumption (Total)	84.9	gal/h		
Carbon Dioxide (Total)	757.5	kg/h		
Hydrocarbons (Total)	0.519	kg/h		
Carbon Monoxide (Total)	2.657	kg/h		
NOx (Total)	0.683	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

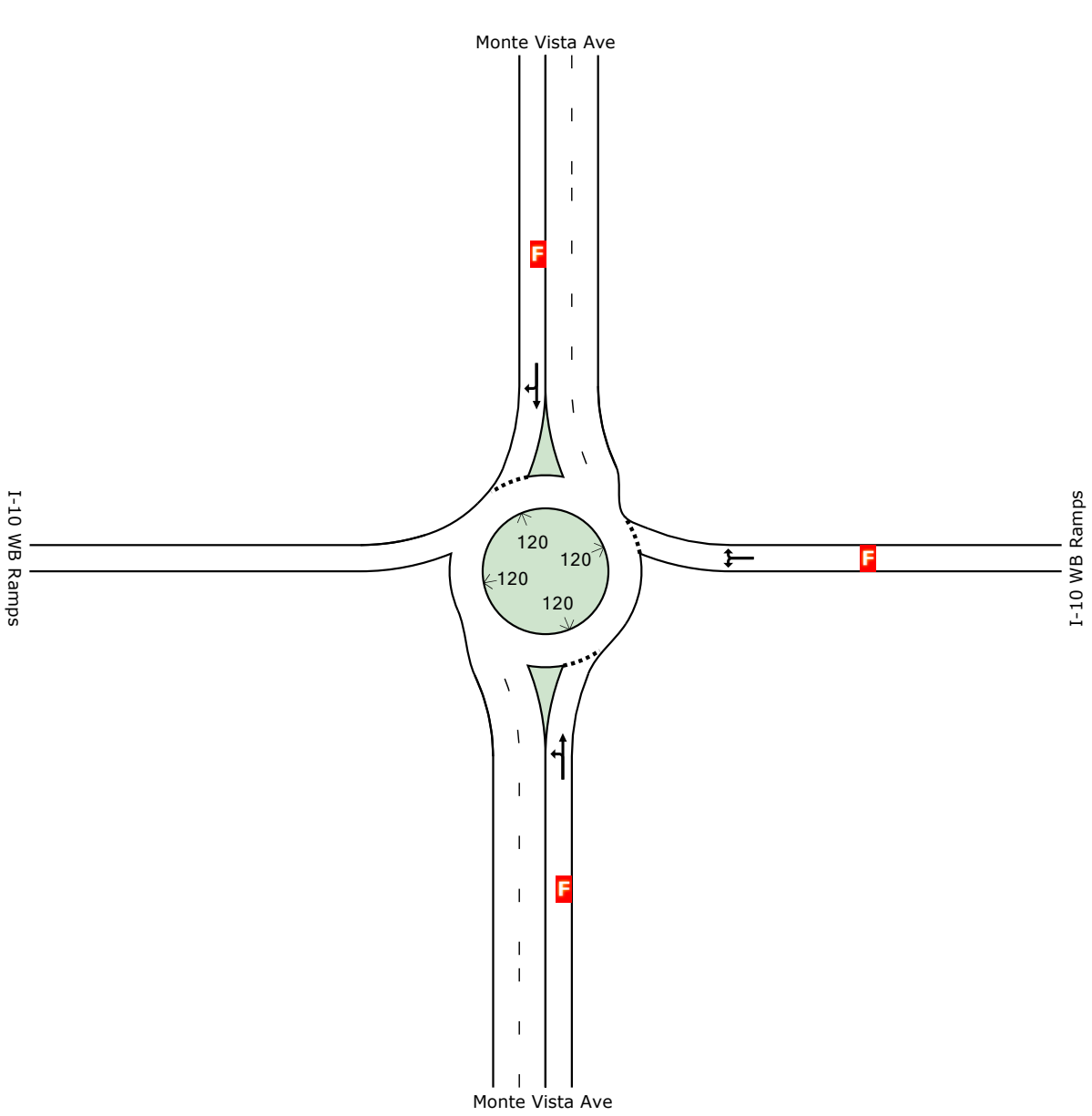
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,341,391	veh/y	1,609,670	pers/y
Delay	81,532	veh-h/y	97,839	pers-h/y
Effective Stops	3,519,081	veh/y	4,222,898	pers/y
Travel Distance	655,800	veh-mi/y	786,960	pers-mi/y
Travel Time	100,590	veh-h/y	120,708	pers-h/y
Cost	1,477,466	$/y	1,477,466	$/y
Fuel Consumption	40,774	gal/y		
Carbon Dioxide	363,589	kg/y		
Hydrocarbons	249	kg/y		
Carbon Monoxide	1,275	kg/y		
NOx	328	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & I-10 WB Ramps-Existing-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Existing-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
3	L2	310	2.0	1.173	104.2	LOS F	59.7	1516.3	1.00	0.09	11.3
8	T1	990	2.0	1.173	104.2	LOS F	59.7	1516.3	1.00	0.09	11.3
Approach		1300	2.0	1.173	104.2	LOS F	59.7	1516.3	1.00	0.04	11.3
East: I-10 WB Ramps											
1	L2	382	2.0	1.999	483.7	LOS F	121.4	3083.8	1.00	8.75	3.4
16	R2	334	2.0	1.999	483.7	LOS F	121.4	3083.8	1.00	8.75	3.4
Approach		715	2.0	1.999	483.7	LOS F	121.4	3083.8	1.00	4.37	3.4
North: Monte Vista Ave											
4	T1	912	2.0	1.823	391.4	LOS F	196.7	4997.3	1.00	10.07	3.9
14	R2	358	2.0	1.823	391.4	LOS F	196.7	4997.3	1.00	10.07	3.9
Approach		1270	2.0	1.823	391.4	LOS F	196.7	4997.3	1.00	5.04	3.9
All Vehicles		3285	2.0	1.999	297.8	LOS F	196.7	4997.3	1.00	2.92	5.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Existing-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3285	veh/h	3942	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.999			
Practical Spare Capacity	-57.5	%		
Effective Intersection Capacity	1644	veh/h		
Control Delay (Total)	271.77	veh-h/h	326.12	pers-h/h
Control Delay (Average)	297.8	sec	297.8	sec
Control Delay (Worst Lane)	483.7	sec		
Control Delay (Worst Movement)	483.7	sec	483.7	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	297.8	sec		
Idling Time (Average)	240.5	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	196.7	veh		
95% Back of Queue - Distance (Worst Lane)	4997.3	ft		
Queue Storage Ratio (Worst Lane)	3.30			
Total Effective Stops	9578	veh/h	11493	pers/h
Effective Stop Rate	2.92	per veh	2.92	per pers
Proportion Queued	1.00		1.00	
Performance Index	973.2		973.2	
Travel Distance (Total)	1603.9	veh-mi/h	1924.7	pers-mi/h
Travel Distance (Average)	2578	ft	2578	ft
Travel Time (Total)	318.3	veh-h/h	381.9	pers-h/h
Travel Time (Average)	348.8	sec	348.8	sec
Travel Speed	5.0	mph	5.0	mph
Cost (Total)	4650.18	$/h	4650.18	$/h
Fuel Consumption (Total)	124.0	gal/h		
Carbon Dioxide (Total)	1106.0	kg/h		
Hydrocarbons (Total)	0.790	kg/h		
Carbon Monoxide (Total)	3.894	kg/h		
NOx (Total)	0.907	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

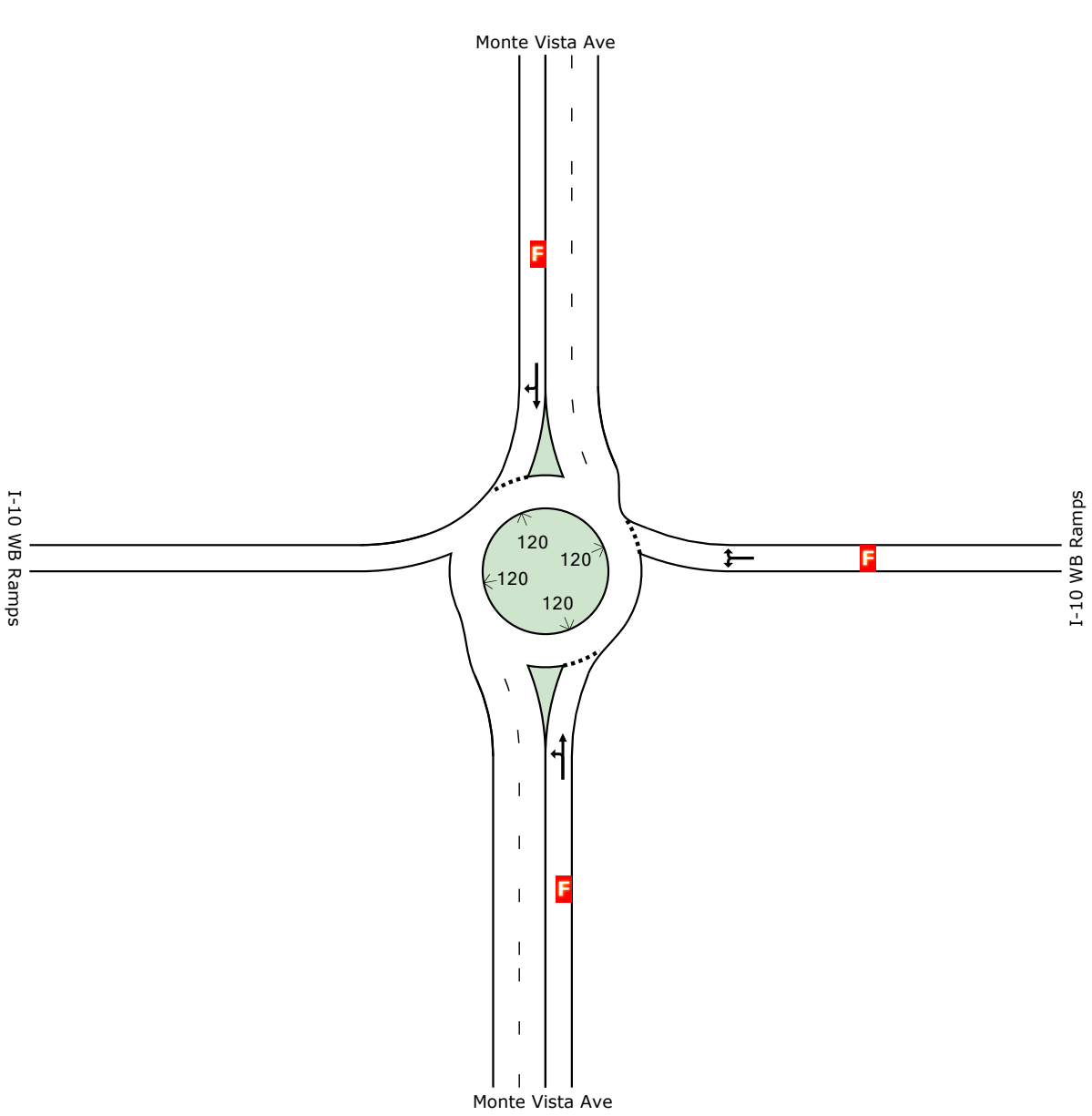
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,576,696	veh/y	1,892,035	pers/y
Delay	130,449	veh-h/y	156,538	pers-h/y
Effective Stops	4,597,331	veh/y	5,516,797	pers/y
Travel Distance	769,883	veh-mi/y	923,860	pers-mi/y
Travel Time	152,776	veh-h/y	183,332	pers-h/y
Cost	2,232,087	$/y	2,232,087	$/y
Fuel Consumption	59,535	gal/y		
Carbon Dioxide	530,877	kg/y		
Hydrocarbons	379	kg/y		
Carbon Monoxide	1,869	kg/y		
NOx	436	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & I-10 WB Ramps-Existing plus Project-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Existing plus Project-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
3	L2	345	2.0	1.262	140.0	LOS F	90.1	2288.2	1.00	0.09	9.2
8	T1	1053	2.0	1.262	140.0	LOS F	90.1	2288.2	1.00	0.09	9.2
Approach		1398	2.0	1.262	140.0	LOS F	90.1	2288.2	1.00	0.04	9.2
East: I-10 WB Ramps											
1	L2	285	2.0	2.166	557.6	LOS F	140.7	3572.9	1.00	9.25	2.9
16	R2	490	2.0	2.166	557.6	LOS F	140.7	3572.9	1.00	9.25	2.9
Approach		775	2.0	2.166	557.6	LOS F	140.7	3572.9	1.00	4.62	2.9
North: Monte Vista Ave											
4	T1	1166	2.0	2.274	591.8	LOS F	314.8	7995.3	1.00	11.91	2.7
14	R2	501	2.0	2.274	591.8	LOS F	314.8	7995.3	1.00	11.91	2.7
Approach		1667	2.0	2.274	591.8	LOS F	314.8	7995.3	1.00	5.96	2.7
All Vehicles		3840	2.0	2.274	420.5	LOS F	314.8	7995.3	1.00	3.54	3.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Existing plus Project-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3840	veh/h	4608	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.274			
Practical Spare Capacity	-62.6	%		
Effective Intersection Capacity	1689	veh/h		
Control Delay (Total)	448.54	veh-h/h	538.24	pers-h/h
Control Delay (Average)	420.5	sec	420.5	sec
Control Delay (Worst Lane)	591.8	sec		
Control Delay (Worst Movement)	591.8	sec	591.8	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	420.5	sec		
Idling Time (Average)	350.6	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	314.8	veh		
95% Back of Queue - Distance (Worst Lane)	7995.3	ft		
Queue Storage Ratio (Worst Lane)	5.28			
Total Effective Stops	13575	veh/h	16290	pers/h
Effective Stop Rate	3.54	per veh	3.54	per pers
Proportion Queued	1.00		1.00	
Performance Index	1448.6		1448.6	
Travel Distance (Total)	1867.9	veh-mi/h	2241.5	pers-mi/h
Travel Distance (Average)	2568	ft	2568	ft
Travel Time (Total)	502.4	veh-h/h	602.9	pers-h/h
Travel Time (Average)	471.0	sec	471.0	sec
Travel Speed	3.7	mph	3.7	mph
Cost (Total)	7274.41	$/h	7274.41	$/h
Fuel Consumption (Total)	188.1	gal/h		
Carbon Dioxide (Total)	1677.7	kg/h		
Hydrocarbons (Total)	1.244	kg/h		
Carbon Monoxide (Total)	5.925	kg/h		
NOx (Total)	1.257	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

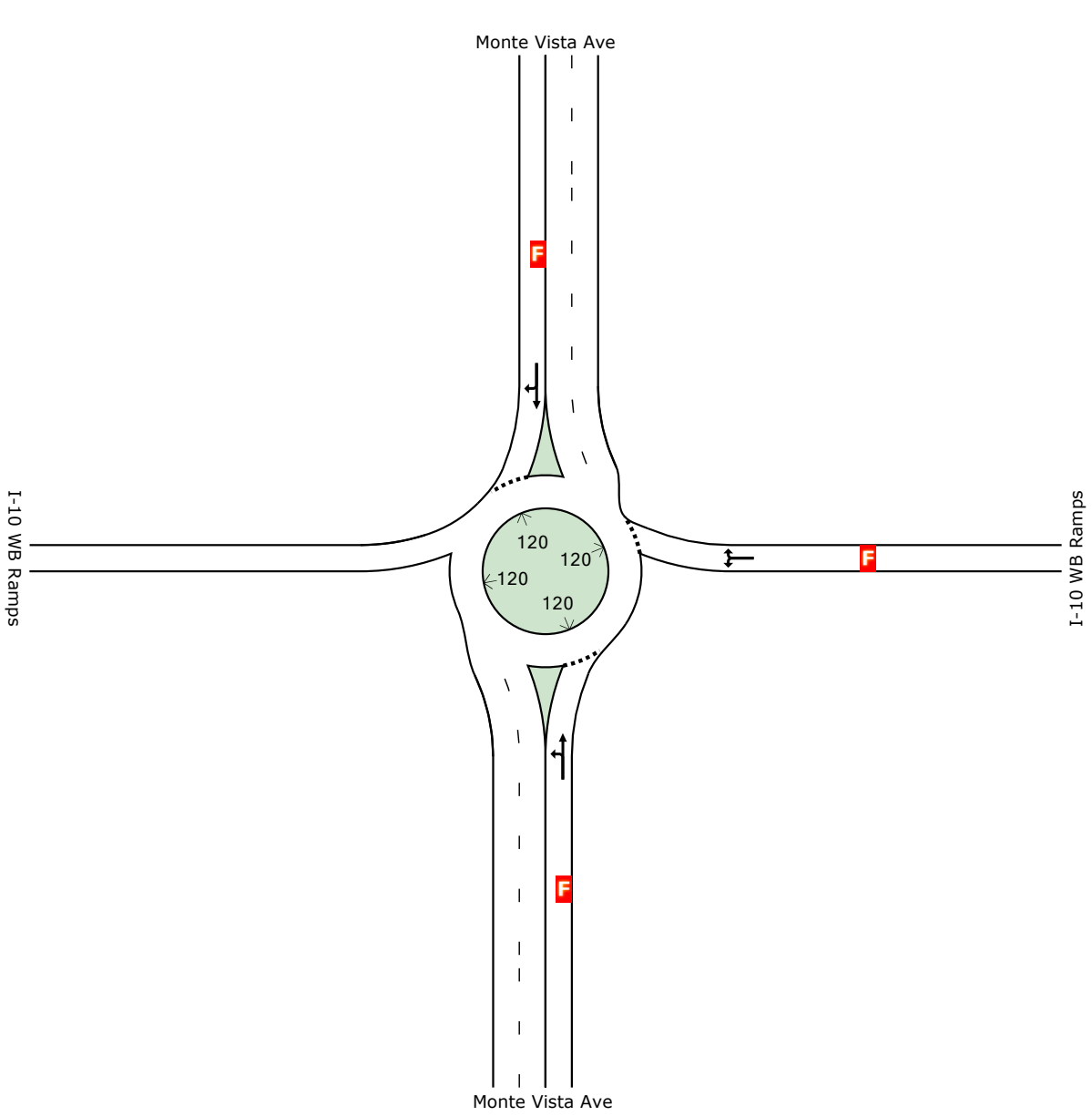
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,843,304	veh/y	2,211,965	pers/y
Delay	215,297	veh-h/y	258,357	pers-h/y
Effective Stops	6,516,081	veh/y	7,819,298	pers/y
Travel Distance	896,581	veh-mi/y	1,075,898	pers-mi/y
Travel Time	241,147	veh-h/y	289,377	pers-h/y
Cost	3,491,716	$/y	3,491,716	$/y
Fuel Consumption	90,311	gal/y		
Carbon Dioxide	805,318	kg/y		
Hydrocarbons	597	kg/y		
Carbon Monoxide	2,844	kg/y		
NOx	604	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & I-10 WB Ramps-Existing plus Project-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Existing plus Project-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
3	L2	310	2.0	1.527	254.3	LOS F	181.3	4604.1	1.00	0.09	5.8
8	T1	1382	2.0	1.527	254.3	LOS F	181.3	4604.1	1.00	0.09	5.8
Approach		1691	2.0	1.527	254.3	LOS F	181.3	4604.1	1.00	0.05	5.8
East: I-10 WB Ramps											
1	L2	382	2.0	2.873	873.2	LOS F	222.4	5648.4	1.00	10.72	1.9
16	R2	647	2.0	2.873	873.2	LOS F	222.4	5648.4	1.00	10.72	1.9
Approach		1028	2.0	2.873	873.2	LOS F	222.4	5648.4	1.00	5.36	1.9
North: Monte Vista Ave											
4	T1	1366	2.0	2.559	718.6	LOS F	412.7	10482.9	1.00	12.53	2.3
14	R2	647	2.0	2.559	718.6	LOS F	412.7	10482.9	1.00	12.53	2.3
Approach		2013	2.0	2.559	718.6	LOS F	412.7	10482.9	1.00	6.26	2.3
All Vehicles		4733	2.0	2.873	586.3	LOS F	412.7	10482.9	1.00	3.85	2.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Existing plus Project-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	4733	veh/h	5679	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.873			
Practical Spare Capacity	-70.4	%		
Effective Intersection Capacity	1647	veh/h		
Control Delay (Total)	770.71	veh-h/h	924.85	pers-h/h
Control Delay (Average)	586.3	sec	586.3	sec
Control Delay (Worst Lane)	873.2	sec		
Control Delay (Worst Movement)	873.2	sec	873.2	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	586.3	sec		
Idling Time (Average)	510.4	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	412.7	veh		
95% Back of Queue - Distance (Worst Lane)	10482.9	ft		
Queue Storage Ratio (Worst Lane)	6.92			
Total Effective Stops	18202	veh/h	21842	pers/h
Effective Stop Rate	3.85	per veh	3.85	per pers
Proportion Queued	1.00		1.00	
Performance Index	2243.2		2243.2	
Travel Distance (Total)	2298.5	veh-mi/h	2758.2	pers-mi/h
Travel Distance (Average)	2564	ft	2564	ft
Travel Time (Total)	836.8	veh-h/h	1004.2	pers-h/h
Travel Time (Average)	636.6	sec	636.6	sec
Travel Speed	2.7	mph	2.7	mph
Cost (Total)	12024.05	$/h	12024.05	$/h
Fuel Consumption (Total)	303.6	gal/h		
Carbon Dioxide (Total)	2706.9	kg/h		
Hydrocarbons (Total)	2.067	kg/h		
Carbon Monoxide (Total)	9.584	kg/h		
NOx (Total)	1.858	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

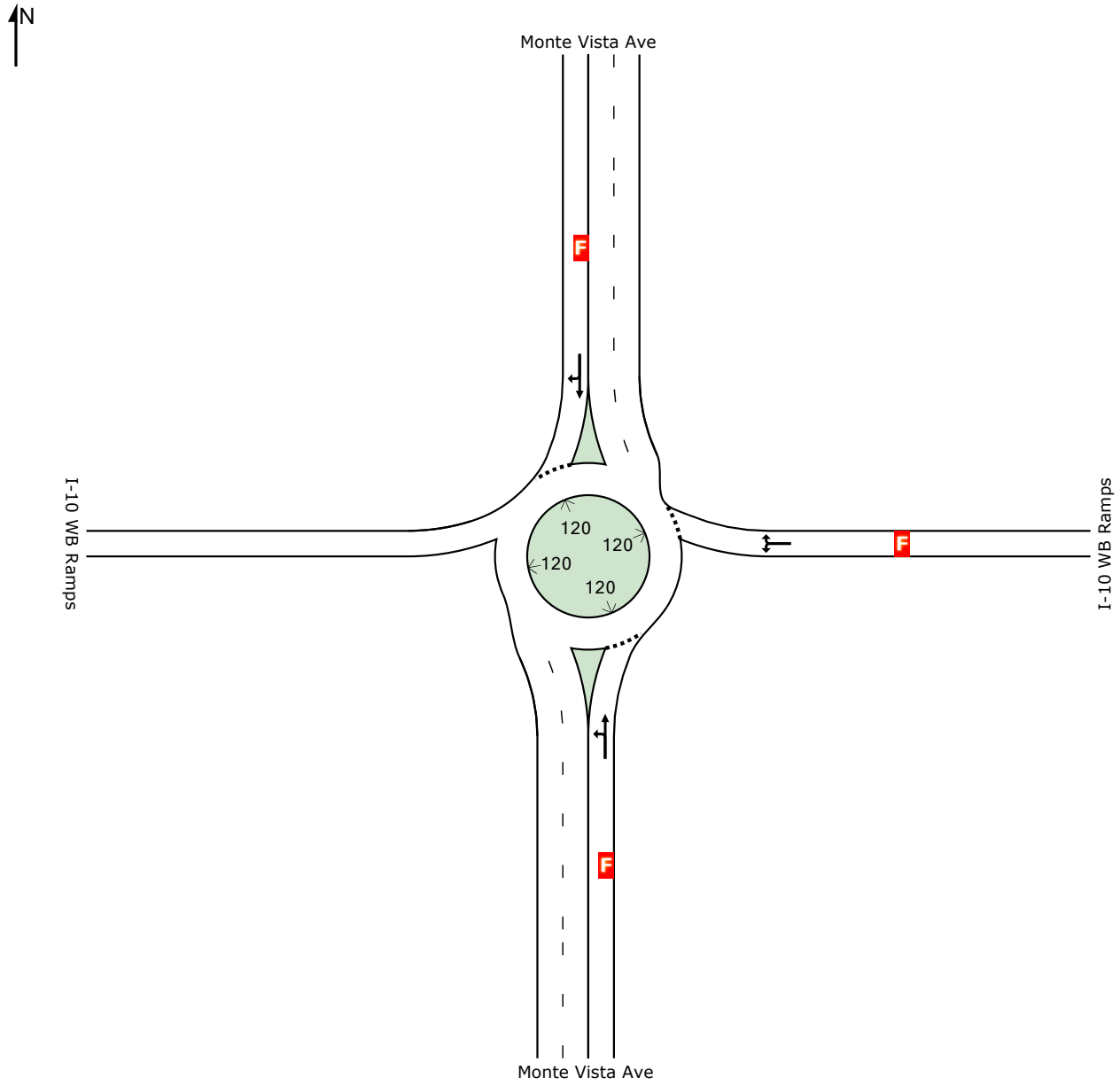
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,271,652	veh/y	2,725,983	pers/y
Delay	369,941	veh-h/y	443,929	pers-h/y
Effective Stops	8,736,963	veh/y	10,484,360	pers/y
Travel Distance	1,103,273	veh-mi/y	1,323,928	pers-mi/y
Travel Time	401,673	veh-h/y	482,007	pers-h/y
Cost	5,771,544	$/y	5,771,544	$/y
Fuel Consumption	145,709	gal/y		
Carbon Dioxide	1,299,305	kg/y		
Hydrocarbons	992	kg/y		
Carbon Monoxide	4,601	kg/y		
NOx	892	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & I-10 WB Ramps-Long Range No Project-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Long Range No Project-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
3	L2	261	2.0	1.019	51.5	LOS F	6.7	169.7	1.00	0.08	17.2
8	T1	868	2.0	1.019	51.5	LOS F	6.7	169.7	1.00	0.08	17.2
Approach		1129	2.0	1.019	51.5	LOS F	6.7	169.7	1.00	0.04	17.2
East: I-10 WB Ramps											
1	L2	207	2.0	1.552	289.1	LOS F	70.1	1781.5	1.00	6.91	5.2
16	R2	349	2.0	1.552	289.1	LOS F	70.1	1781.5	1.00	6.91	5.2
Approach		555	2.0	1.552	289.1	LOS F	70.1	1781.5	1.00	3.45	5.2
North: Monte Vista Ave											
4	T1	971	2.0	1.835	396.1	LOS F	214.6	5451.5	1.00	10.07	3.9
14	R2	397	2.0	1.835	396.1	LOS F	214.6	5451.5	1.00	10.07	3.9
Approach		1367	2.0	1.835	396.1	LOS F	214.6	5451.5	1.00	5.03	3.9
All Vehicles		3052	2.0	1.835	249.1	LOS F	214.6	5451.5	1.00	2.90	5.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Long Range No Project-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3052	veh/h	3663	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.835			
Practical Spare Capacity	-53.7	%		
Effective Intersection Capacity	1663	veh/h		
Control Delay (Total)	211.20	veh-h/h	253.43	pers-h/h
Control Delay (Average)	249.1	sec	249.1	sec
Control Delay (Worst Lane)	396.1	sec		
Control Delay (Worst Movement)	396.1	sec	396.1	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	249.1	sec		
Idling Time (Average)	193.5	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	214.6	veh		
95% Back of Queue - Distance (Worst Lane)	5451.5	ft		
Queue Storage Ratio (Worst Lane)	3.60			
Total Effective Stops	8848	veh/h	10618	pers/h
Effective Stop Rate	2.90	per veh	2.90	per pers
Proportion Queued	1.00		1.00	
Performance Index	766.5		766.5	
Travel Distance (Total)	1483.1	veh-mi/h	1779.7	pers-mi/h
Travel Distance (Average)	2566	ft	2566	ft
Travel Time (Total)	253.9	veh-h/h	304.6	pers-h/h
Travel Time (Average)	299.4	sec	299.4	sec
Travel Speed	5.8	mph	5.8	mph
Cost (Total)	3722.58	$/h	3722.58	$/h
Fuel Consumption (Total)	101.3	gal/h		
Carbon Dioxide (Total)	903.7	kg/h		
Hydrocarbons (Total)	0.630	kg/h		
Carbon Monoxide (Total)	3.172	kg/h		
NOx (Total)	0.798	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

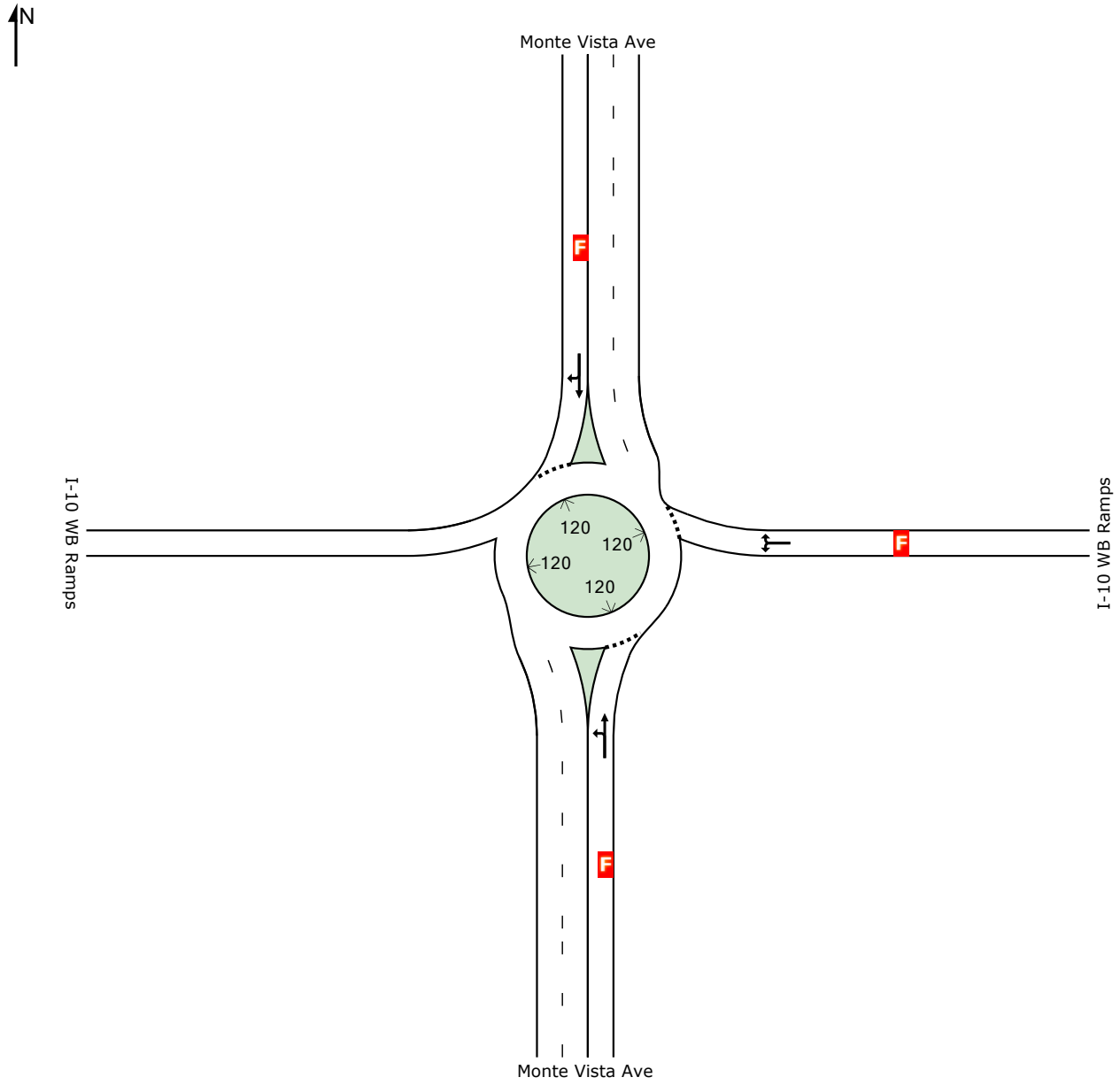
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,465,044	veh/y	1,758,052	pers/y
Delay	101,374	veh-h/y	121,649	pers-h/y
Effective Stops	4,247,252	veh/y	5,096,702	pers/y
Travel Distance	711,883	veh-mi/y	854,260	pers-mi/y
Travel Time	121,856	veh-h/y	146,227	pers-h/y
Cost	1,786,840	$/y	1,786,840	$/y
Fuel Consumption	48,644	gal/y		
Carbon Dioxide	433,766	kg/y		
Hydrocarbons	302	kg/y		
Carbon Monoxide	1,523	kg/y		
NOx	383	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & I-10 WB Ramps-Long Range No Project-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Long Range No Project-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
3	L2	228	2.0	1.218	121.8	LOS F	74.9	1902.3	1.00	0.09	10.2
8	T1	1121	2.0	1.218	121.8	LOS F	74.9	1902.3	1.00	0.09	10.2
Approach		1349	2.0	1.218	121.8	LOS F	74.9	1902.3	1.00	0.04	10.2
East: I-10 WB Ramps											
1	L2	283	2.0	2.005	486.4	LOS F	122.1	3101.5	1.00	8.77	3.3
16	R2	435	2.0	2.005	486.4	LOS F	122.1	3101.5	1.00	8.77	3.3
Approach		717	2.0	2.005	486.4	LOS F	122.1	3101.5	1.00	4.38	3.3
North: Monte Vista Ave											
4	T1	1115	2.0	2.011	473.3	LOS F	275.0	6986.2	1.00	10.69	3.3
14	R2	478	2.0	2.011	473.3	LOS F	275.0	6986.2	1.00	10.69	3.3
Approach		1593	2.0	2.011	473.3	LOS F	275.0	6986.2	1.00	5.34	3.3
All Vehicles		3660	2.0	2.011	346.3	LOS F	275.0	6986.2	1.00	3.20	4.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Long Range No Project-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3660	veh/h	4392	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.011			
Practical Spare Capacity	-57.7	%		
Effective Intersection Capacity	1820	veh/h		
Control Delay (Total)	352.06	veh-h/h	422.47	pers-h/h
Control Delay (Average)	346.3	sec	346.3	sec
Control Delay (Worst Lane)	486.4	sec		
Control Delay (Worst Movement)	486.4	sec	486.4	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	346.3	sec		
Idling Time (Average)	284.5	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	275.0	veh		
95% Back of Queue - Distance (Worst Lane)	6986.2	ft		
Queue Storage Ratio (Worst Lane)	4.61			
Total Effective Stops	11719	veh/h	14063	pers/h
Effective Stop Rate	3.20	per veh	3.20	per pers
Proportion Queued	1.00		1.00	
Performance Index	1221.3		1221.3	
Travel Distance (Total)	1776.3	veh-mi/h	2131.5	pers-mi/h
Travel Distance (Average)	2563	ft	2563	ft
Travel Time (Total)	403.1	veh-h/h	483.7	pers-h/h
Travel Time (Average)	396.5	sec	396.5	sec
Travel Speed	4.4	mph	4.4	mph
Cost (Total)	5872.40	$/h	5872.40	$/h
Fuel Consumption (Total)	154.6	gal/h		
Carbon Dioxide (Total)	1378.4	kg/h		
Hydrocarbons (Total)	1.001	kg/h		
Carbon Monoxide (Total)	4.856	kg/h		
NOx (Total)	1.104	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

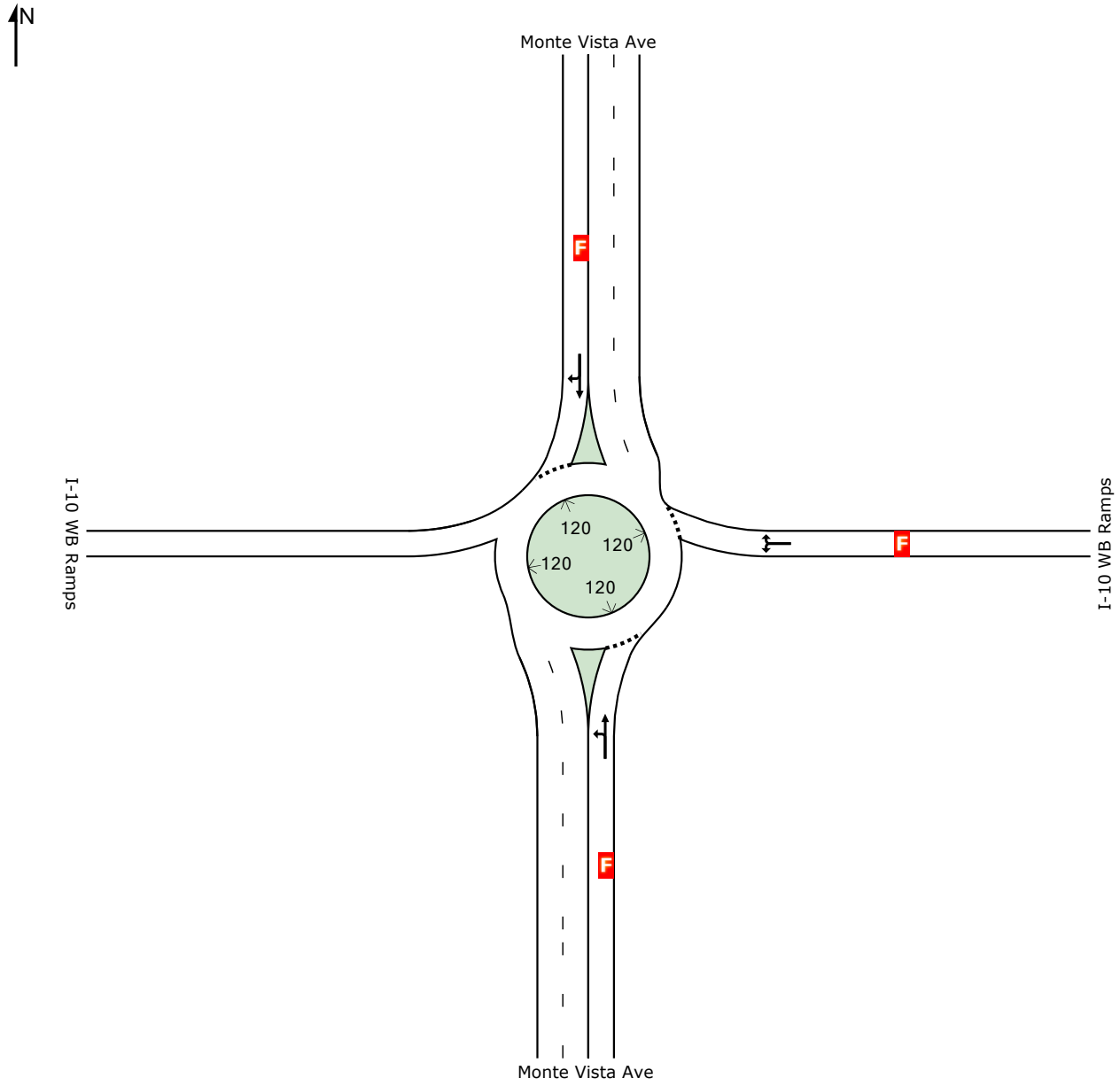
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,756,696	veh/y	2,108,035	pers/y
Delay	168,988	veh-h/y	202,786	pers-h/y
Effective Stops	5,625,265	veh/y	6,750,319	pers/y
Travel Distance	852,604	veh-mi/y	1,023,124	pers-mi/y
Travel Time	193,469	veh-h/y	232,162	pers-h/y
Cost	2,818,752	$/y	2,818,752	$/y
Fuel Consumption	74,198	gal/y		
Carbon Dioxide	661,635	kg/y		
Hydrocarbons	480	kg/y		
Carbon Monoxide	2,331	kg/y		
NOx	530	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & I-10 WB Ramps-Long Range with Project-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Long Range with Project-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
3	L2	272	2.0	1.158	98.1	LOS F	54.3	1379.1	1.00	0.09	11.8
8	T1	1011	2.0	1.158	98.1	LOS F	54.3	1379.1	1.00	0.09	11.8
Approach		1283	2.0	1.158	98.1	LOS F	54.3	1379.1	1.00	0.04	11.8
East: I-10 WB Ramps											
1	L2	217	2.0	1.640	326.9	LOS F	80.2	2037.4	1.00	7.35	4.7
16	R2	370	2.0	1.640	326.9	LOS F	80.2	2037.4	1.00	7.35	4.7
Approach		587	2.0	1.640	326.9	LOS F	80.2	2037.4	1.00	3.67	4.7
North: Monte Vista Ave											
4	T1	1120	2.0	2.098	512.6	LOS F	284.6	7227.7	1.00	11.19	3.1
14	R2	478	2.0	2.098	512.6	LOS F	284.6	7227.7	1.00	11.19	3.1
Approach		1598	2.0	2.098	512.6	LOS F	284.6	7227.7	1.00	5.59	3.1
All Vehicles		3467	2.0	2.098	327.8	LOS F	284.6	7227.7	1.00	3.21	4.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Long Range with Project-AM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3467	veh/h	4161	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.098			
Practical Spare Capacity	-59.5	%		
Effective Intersection Capacity	1653	veh/h		
Control Delay (Total)	315.74	veh-h/h	378.89	pers-h/h
Control Delay (Average)	327.8	sec	327.8	sec
Control Delay (Worst Lane)	512.6	sec		
Control Delay (Worst Movement)	512.6	sec	512.6	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	327.8	sec		
Idling Time (Average)	265.6	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	284.6	veh		
95% Back of Queue - Distance (Worst Lane)	7227.7	ft		
Queue Storage Ratio (Worst Lane)	4.77			
Total Effective Stops	11146	veh/h	13375	pers/h
Effective Stop Rate	3.21	per veh	3.21	per pers
Proportion Queued	1.00		1.00	
Performance Index	1094.2		1094.2	
Travel Distance (Total)	1683.1	veh-mi/h	2019.7	pers-mi/h
Travel Distance (Average)	2563	ft	2563	ft
Travel Time (Total)	364.1	veh-h/h	436.9	pers-h/h
Travel Time (Average)	378.0	sec	378.0	sec
Travel Speed	4.6	mph	4.6	mph
Cost (Total)	5311.27	$/h	5311.27	$/h
Fuel Consumption (Total)	140.5	gal/h		
Carbon Dioxide (Total)	1253.2	kg/h		
Hydrocarbons (Total)	0.904	kg/h		
Carbon Monoxide (Total)	4.412	kg/h		
NOx (Total)	1.021	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

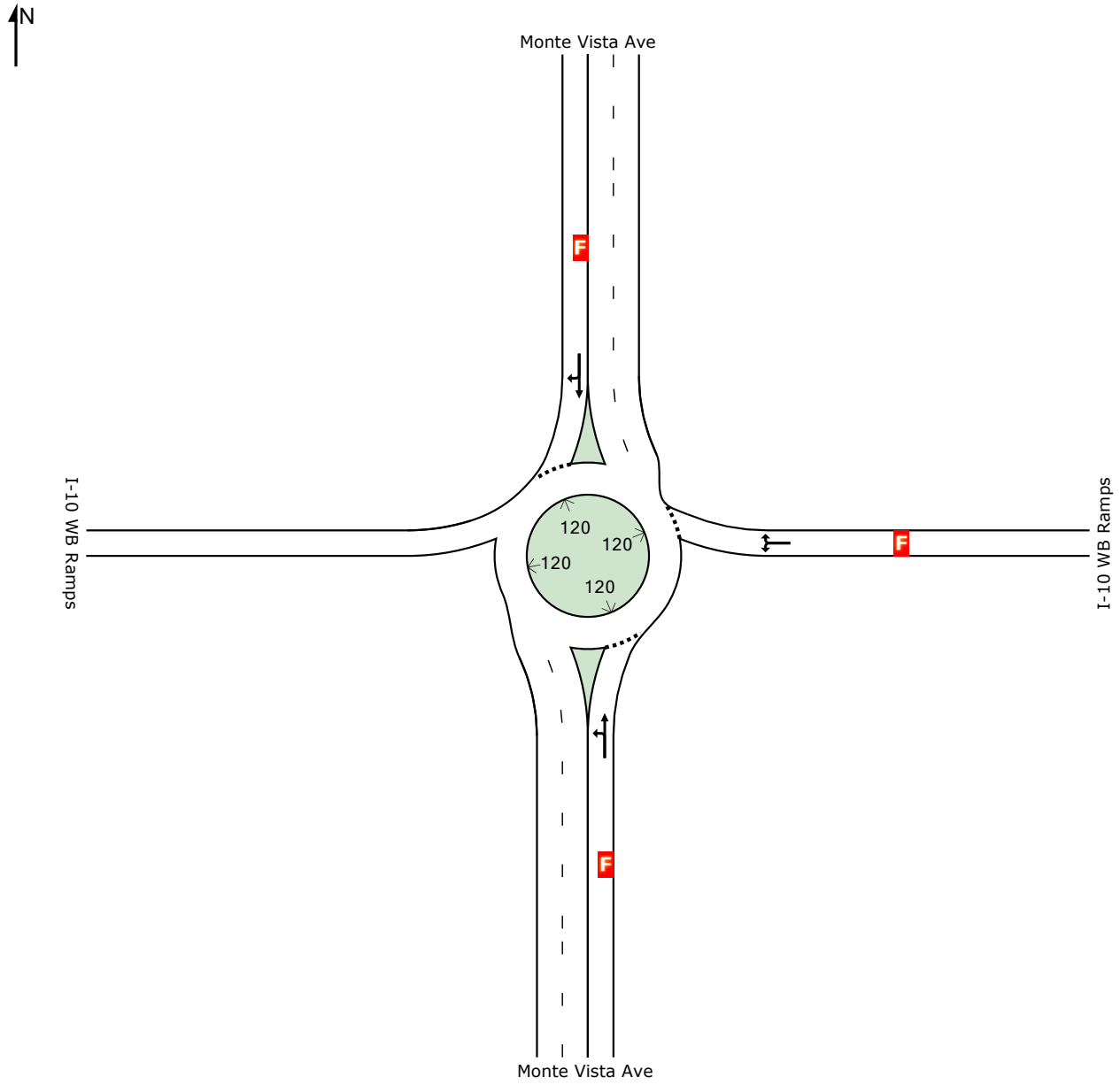
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,664,348	veh/y	1,997,217	pers/y
Delay	151,556	veh-h/y	181,867	pers-h/y
Effective Stops	5,350,191	veh/y	6,420,230	pers/y
Travel Distance	807,871	veh-mi/y	969,446	pers-mi/y
Travel Time	174,756	veh-h/y	209,707	pers-h/y
Cost	2,549,410	$/y	2,549,410	$/y
Fuel Consumption	67,457	gal/y		
Carbon Dioxide	601,522	kg/y		
Hydrocarbons	434	kg/y		
Carbon Monoxide	2,118	kg/y		
NOx	490	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & I-10 WB Ramps-Long Range with Project-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Long Range with Project-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
3	L2	239	2.0	1.374	187.6	LOS F	128.6	3266.0	1.00	0.09	7.4
8	T1	1283	2.0	1.374	187.6	LOS F	128.6	3266.0	1.00	0.09	7.4
Approach		1522	2.0	1.374	187.6	LOS F	128.6	3266.0	1.00	0.04	7.4
East: I-10 WB Ramps											
1	L2	293	2.0	2.126	540.1	LOS F	136.1	3457.2	1.00	9.13	3.0
16	R2	467	2.0	2.126	540.1	LOS F	136.1	3457.2	1.00	9.13	3.0
Approach		761	2.0	2.126	540.1	LOS F	136.1	3457.2	1.00	4.57	3.0
North: Monte Vista Ave											
4	T1	1293	2.0	2.320	611.3	LOS F	361.4	9178.5	1.00	11.72	2.6
14	R2	576	2.0	2.320	611.3	LOS F	361.4	9178.5	1.00	11.72	2.6
Approach		1870	2.0	2.320	611.3	LOS F	361.4	9178.5	1.00	5.86	2.6
All Vehicles		4152	2.0	2.320	443.0	LOS F	361.4	9178.5	1.00	3.49	3.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & I-10 WB Ramps-Long Range with Project-PM

Monte Vista Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	4152	veh/h	4983	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.320			
Practical Spare Capacity	-63.4	%		
Effective Intersection Capacity	1790	veh/h		
Control Delay (Total)	510.92	veh-h/h	613.10	pers-h/h
Control Delay (Average)	443.0	sec	443.0	sec
Control Delay (Worst Lane)	611.3	sec		
Control Delay (Worst Movement)	611.3	sec	611.3	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	443.0	sec		
Idling Time (Average)	375.4	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	361.4	veh		
95% Back of Queue - Distance (Worst Lane)	9178.5	ft		
Queue Storage Ratio (Worst Lane)	6.06			
Total Effective Stops	14500	veh/h	17400	pers/h
Effective Stop Rate	3.49	per veh	3.49	per pers
Proportion Queued	1.00		1.00	
Performance Index	1649.4		1649.4	
Travel Distance (Total)	2013.2	veh-mi/h	2415.9	pers-mi/h
Travel Distance (Average)	2560	ft	2560	ft
Travel Time (Total)	568.6	veh-h/h	682.3	pers-h/h
Travel Time (Average)	493.0	sec	493.0	sec
Travel Speed	3.5	mph	3.5	mph
Cost (Total)	8237.40	$/h	8237.40	$/h
Fuel Consumption (Total)	212.3	gal/h		
Carbon Dioxide (Total)	1893.4	kg/h		
Hydrocarbons (Total)	1.410	kg/h		
Carbon Monoxide (Total)	6.685	kg/h		
NOx (Total)	1.417	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

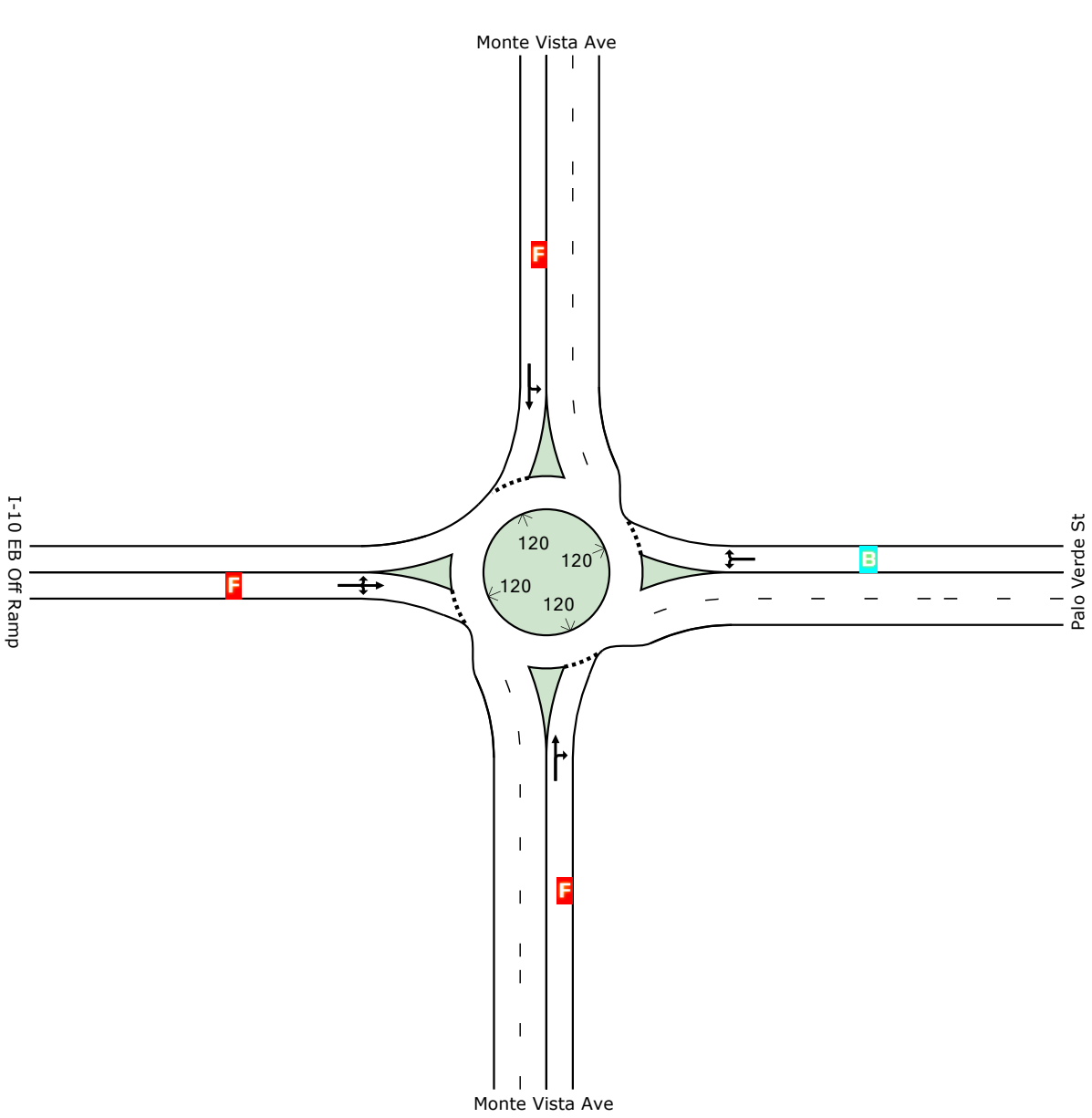
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,993,044	veh/y	2,391,652	pers/y
Delay	245,240	veh-h/y	294,288	pers-h/y
Effective Stops	6,960,141	veh/y	8,352,170	pers/y
Travel Distance	966,360	veh-mi/y	1,159,631	pers-mi/y
Travel Time	272,939	veh-h/y	327,526	pers-h/y
Cost	3,953,950	$/y	3,953,950	$/y
Fuel Consumption	101,921	gal/y		
Carbon Dioxide	908,840	kg/y		
Hydrocarbons	677	kg/y		
Carbon Monoxide	3,209	kg/y		
NOx	680	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & Palo Verde St-Existing-AM

Monte Vista Ave & Palo Verde St
Roundabout



	South	East	North	West	Intersection
LOS	F	B	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & Palo Verde St-Existing-AM

Monte Vista Ave & Palo Verde St
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
8	T1	749	2.0	1.836	398.6	LOS F	183.8	4668.3	1.00	10.10	3.9
18	R2	433	2.0	1.836	398.6	LOS F	183.8	4668.3	1.00	10.10	3.9
Approach		1182	2.0	1.836	398.6	LOS F	183.8	4668.3	1.00	5.05	3.9
East: Palo Verde St											
1	L2	91	2.0	0.402	11.5	LOS B	1.8	44.7	0.63	1.29	27.5
16	R2	162	2.0	0.402	11.5	LOS B	1.8	44.7	0.63	1.29	27.5
Approach		253	2.0	0.402	11.5	LOS B	1.8	44.7	0.63	0.65	27.5
North: Monte Vista Ave											
7	L2	342	2.0	1.139	93.0	LOS F	92.1	2340.1	1.00	2.69	12.2
4	T1	808	2.0	1.139	93.0	LOS F	92.1	2340.1	1.00	2.69	12.2
Approach		1150	2.0	1.139	93.0	LOS F	92.1	2340.1	1.00	1.35	12.2
West: I-10 EB Off Ramp											
5	L2	211	2.0	1.453	247.1	LOS F	59.3	1506.3	1.00	6.38	5.9
2	T1	126	2.0	1.453	247.1	LOS F	59.3	1506.3	1.00	6.38	5.9
12	R2	187	2.0	1.453	247.1	LOS F	59.3	1506.3	1.00	6.38	5.9
Approach		524	2.0	1.453	247.1	LOS F	59.3	1506.3	1.00	3.19	5.9
All Vehicles		3109	2.0	1.836	228.4	LOS F	183.8	4668.3	0.97	3.01	6.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & Palo Verde St-Existing-AM

Monte Vista Ave & Palo Verde St
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3109	veh/h	3730	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.836			
Practical Spare Capacity	-53.7	%		
Effective Intersection Capacity	1693	veh/h		
Control Delay (Total)	197.27	veh-h/h	236.72	pers-h/h
Control Delay (Average)	228.4	sec	228.4	sec
Control Delay (Worst Lane)	398.6	sec		
Control Delay (Worst Movement)	398.6	sec	398.6	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	228.4	sec		
Idling Time (Average)	175.5	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	183.8	veh		
95% Back of Queue - Distance (Worst Lane)	4668.3	ft		
Queue Storage Ratio (Worst Lane)	3.08			
Total Effective Stops	9351	veh/h	11221	pers/h
Effective Stop Rate	3.01	per veh	3.01	per pers
Proportion Queued	0.97		0.97	
Performance Index	877.2		877.2	
Travel Distance (Total)	1517.8	veh-mi/h	1821.3	pers-mi/h
Travel Distance (Average)	2578	ft	2578	ft
Travel Time (Total)	241.3	veh-h/h	289.6	pers-h/h
Travel Time (Average)	279.5	sec	279.5	sec
Travel Speed	6.3	mph	6.3	mph
Cost (Total)	3551.90	$/h	3551.90	$/h
Fuel Consumption (Total)	97.8	gal/h		
Carbon Dioxide (Total)	872.2	kg/h		
Hydrocarbons (Total)	0.599	kg/h		
Carbon Monoxide (Total)	3.055	kg/h		
NOx (Total)	0.801	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

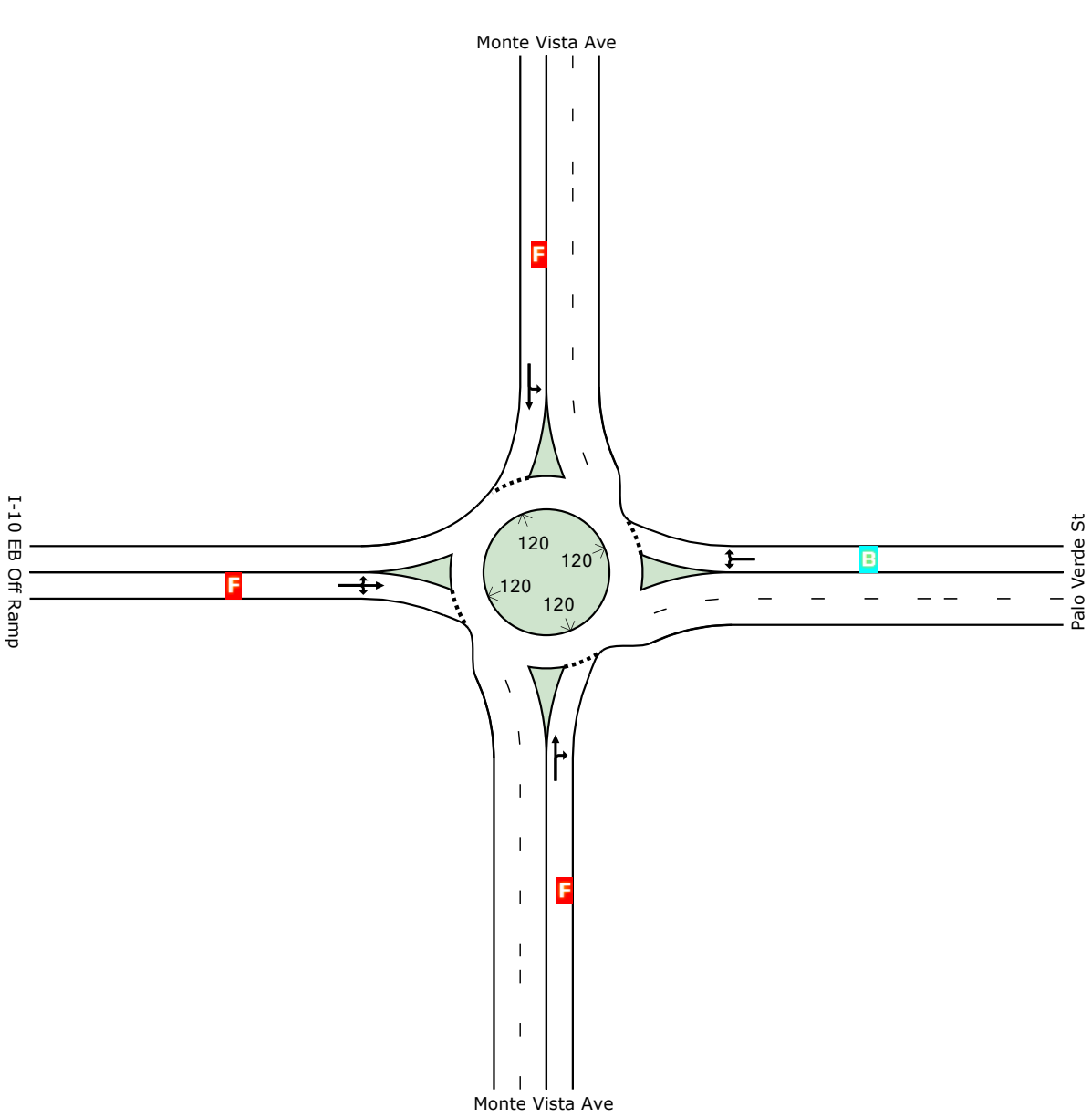
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,492,174	veh/y	1,790,609	pers/y
Delay	94,688	veh-h/y	113,626	pers-h/y
Effective Stops	4,488,243	veh/y	5,385,894	pers/y
Travel Distance	728,538	veh-mi/y	874,245	pers-mi/y
Travel Time	115,834	veh-h/y	139,000	pers-h/y
Cost	1,704,912	$/y	1,704,912	$/y
Fuel Consumption	46,947	gal/y		
Carbon Dioxide	418,633	kg/y		
Hydrocarbons	288	kg/y		
Carbon Monoxide	1,466	kg/y		
NOx	384	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & Palo Verde St-Existing-PM

Monte Vista Ave & Palo Verde St
Roundabout



	South	East	North	West	Intersection
LOS	F	B	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & Palo Verde St-Existing-PM

Monte Vista Ave & Palo Verde St
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
8	T1	750	2.0	1.868	412.9	LOS F	188.8	4795.8	1.00	10.25	3.7
18	R2	442	2.0	1.868	412.9	LOS F	188.8	4795.8	1.00	10.25	3.7
Approach		1192	2.0	1.868	412.9	LOS F	188.8	4795.8	1.00	5.13	3.7
East: Palo Verde St											
1	L2	61	2.0	0.443	12.6	LOS B	2.1	52.1	0.65	1.36	27.3
16	R2	212	2.0	0.443	12.6	LOS B	2.1	52.1	0.65	1.36	27.3
Approach		273	2.0	0.443	12.6	LOS B	2.1	52.1	0.65	0.68	27.3
North: Monte Vista Ave											
7	L2	362	2.0	1.235	130.0	LOS F	148.1	3761.1	1.00	2.57	9.7
4	T1	924	2.0	1.235	130.0	LOS F	148.1	3761.1	1.00	2.57	9.7
Approach		1286	2.0	1.235	130.0	LOS F	148.1	3761.1	1.00	1.28	9.7
West: I-10 EB Off Ramp											
5	L2	333	2.0	1.899	439.7	LOS F	110.6	2809.1	1.00	8.43	3.6
2	T1	137	2.0	1.899	439.7	LOS F	110.6	2809.1	1.00	8.43	3.6
12	R2	214	2.0	1.899	439.7	LOS F	110.6	2809.1	1.00	8.43	3.6
Approach		684	2.0	1.899	439.7	LOS F	110.6	2809.1	1.00	4.22	3.6
All Vehicles		3435	2.0	1.899	280.5	LOS F	188.8	4795.8	0.97	3.15	5.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & Palo Verde St-Existing-PM

Monte Vista Ave & Palo Verde St
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3435	veh/h	4122	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.899			
Practical Spare Capacity	-55.2	%		
Effective Intersection Capacity	1809	veh/h		
Control Delay (Total)	267.66	veh-h/h	321.20	pers-h/h
Control Delay (Average)	280.5	sec	280.5	sec
Control Delay (Worst Lane)	439.7	sec		
Control Delay (Worst Movement)	439.7	sec	439.7	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	280.5	sec		
Idling Time (Average)	224.8	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	188.8	veh		
95% Back of Queue - Distance (Worst Lane)	4795.8	ft		
Queue Storage Ratio (Worst Lane)	3.17			
Total Effective Stops	10833	veh/h	13000	pers/h
Effective Stop Rate	3.15	per veh	3.15	per pers
Proportion Queued	0.97		0.97	
Performance Index	1182.3		1182.3	
Travel Distance (Total)	1678.9	veh-mi/h	2014.6	pers-mi/h
Travel Distance (Average)	2581	ft	2581	ft
Travel Time (Total)	316.5	veh-h/h	379.8	pers-h/h
Travel Time (Average)	331.7	sec	331.7	sec
Travel Speed	5.3	mph	5.3	mph
Cost (Total)	4646.81	$/h	4646.81	$/h
Fuel Consumption (Total)	125.0	gal/h		
Carbon Dioxide (Total)	1114.4	kg/h		
Hydrocarbons (Total)	0.788	kg/h		
Carbon Monoxide (Total)	3.914	kg/h		
NOx (Total)	0.954	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

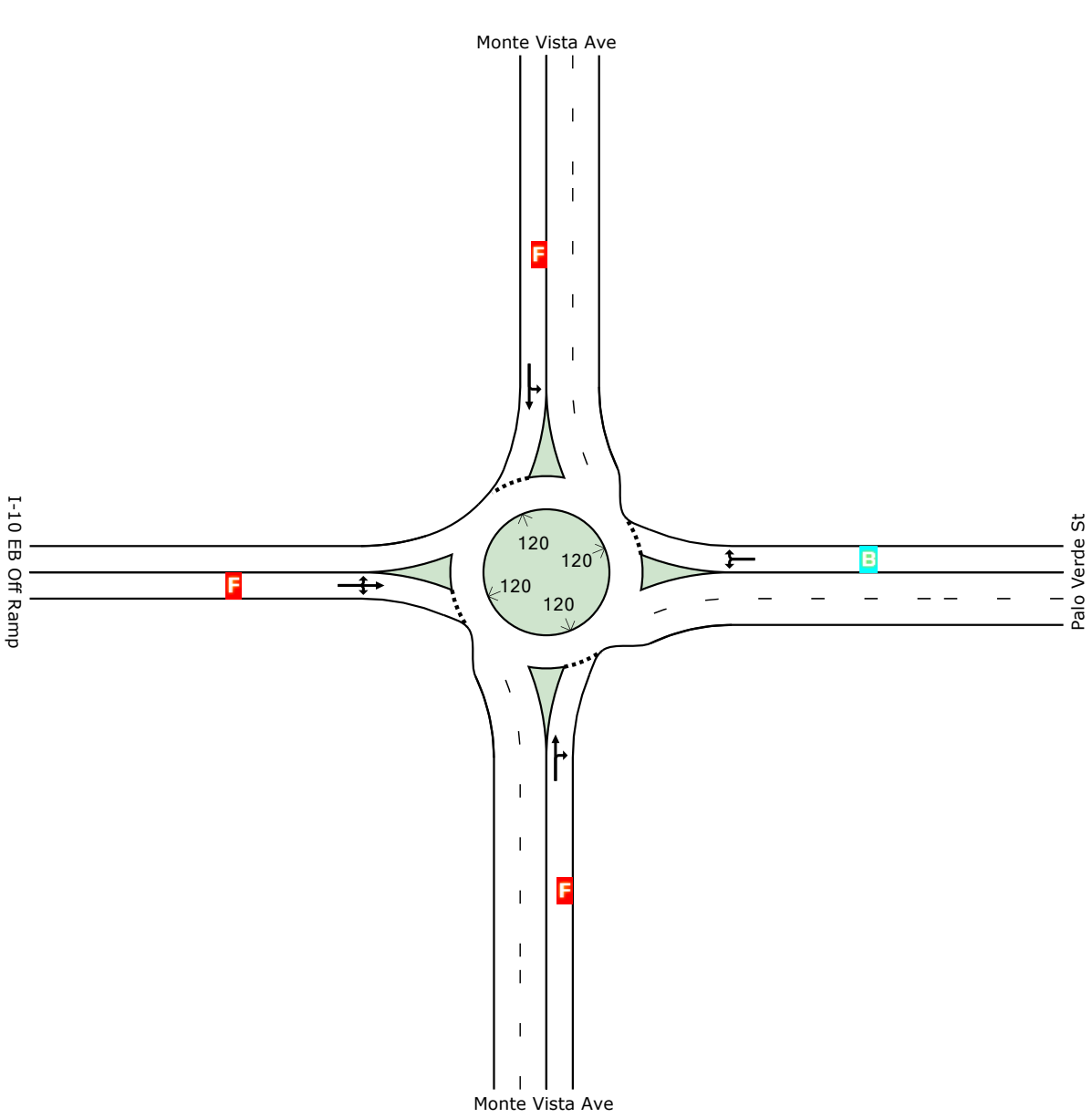
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,648,696	veh/y	1,978,435	pers/y
Delay	128,479	veh-h/y	154,175	pers-h/y
Effective Stops	5,200,072	veh/y	6,240,086	pers/y
Travel Distance	805,848	veh-mi/y	967,018	pers-mi/y
Travel Time	151,914	veh-h/y	182,297	pers-h/y
Cost	2,230,471	$/y	2,230,471	$/y
Fuel Consumption	59,986	gal/y		
Carbon Dioxide	534,901	kg/y		
Hydrocarbons	378	kg/y		
Carbon Monoxide	1,879	kg/y		
NOx	458	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & Palo Verde St-Existing plus Project-AM

Monte Vista Ave & Palo Verde St
Roundabout



	South	East	North	West	Intersection
LOS	F	B	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & Palo Verde St-Existing plus Project-AM

Monte Vista Ave & Palo Verde St
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
8	T1	833	2.0	2.248	584.4	LOS F	234.8	5963.9	1.00	11.50	2.7
18	R2	433	2.0	2.248	584.4	LOS F	234.8	5963.9	1.00	11.50	2.7
Approach		1265	2.0	2.248	584.4	LOS F	234.8	5963.9	1.00	5.75	2.7
East: Palo Verde St											
1	L2	91	2.0	0.411	11.9	LOS B	1.8	46.0	0.64	1.32	27.3
16	R2	162	2.0	0.411	11.9	LOS B	1.8	46.0	0.64	1.32	27.3
Approach		253	2.0	0.411	11.9	LOS B	1.8	46.0	0.64	0.66	27.3
North: Monte Vista Ave											
7	L2	583	2.0	1.467	229.3	LOS F	205.3	5214.0	1.00	4.68	6.3
4	T1	898	2.0	1.467	229.3	LOS F	205.3	5214.0	1.00	4.68	6.3
Approach		1480	2.0	1.467	229.3	LOS F	205.3	5214.0	1.00	2.34	6.3
West: I-10 EB Off Ramp											
5	L2	407	2.0	1.996	482.4	LOS F	122.0	3098.2	1.00	8.77	3.4
2	T1	126	2.0	1.996	482.4	LOS F	122.0	3098.2	1.00	8.77	3.4
12	R2	187	2.0	1.996	482.4	LOS F	122.0	3098.2	1.00	8.77	3.4
Approach		720	2.0	1.996	482.4	LOS F	122.0	3098.2	1.00	4.39	3.4
All Vehicles		3718	2.0	2.248	384.3	LOS F	234.8	5963.9	0.98	3.78	4.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & Palo Verde St-Existing plus Project-AM

Monte Vista Ave & Palo Verde St
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3718	veh/h	4462	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.248			
Practical Spare Capacity	-62.2	%		
Effective Intersection Capacity	1654	veh/h		
Control Delay (Total)	396.93	veh-h/h	476.31	pers-h/h
Control Delay (Average)	384.3	sec	384.3	sec
Control Delay (Worst Lane)	584.4	sec		
Control Delay (Worst Movement)	584.4	sec	584.4	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	384.3	sec		
Idling Time (Average)	316.3	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	234.8	veh		
95% Back of Queue - Distance (Worst Lane)	5963.9	ft		
Queue Storage Ratio (Worst Lane)	3.94			
Total Effective Stops	14057	veh/h	16868	pers/h
Effective Stop Rate	3.78	per veh	3.78	per pers
Proportion Queued	0.98		0.98	
Performance Index	1526.4		1526.4	
Travel Distance (Total)	1828.4	veh-mi/h	2194.1	pers-mi/h
Travel Distance (Average)	2596	ft	2596	ft
Travel Time (Total)	450.6	veh-h/h	540.7	pers-h/h
Travel Time (Average)	436.3	sec	436.3	sec
Travel Speed	4.1	mph	4.1	mph
Cost (Total)	6537.24	$/h	6537.24	$/h
Fuel Consumption (Total)	171.0	gal/h		
Carbon Dioxide (Total)	1525.2	kg/h		
Hydrocarbons (Total)	1.115	kg/h		
Carbon Monoxide (Total)	5.369	kg/h		
NOx (Total)	1.216	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

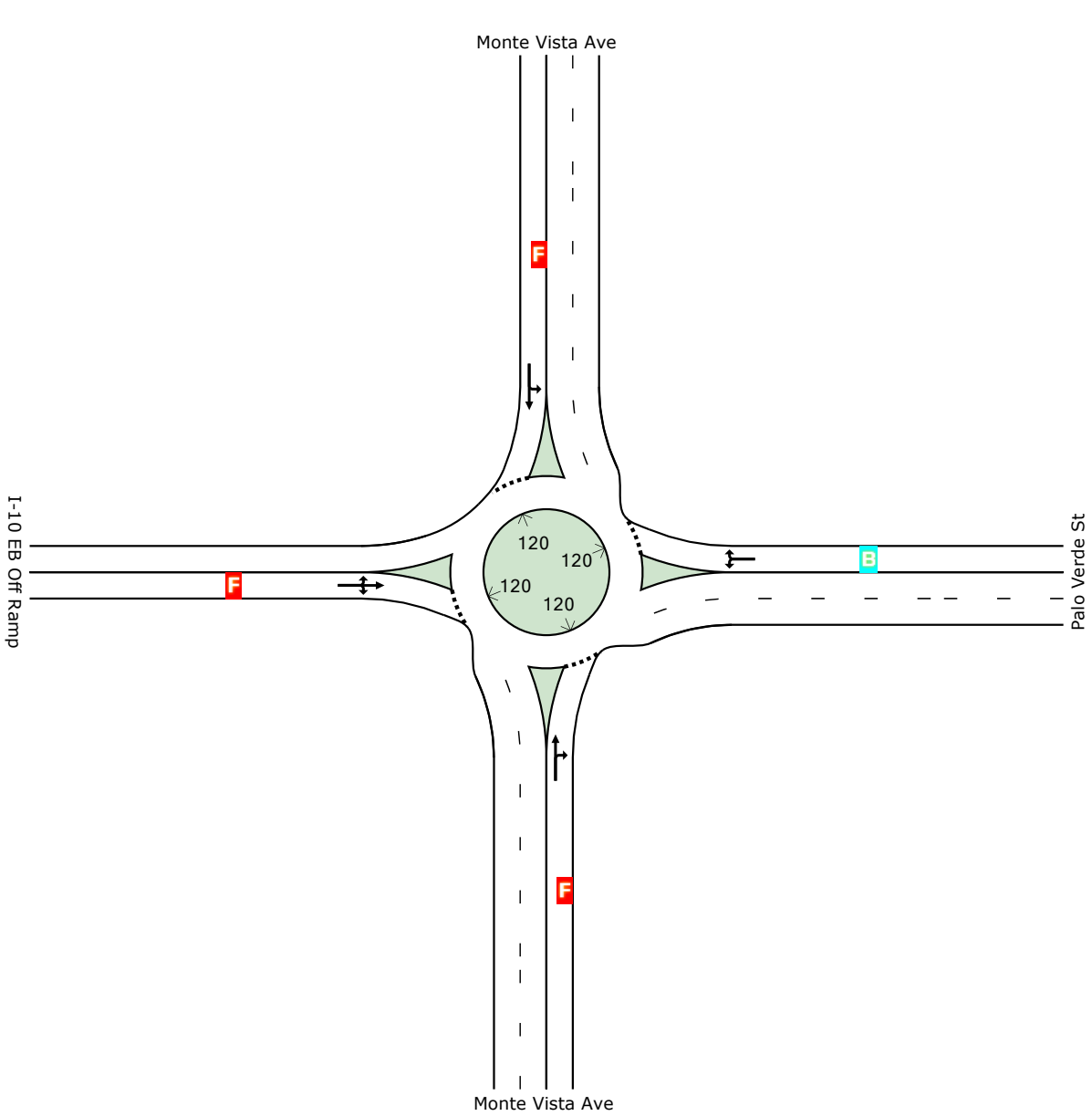
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,784,869	veh/y	2,141,844	pers/y
Delay	190,525	veh-h/y	228,630	pers-h/y
Effective Stops	6,747,130	veh/y	8,096,556	pers/y
Travel Distance	877,630	veh-mi/y	1,053,156	pers-mi/y
Travel Time	216,293	veh-h/y	259,552	pers-h/y
Cost	3,137,876	$/y	3,137,876	$/y
Fuel Consumption	82,099	gal/y		
Carbon Dioxide	732,089	kg/y		
Hydrocarbons	535	kg/y		
Carbon Monoxide	2,577	kg/y		
NOx	584	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & Palo Verde St-Existing plus Project-PM

Monte Vista Ave & Palo Verde St
Roundabout



	South	East	North	West	Intersection
LOS	F	B	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & Palo Verde St-Existing plus Project-PM

Monte Vista Ave & Palo Verde St
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
8	T1	867	2.0	2.399	652.3	LOS F	254.2	6457.2	1.00	11.85	2.5
18	R2	442	2.0	2.399	652.3	LOS F	254.2	6457.2	1.00	11.85	2.5
Approach		1310	2.0	2.399	652.3	LOS F	254.2	6457.2	1.00	5.93	2.5
East: Palo Verde St											
1	L2	61	2.0	0.450	12.9	LOS B	2.1	53.0	0.66	1.38	27.2
16	R2	212	2.0	0.450	12.9	LOS B	2.1	53.0	0.66	1.38	27.2
Approach		273	2.0	0.450	12.9	LOS B	2.1	53.0	0.66	0.69	27.2
North: Monte Vista Ave											
7	L2	692	2.0	1.671	319.0	LOS F	313.3	7956.7	1.00	4.07	4.8
4	T1	1048	2.0	1.671	319.0	LOS F	313.3	7956.7	1.00	4.07	4.8
Approach		1740	2.0	1.671	319.0	LOS F	313.3	7956.7	1.00	2.04	4.8
West: I-10 EB Off Ramp											
5	L2	607	2.0	2.660	777.7	LOS F	198.9	5051.8	1.00	10.39	2.2
2	T1	137	2.0	2.660	777.7	LOS F	198.9	5051.8	1.00	10.39	2.2
12	R2	214	2.0	2.660	777.7	LOS F	198.9	5051.8	1.00	10.39	2.2
Approach		958	2.0	2.660	777.7	LOS F	198.9	5051.8	1.00	5.20	2.2
All Vehicles		4280	2.0	2.660	504.1	LOS F	313.3	7956.7	0.98	3.85	3.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & Palo Verde St-Existing plus Project-PM

Monte Vista Ave & Palo Verde St
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	4280	veh/h	5137	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.660			
Practical Spare Capacity	-68.0	%		
Effective Intersection Capacity	1609	veh/h		
Control Delay (Total)	599.36	veh-h/h	719.23	pers-h/h
Control Delay (Average)	504.1	sec	504.1	sec
Control Delay (Worst Lane)	777.7	sec		
Control Delay (Worst Movement)	777.7	sec	777.7	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	504.1	sec		
Idling Time (Average)	436.1	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	313.3	veh		
95% Back of Queue - Distance (Worst Lane)	7956.7	ft		
Queue Storage Ratio (Worst Lane)	5.25			
Total Effective Stops	16470	veh/h	19764	pers/h
Effective Stop Rate	3.85	per veh	3.85	per pers
Proportion Queued	0.98		0.98	
Performance Index	2140.4		2140.4	
Travel Distance (Total)	2109.6	veh-mi/h	2531.5	pers-mi/h
Travel Distance (Average)	2602	ft	2602	ft
Travel Time (Total)	661.5	veh-h/h	793.8	pers-h/h
Travel Time (Average)	556.4	sec	556.4	sec
Travel Speed	3.2	mph	3.2	mph
Cost (Total)	9584.42	$/h	9584.42	$/h
Fuel Consumption (Total)	244.9	gal/h		
Carbon Dioxide (Total)	2183.6	kg/h		
Hydrocarbons (Total)	1.643	kg/h		
Carbon Monoxide (Total)	7.715	kg/h		
NOx (Total)	1.579	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

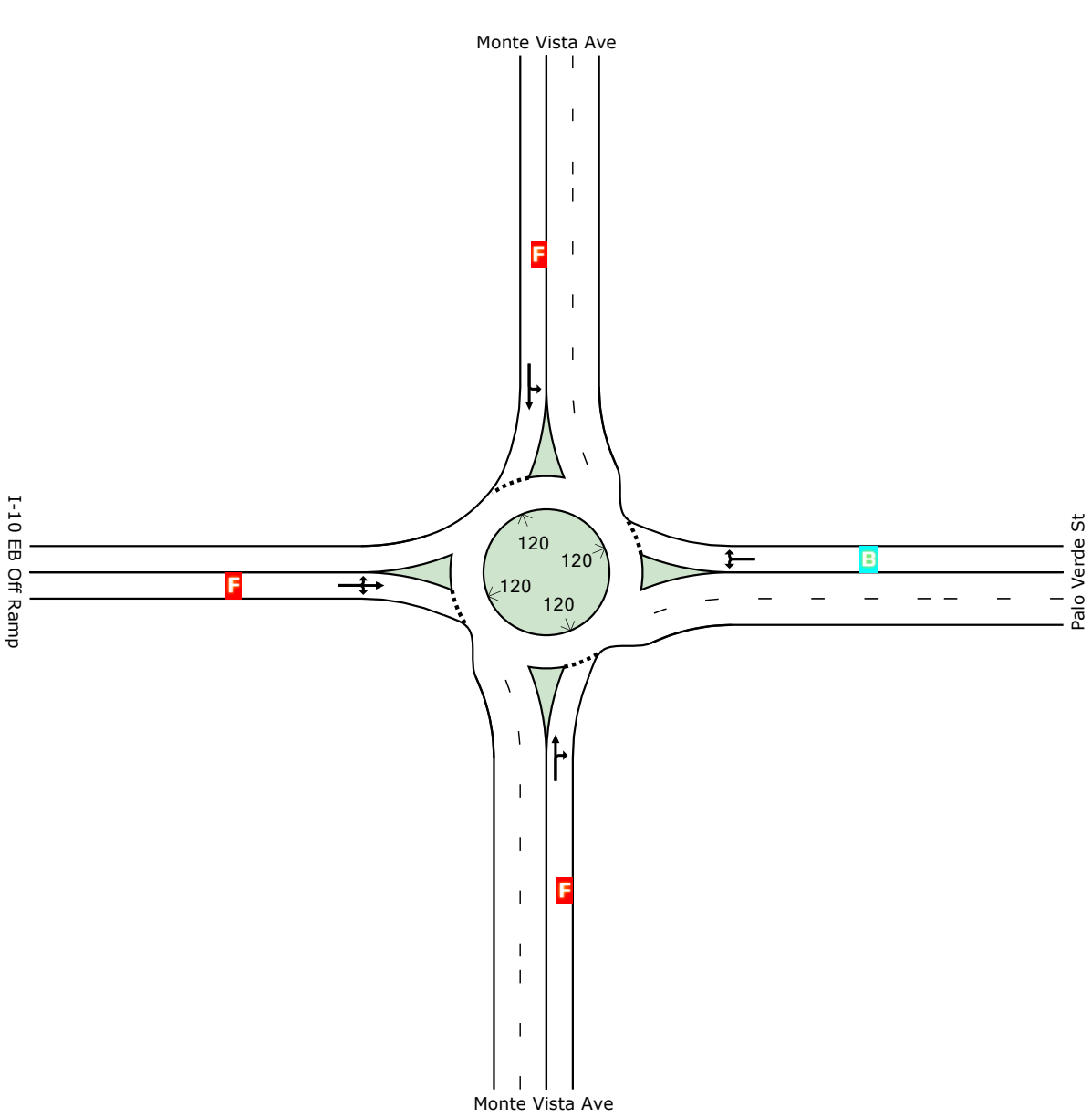
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,054,609	veh/y	2,465,531	pers/y
Delay	287,693	veh-h/y	345,231	pers-h/y
Effective Stops	7,905,573	veh/y	9,486,688	pers/y
Travel Distance	1,012,608	veh-mi/y	1,215,130	pers-mi/y
Travel Time	317,538	veh-h/y	381,046	pers-h/y
Cost	4,600,523	$/y	4,600,523	$/y
Fuel Consumption	117,540	gal/y		
Carbon Dioxide	1,048,121	kg/y		
Hydrocarbons	789	kg/y		
Carbon Monoxide	3,703	kg/y		
NOx	758	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & Palo Verde St-Long Range No Project-AM

Monte Vista Ave & Palo Verde St
Roundabout



	South	East	North	West	Intersection
LOS	F	B	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & Palo Verde St-Long Range No Project-AM

Monte Vista Ave & Palo Verde St
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
8	T1	908	2.0	2.071	501.1	LOS F	270.4	6868.4	1.00	11.14	3.1
18	R2	630	2.0	2.071	501.1	LOS F	270.4	6868.4	1.00	11.14	3.1
Approach		1538	2.0	2.071	501.1	LOS F	270.4	6868.4	1.00	5.57	3.1
East: Palo Verde St											
1	L2	152	2.0	0.427	11.9	LOS B	1.9	49.4	0.63	1.32	26.8
16	R2	120	2.0	0.427	11.9	LOS B	1.9	49.4	0.63	1.32	26.8
Approach		272	2.0	0.427	11.9	LOS B	1.9	49.4	0.63	0.66	26.8
North: Monte Vista Ave											
7	L2	261	2.0	1.218	124.9	LOS F	98.5	2503.1	1.00	4.15	10.0
4	T1	895	2.0	1.218	124.9	LOS F	98.5	2503.1	1.00	4.15	10.0
Approach		1155	2.0	1.218	124.9	LOS F	98.5	2503.1	1.00	2.07	10.0
West: I-10 EB Off Ramp											
5	L2	157	2.0	1.490	262.4	LOS F	63.5	1611.7	1.00	6.59	5.6
2	T1	109	2.0	1.490	262.4	LOS F	63.5	1611.7	1.00	6.59	5.6
12	R2	272	2.0	1.490	262.4	LOS F	63.5	1611.7	1.00	6.59	5.6
Approach		537	2.0	1.490	262.4	LOS F	63.5	1611.7	1.00	3.29	5.6
All Vehicles		3502	2.0	2.071	302.4	LOS F	270.4	6868.4	0.97	3.69	5.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & Palo Verde St-Long Range No Project-AM

Monte Vista Ave & Palo Verde St
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3502	veh/h	4203	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.071			
Practical Spare Capacity	-59.0	%		
Effective Intersection Capacity	1691	veh/h		
Control Delay (Total)	294.20	veh-h/h	353.04	pers-h/h
Control Delay (Average)	302.4	sec	302.4	sec
Control Delay (Worst Lane)	501.1	sec		
Control Delay (Worst Movement)	501.1	sec	501.1	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	302.4	sec		
Idling Time (Average)	236.8	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	270.4	veh		
95% Back of Queue - Distance (Worst Lane)	6868.4	ft		
Queue Storage Ratio (Worst Lane)	4.53			
Total Effective Stops	12915	veh/h	15498	pers/h
Effective Stop Rate	3.69	per veh	3.69	per pers
Proportion Queued	0.97		0.97	
Performance Index	1158.7		1158.7	
Travel Distance (Total)	1703.5	veh-mi/h	2044.2	pers-mi/h
Travel Distance (Average)	2568	ft	2568	ft
Travel Time (Total)	343.3	veh-h/h	412.0	pers-h/h
Travel Time (Average)	352.9	sec	352.9	sec
Travel Speed	5.0	mph	5.0	mph
Cost (Total)	5016.24	$/h	5016.24	$/h
Fuel Consumption (Total)	134.1	gal/h		
Carbon Dioxide (Total)	1196.0	kg/h		
Hydrocarbons (Total)	0.852	kg/h		
Carbon Monoxide (Total)	4.202	kg/h		
NOx (Total)	1.025	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

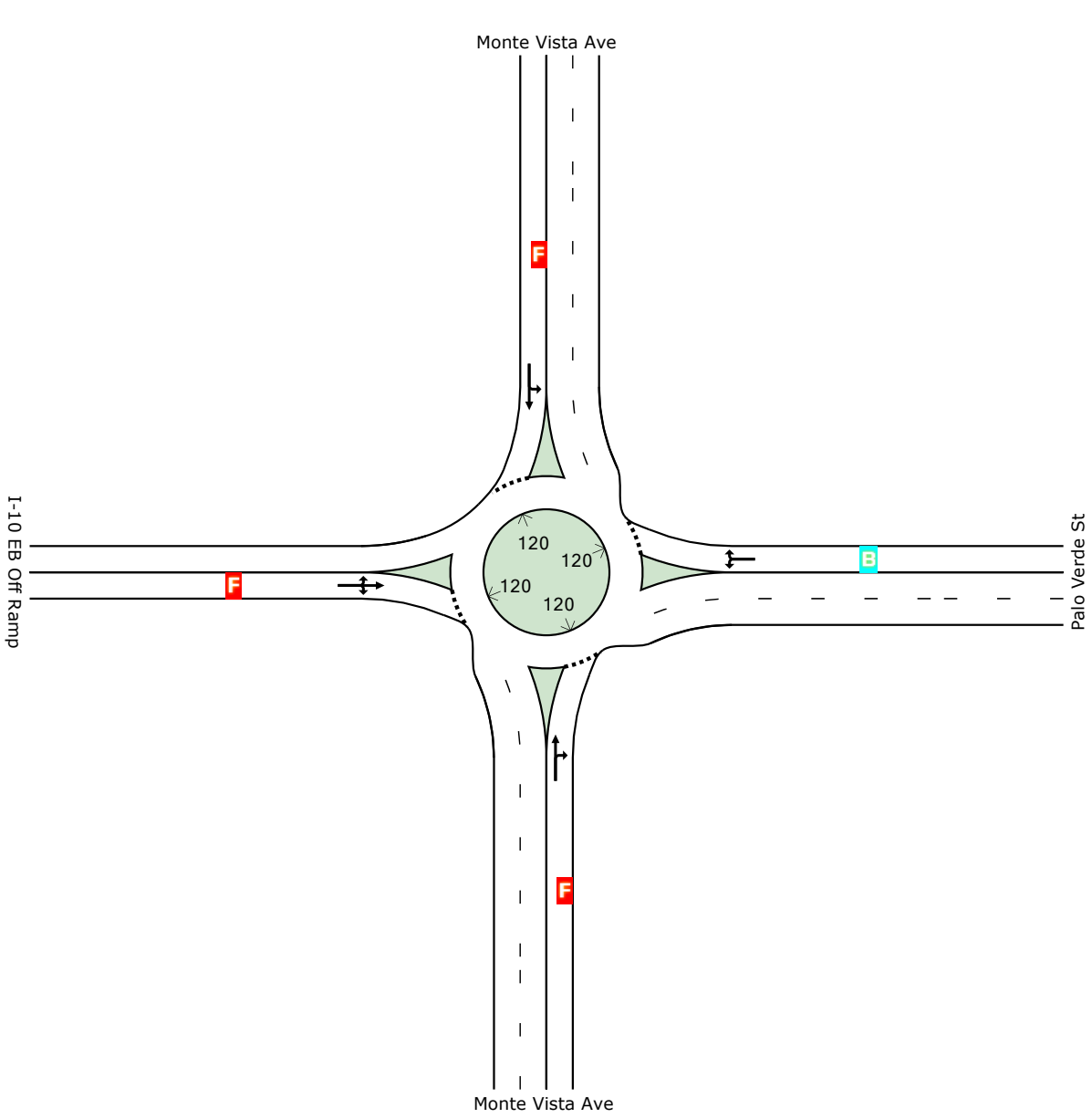
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,681,044	veh/y	2,017,252	pers/y
Delay	141,215	veh-h/y	169,458	pers-h/y
Effective Stops	6,199,213	veh/y	7,439,055	pers/y
Travel Distance	817,682	veh-mi/y	981,219	pers-mi/y
Travel Time	164,807	veh-h/y	197,768	pers-h/y
Cost	2,407,797	$/y	2,407,797	$/y
Fuel Consumption	64,377	gal/y		
Carbon Dioxide	574,060	kg/y		
Hydrocarbons	409	kg/y		
Carbon Monoxide	2,017	kg/y		
NOx	492	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & Palo Verde St-Long Range No Project-PM

Monte Vista Ave & Palo Verde St
Roundabout



	South	East	North	West	Intersection
LOS	F	B	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & Palo Verde St-Long Range No Project-PM

Monte Vista Ave & Palo Verde St
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
8	T1	930	2.0	2.126	525.8	LOS F	282.2	7168.9	1.00	11.37	3.0
18	R2	641	2.0	2.126	525.8	LOS F	282.2	7168.9	1.00	11.37	3.0
Approach		1572	2.0	2.126	525.8	LOS F	282.2	7168.9	1.00	5.68	3.0
East: Palo Verde St											
1	L2	130	2.0	0.493	13.8	LOS B	2.5	62.3	0.67	1.43	26.4
16	R2	174	2.0	0.493	13.8	LOS B	2.5	62.3	0.67	1.43	26.4
Approach		304	2.0	0.493	13.8	LOS B	2.5	62.3	0.67	0.72	26.4
North: Monte Vista Ave											
7	L2	277	2.0	1.374	189.7	LOS F	154.1	3914.9	1.00	5.07	7.3
4	T1	1055	2.0	1.374	189.7	LOS F	154.1	3914.9	1.00	5.07	7.3
Approach		1333	2.0	1.374	189.7	LOS F	154.1	3914.9	1.00	2.53	7.3
West: I-10 EB Off Ramp											
5	L2	277	2.0	2.034	499.3	LOS F	126.5	3212.7	1.00	8.89	3.2
2	T1	120	2.0	2.034	499.3	LOS F	126.5	3212.7	1.00	8.89	3.2
12	R2	337	2.0	2.034	499.3	LOS F	126.5	3212.7	1.00	8.89	3.2
Approach		734	2.0	2.034	499.3	LOS F	126.5	3212.7	1.00	4.45	3.2
All Vehicles		3942	2.0	2.126	367.7	LOS F	282.2	7168.9	0.97	4.01	4.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Monte Vista Ave & Palo Verde St-Long Range No Project-PM

Monte Vista Ave & Palo Verde St
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3942	veh/h	4731	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.126			
Practical Spare Capacity	-60.0	%		
Effective Intersection Capacity	1854	veh/h		
Control Delay (Total)	402.72	veh-h/h	483.26	pers-h/h
Control Delay (Average)	367.7	sec	367.7	sec
Control Delay (Worst Lane)	525.8	sec		
Control Delay (Worst Movement)	525.8	sec	525.8	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	367.7	sec		
Idling Time (Average)	295.5	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	282.2	veh		
95% Back of Queue - Distance (Worst Lane)	7168.9	ft		
Queue Storage Ratio (Worst Lane)	4.73			
Total Effective Stops	15791	veh/h	18949	pers/h
Effective Stop Rate	4.01	per veh	4.01	per pers
Proportion Queued	0.97		0.97	
Performance Index	1550.0		1550.0	
Travel Distance (Total)	1919.5	veh-mi/h	2303.4	pers-mi/h
Travel Distance (Average)	2571	ft	2571	ft
Travel Time (Total)	458.2	veh-h/h	549.8	pers-h/h
Travel Time (Average)	418.4	sec	418.4	sec
Travel Speed	4.2	mph	4.2	mph
Cost (Total)	6653.09	$/h	6653.09	$/h
Fuel Consumption (Total)	174.8	gal/h		
Carbon Dioxide (Total)	1558.3	kg/h		
Hydrocarbons (Total)	1.134	kg/h		
Carbon Monoxide (Total)	5.484	kg/h		
NOx (Total)	1.270	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

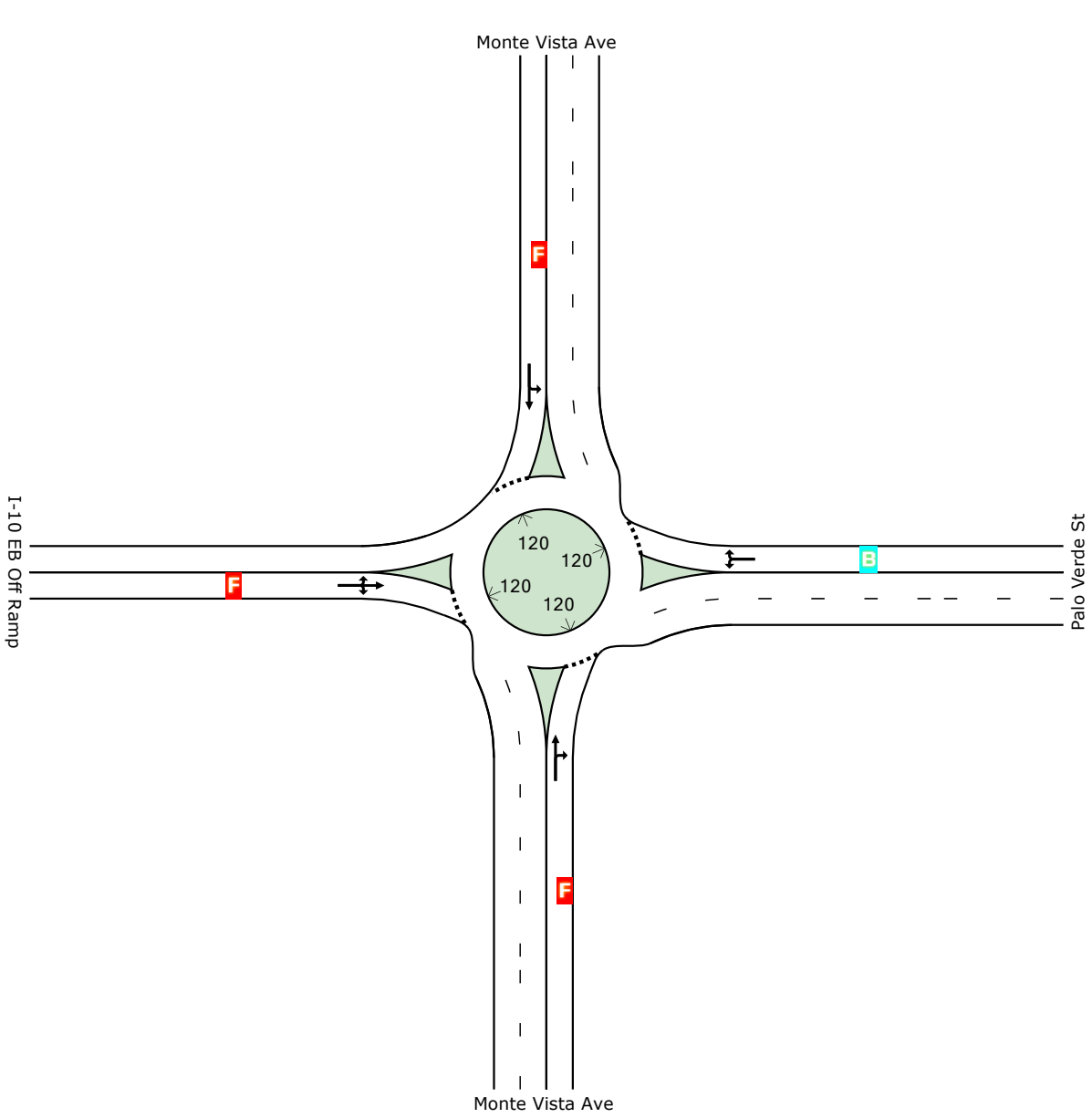
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,892,348	veh/y	2,270,818	pers/y
Delay	193,306	veh-h/y	231,967	pers-h/y
Effective Stops	7,579,680	veh/y	9,095,617	pers/y
Travel Distance	921,359	veh-mi/y	1,105,631	pers-mi/y
Travel Time	219,935	veh-h/y	263,922	pers-h/y
Cost	3,193,485	$/y	3,193,485	$/y
Fuel Consumption	83,882	gal/y		
Carbon Dioxide	747,986	kg/y		
Hydrocarbons	544	kg/y		
Carbon Monoxide	2,632	kg/y		
NOx	610	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & Palo Verde St-Long Range with Project-AM

Monte Vista Ave & Palo Verde St
Roundabout



	South	East	North	West	Intersection
LOS	F	B	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & Palo Verde St-Long Range with Project-AM

Monte Vista Ave & Palo Verde St
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
8	T1	946	2.0	2.209	562.9	LOS F	292.9	7438.8	1.00	11.72	2.8
18	R2	641	2.0	2.209	562.9	LOS F	292.9	7438.8	1.00	11.72	2.8
Approach		1587	2.0	2.209	562.9	LOS F	292.9	7438.8	1.00	5.86	2.8
East: Palo Verde St											
1	L2	163	2.0	0.465	12.9	LOS B	2.2	56.9	0.66	1.38	26.5
16	R2	130	2.0	0.465	12.9	LOS B	2.2	56.9	0.66	1.38	26.5
Approach		293	2.0	0.465	12.9	LOS B	2.2	56.9	0.66	0.69	26.5
North: Monte Vista Ave											
7	L2	315	2.0	1.344	177.4	LOS F	134.4	3414.1	1.00	5.32	7.7
4	T1	946	2.0	1.344	177.4	LOS F	134.4	3414.1	1.00	5.32	7.7
Approach		1261	2.0	1.344	177.4	LOS F	134.4	3414.1	1.00	2.66	7.7
West: I-10 EB Off Ramp											
5	L2	207	2.0	1.659	334.9	LOS F	82.9	2106.4	1.00	7.46	4.6
2	T1	109	2.0	1.659	334.9	LOS F	82.9	2106.4	1.00	7.46	4.6
12	R2	283	2.0	1.659	334.9	LOS F	82.9	2106.4	1.00	7.46	4.6
Approach		598	2.0	1.659	334.9	LOS F	82.9	2106.4	1.00	3.73	4.6
All Vehicles		3739	2.0	2.209	353.3	LOS F	292.9	7438.8	0.97	4.03	4.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

INTERSECTION SUMMARY

Site: Monte Vista Ave & Palo Verde St-Long Range with Project-AM

Monte Vista Ave & Palo Verde St
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	3739	veh/h	4487	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.209			
Practical Spare Capacity	-61.5	%		
Effective Intersection Capacity	1693	veh/h		
Control Delay (Total)	366.97	veh-h/h	440.36	pers-h/h
Control Delay (Average)	353.3	sec	353.3	sec
Control Delay (Worst Lane)	562.9	sec		
Control Delay (Worst Movement)	562.9	sec	562.9	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	353.3	sec		
Idling Time (Average)	280.4	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	292.9	veh		
95% Back of Queue - Distance (Worst Lane)	7438.8	ft		
Queue Storage Ratio (Worst Lane)	4.91			
Total Effective Stops	15079	veh/h	18095	pers/h
Effective Stop Rate	4.03	per veh	4.03	per pers
Proportion Queued	0.97		0.97	
Performance Index	1387.8		1387.8	
Travel Distance (Total)	1822.0	veh-mi/h	2186.4	pers-mi/h
Travel Distance (Average)	2573	ft	2573	ft
Travel Time (Total)	419.7	veh-h/h	503.6	pers-h/h
Travel Time (Average)	404.1	sec	404.1	sec
Travel Speed	4.3	mph	4.3	mph
Cost (Total)	6102.07	$/h	6102.07	$/h
Fuel Consumption (Total)	160.8	gal/h		
Carbon Dioxide (Total)	1433.5	kg/h		
Hydrocarbons (Total)	1.040	kg/h		
Carbon Monoxide (Total)	5.045	kg/h		
NOx (Total)	1.175	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

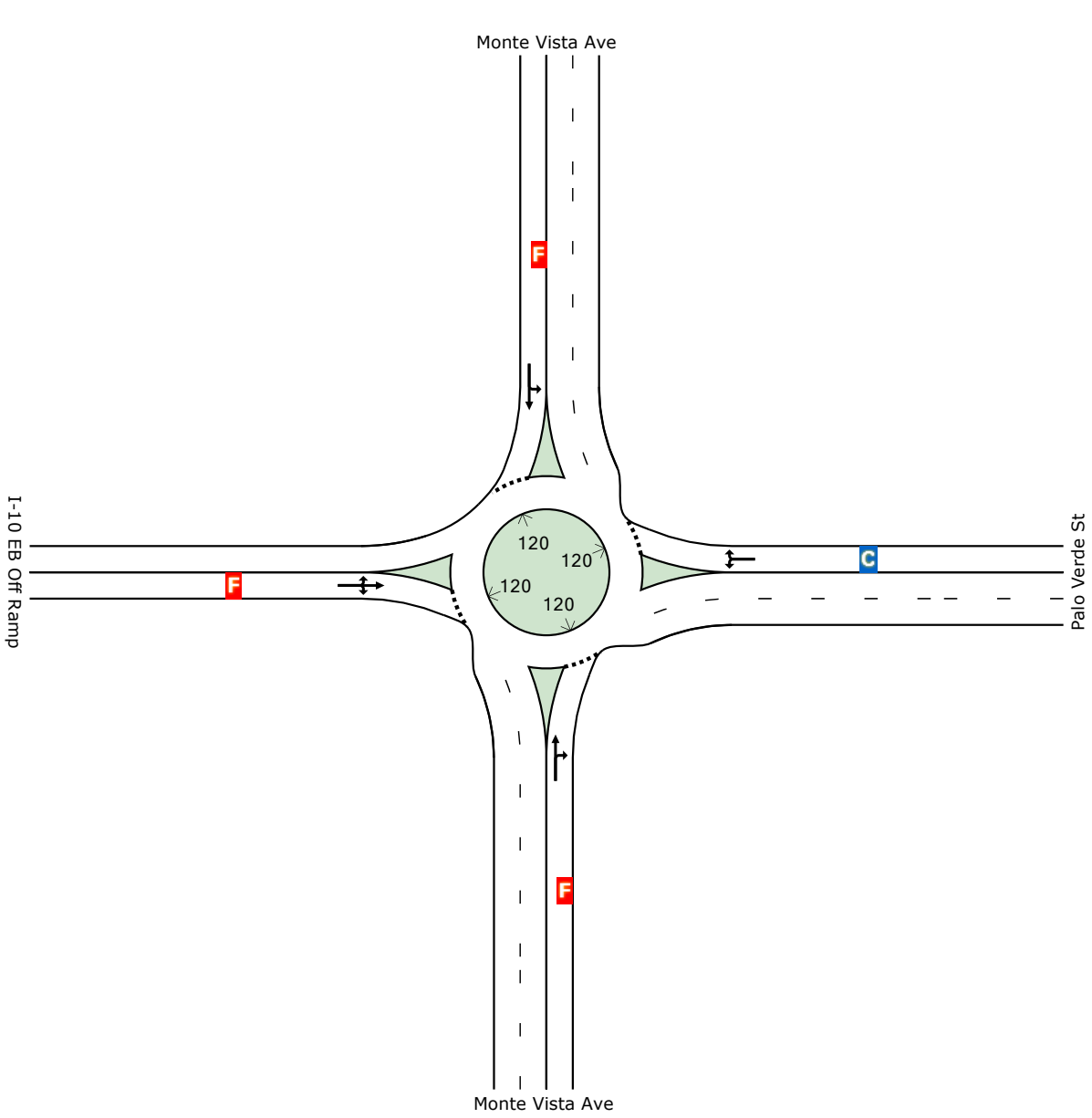
Intersection Performance - Annual Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	1,794,783	veh/y	2,153,740	pers/y
Delay	176,145	veh-h/y	211,374	pers-h/y
Effective Stops	7,238,101	veh/y	8,685,721	pers/y
Travel Distance	874,541	veh-mi/y	1,049,450	pers-mi/y
Travel Time	201,452	veh-h/y	241,742	pers-h/y
Cost	2,928,995	$/y	2,928,995	$/y
Fuel Consumption	77,166	gal/y		
Carbon Dioxide	688,096	kg/y		
Hydrocarbons	499	kg/y		
Carbon Monoxide	2,422	kg/y		
NOx	564	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Monte Vista Ave & Palo Verde St-Long Range with Project-PM

Monte Vista Ave & Palo Verde St
Roundabout



	South	East	North	West	Intersection
LOS	F	C	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Monte Vista Ave & Palo Verde St-Long Range with Project-PM

Monte Vista Ave & Palo Verde St
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Monte Vista Ave											
8	T1	978	2.0	2.283	596.4	LOS F	308.2	7827.2	1.00	11.98	2.7
18	R2	652	2.0	2.283	596.4	LOS F	308.2	7827.2	1.00	11.98	2.7
Approach		1630	2.0	2.283	596.4	LOS F	308.2	7827.2	1.00	5.99	2.7
East: Palo Verde St											
1	L2	141	2.0	0.533	15.1	LOS C	2.8	71.0	0.70	1.49	25.9
16	R2	185	2.0	0.533	15.1	LOS C	2.8	71.0	0.70	1.49	25.9
Approach		326	2.0	0.533	15.1	LOS C	2.8	71.0	0.70	0.75	25.9
North: Monte Vista Ave											
7	L2	337	2.0	1.519	252.6	LOS F	196.4	4988.8	1.00	6.15	5.8
4	T1	1120	2.0	1.519	252.6	LOS F	196.4	4988.8	1.00	6.15	5.8
Approach		1457	2.0	1.519	252.6	LOS F	196.4	4988.8	1.00	3.08	5.8
West: I-10 EB Off Ramp											
5	L2	348	2.0	2.291	613.1	LOS F	156.3	3969.4	1.00	9.61	2.7
2	T1	130	2.0	2.291	613.1	LOS F	156.3	3969.4	1.00	9.61	2.7
12	R2	348	2.0	2.291	613.1	LOS F	156.3	3969.4	1.00	9.61	2.7
Approach		826	2.0	2.291	613.1	LOS F	156.3	3969.4	1.00	4.81	2.7
All Vehicles		4239	2.0	2.291	436.8	LOS F	308.2	7827.2	0.98	4.35	3.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

INTERSECTION SUMMARY

Site: Monte Vista Ave & Palo Verde St-Long Range with Project-PM

Monte Vista Ave & Palo Verde St
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	4239	veh/h	5087	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.291			
Practical Spare Capacity	-62.9	%		
Effective Intersection Capacity	1850	veh/h		
Control Delay (Total)	514.39	veh-h/h	617.27	pers-h/h
Control Delay (Average)	436.8	sec	436.8	sec
Control Delay (Worst Lane)	613.1	sec		
Control Delay (Worst Movement)	613.1	sec	613.1	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	436.8	sec		
Idling Time (Average)	357.2	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	308.2	veh		
95% Back of Queue - Distance (Worst Lane)	7827.2	ft		
Queue Storage Ratio (Worst Lane)	5.17			
Total Effective Stops	18459	veh/h	22151	pers/h
Effective Stop Rate	4.35	per veh	4.35	per pers
Proportion Queued	0.98		0.98	
Performance Index	1862.5		1862.5	
Travel Distance (Total)	2067.7	veh-mi/h	2481.2	pers-mi/h
Travel Distance (Average)	2575	ft	2575	ft
Travel Time (Total)	574.3	veh-h/h	689.2	pers-h/h
Travel Time (Average)	487.7	sec	487.7	sec
Travel Speed	3.6	mph	3.6	mph
Cost (Total)	8296.22	$/h	8296.22	$/h
Fuel Consumption (Total)	214.7	gal/h		
Carbon Dioxide (Total)	1914.8	kg/h		
Hydrocarbons (Total)	1.419	kg/h		
Carbon Monoxide (Total)	6.751	kg/h		
NOx (Total)	1.484	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

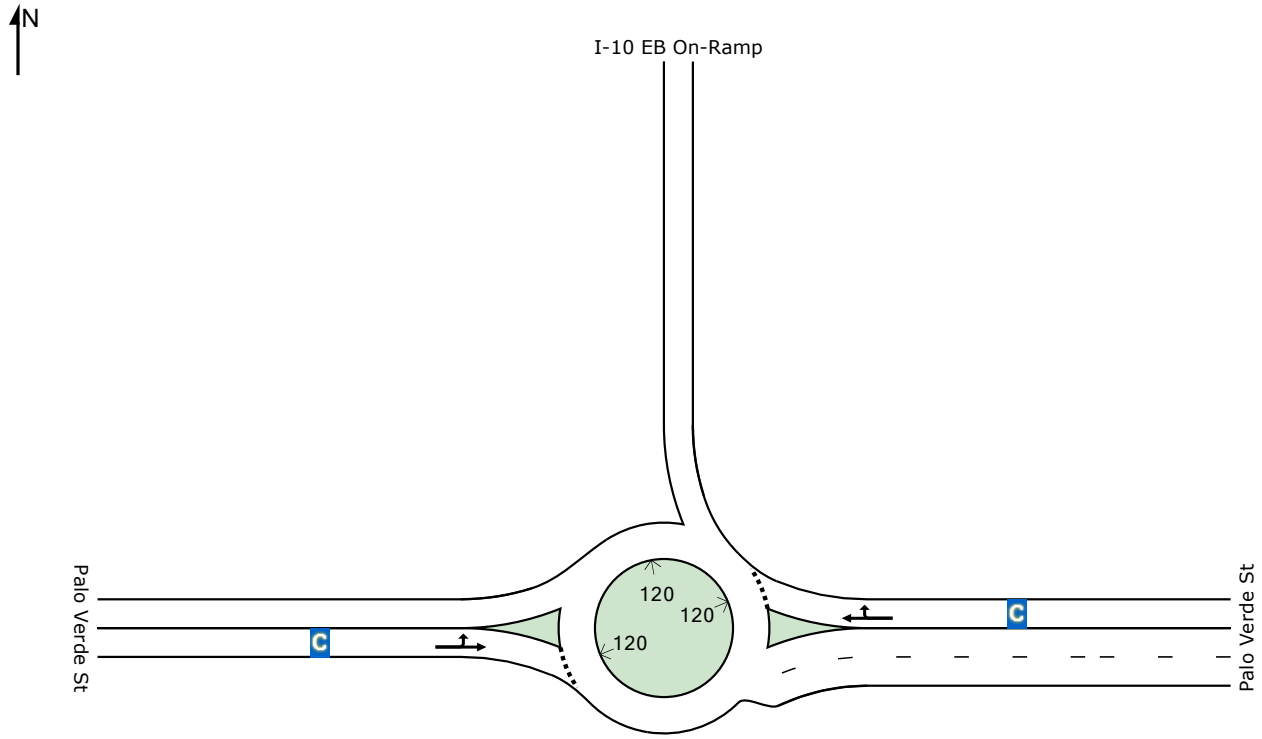
Intersection Performance - Annual Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	2,034,783	veh/y	2,441,739	pers/y
Delay	246,909	veh-h/y	296,291	pers-h/y
Effective Stops	8,860,437	veh/y	10,632,530	pers/y
Travel Distance	992,494	veh-mi/y	1,190,993	pers-mi/y
Travel Time	275,679	veh-h/y	330,815	pers-h/y
Cost	3,982,187	$/y	3,982,187	$/y
Fuel Consumption	103,072	gal/y		
Carbon Dioxide	919,105	kg/y		
Hydrocarbons	681	kg/y		
Carbon Monoxide	3,240	kg/y		
NOx	712	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Palo Verde St & I-10 EB Ramp-Existing-AM

Palo Verde St & I-10 EB Ramp
Roundabout



	East	West	Intersection
LOS	C	C	C

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Monday, December 12, 2016 4:59:53 PM
SIDRA INTERSECTION 6.0.11.3995
Project: C:\Users\sperumalla\Desktop\Montclair\Montclair_existing.sip6
8001309, STANTEC CONSULTING SVCS INC, PLUS / 1PC

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Existing-AM

Palo Verde St & I-10 EB Ramp
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Palo Verde St											
6	T1	280	2.0	0.569	17.7	LOS C	3.0	76.2	0.73	1.60	26.2
16	R2	32	2.0	0.569	17.7	LOS C	3.0	76.2	0.73	1.60	26.2
Approach		312	2.0	0.569	17.7	LOS C	3.0	76.2	0.73	0.80	26.2
West: Palo Verde St											
5	L2	690	2.0	0.834	21.2	LOS C	0.0	0.0	0.00	0.00	32.2
2	T1	234	2.0	0.834	21.2	LOS C	0.0	0.0	0.00	0.00	32.2
Approach		924	2.0	0.834	21.2	LOS C	0.0	0.0	0.00	0.00	32.2
All Vehicles		1236	2.0	0.834	20.3	LOS C	3.0	76.2	0.19	0.20	30.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Existing-AM

Palo Verde St & I-10 EB Ramp
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1236	veh/h	1483	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	0.834			
Practical Spare Capacity	1.9	%		
Effective Intersection Capacity	1482	veh/h		
Control Delay (Total)	6.98	veh-h/h	8.37	pers-h/h
Control Delay (Average)	20.3	sec	20.3	sec
Control Delay (Worst Lane)	21.2	sec		
Control Delay (Worst Movement)	21.2	sec	21.2	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	20.3	sec		
Idling Time (Average)	2.8	sec		
Intersection Level of Service (LOS)	LOS C			
95% Back of Queue - Vehicles (Worst Lane)	3.0	veh		
95% Back of Queue - Distance (Worst Lane)	76.2	ft		
Queue Storage Ratio (Worst Lane)	0.05			
Total Effective Stops	250	veh/h	299	pers/h
Effective Stop Rate	0.20	per veh	0.20	per pers
Proportion Queued	0.19		0.19	
Performance Index	28.7		28.7	
Travel Distance (Total)	621.3	veh-mi/h	745.6	pers-mi/h
Travel Distance (Average)	2655	ft	2655	ft
Travel Time (Total)	20.4	veh-h/h	24.5	pers-h/h
Travel Time (Average)	59.4	sec	59.4	sec
Travel Speed	30.5	mph	30.5	mph
Cost (Total)	339.39	$/h	339.39	$/h
Fuel Consumption (Total)	13.6	gal/h		
Carbon Dioxide (Total)	121.5	kg/h		
Hydrocarbons (Total)	0.051	kg/h		
Carbon Monoxide (Total)	0.413	kg/h		
NOx (Total)	0.188	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

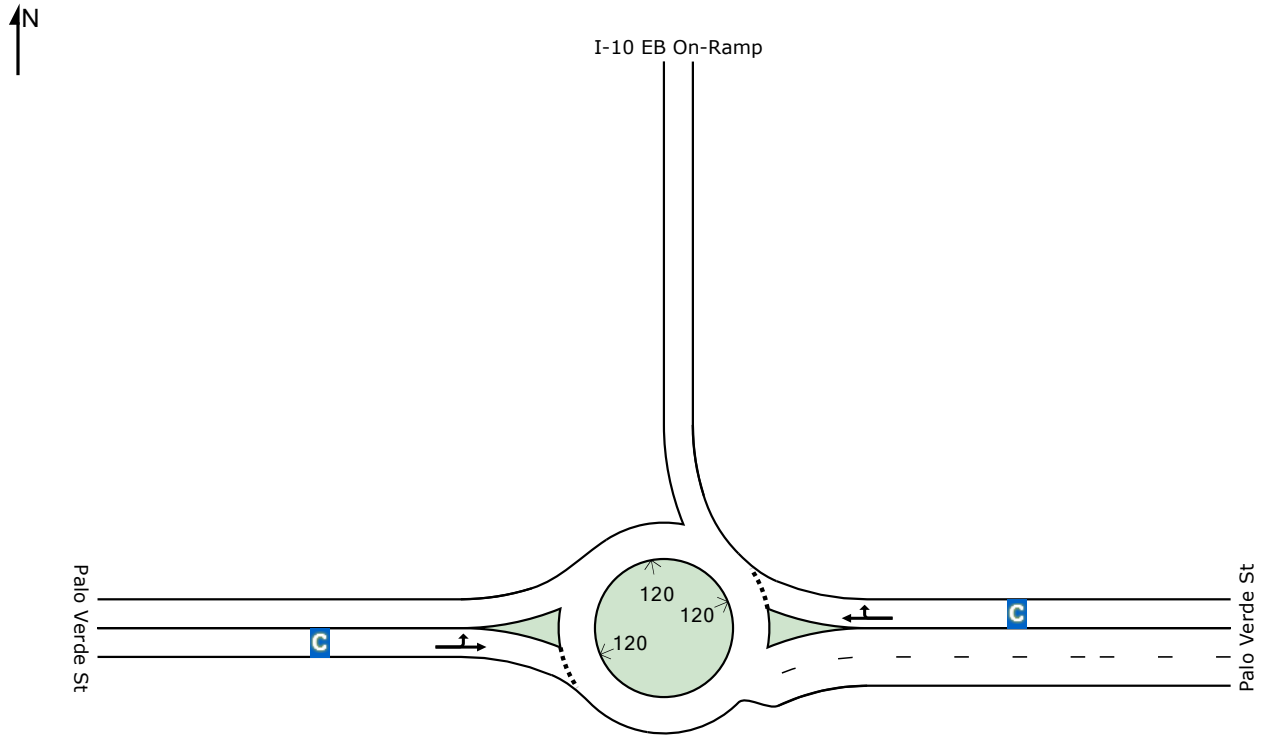
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	593,217	veh/y	711,861	pers/y
Delay	3,350	veh-h/y	4,020	pers-h/y
Effective Stops	119,768	veh/y	143,722	pers/y
Travel Distance	298,246	veh-mi/y	357,895	pers-mi/y
Travel Time	9,784	veh-h/y	11,741	pers-h/y
Cost	162,908	$/y	162,908	$/y
Fuel Consumption	6,542	gal/y		
Carbon Dioxide	58,336	kg/y		
Hydrocarbons	25	kg/y		
Carbon Monoxide	198	kg/y		
NOx	90	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Palo Verde St & I-10 EB Ramp-Existing-PM

Palo Verde St & I-10 EB Ramp
Roundabout



	East	West	Intersection
LOS	C	C	C

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Monday, December 12, 2016 4:59:57 PM
SIDRA INTERSECTION 6.0.11.3995
Project: C:\Users\sperumalla\Desktop\Montclair\Montclair_existing.sip6
8001309, STANTEC CONSULTING SVCS INC, PLUS / 1PC

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Existing-PM

Palo Verde St & I-10 EB Ramp
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Palo Verde St											
6	T1	278	2.0	0.604	18.3	LOS C	3.4	87.4	0.75	1.64	25.9
16	R2	71	2.0	0.604	18.3	LOS C	3.4	87.4	0.75	1.64	25.9
Approach		349	2.0	0.604	18.3	LOS C	3.4	87.4	0.75	0.82	25.9
West: Palo Verde St											
5	L2	639	2.0	0.846	22.2	LOS C	0.0	0.0	0.00	0.00	32.4
2	T1	298	2.0	0.846	22.2	LOS C	0.0	0.0	0.00	0.00	32.4
Approach		937	2.0	0.846	22.2	LOS C	0.0	0.0	0.00	0.00	32.4
All Vehicles		1286	2.0	0.846	21.1	LOS C	3.4	87.4	0.20	0.22	30.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Existing-PM

Palo Verde St & I-10 EB Ramp
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1286	veh/h	1543	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	0.846			
Practical Spare Capacity	0.5	%		
Effective Intersection Capacity	1520	veh/h		
Control Delay (Total)	7.55	veh-h/h	9.06	pers-h/h
Control Delay (Average)	21.1	sec	21.1	sec
Control Delay (Worst Lane)	22.2	sec		
Control Delay (Worst Movement)	22.2	sec	22.2	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	21.1	sec		
Idling Time (Average)	3.2	sec		
Intersection Level of Service (LOS)	LOS C			
95% Back of Queue - Vehicles (Worst Lane)	3.4	veh		
95% Back of Queue - Distance (Worst Lane)	87.4	ft		
Queue Storage Ratio (Worst Lane)	0.06			
Total Effective Stops	285	veh/h	343	pers/h
Effective Stop Rate	0.22	per veh	0.22	per pers
Proportion Queued	0.20		0.20	
Performance Index	30.8		30.8	
Travel Distance (Total)	643.2	veh-mi/h	771.8	pers-mi/h
Travel Distance (Average)	2641	ft	2641	ft
Travel Time (Total)	21.1	veh-h/h	25.4	pers-h/h
Travel Time (Average)	59.2	sec	59.2	sec
Travel Speed	30.4	mph	30.4	mph
Cost (Total)	351.97	$/h	351.97	$/h
Fuel Consumption (Total)	14.1	gal/h		
Carbon Dioxide (Total)	126.0	kg/h		
Hydrocarbons (Total)	0.053	kg/h		
Carbon Monoxide (Total)	0.428	kg/h		
NOx (Total)	0.196	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

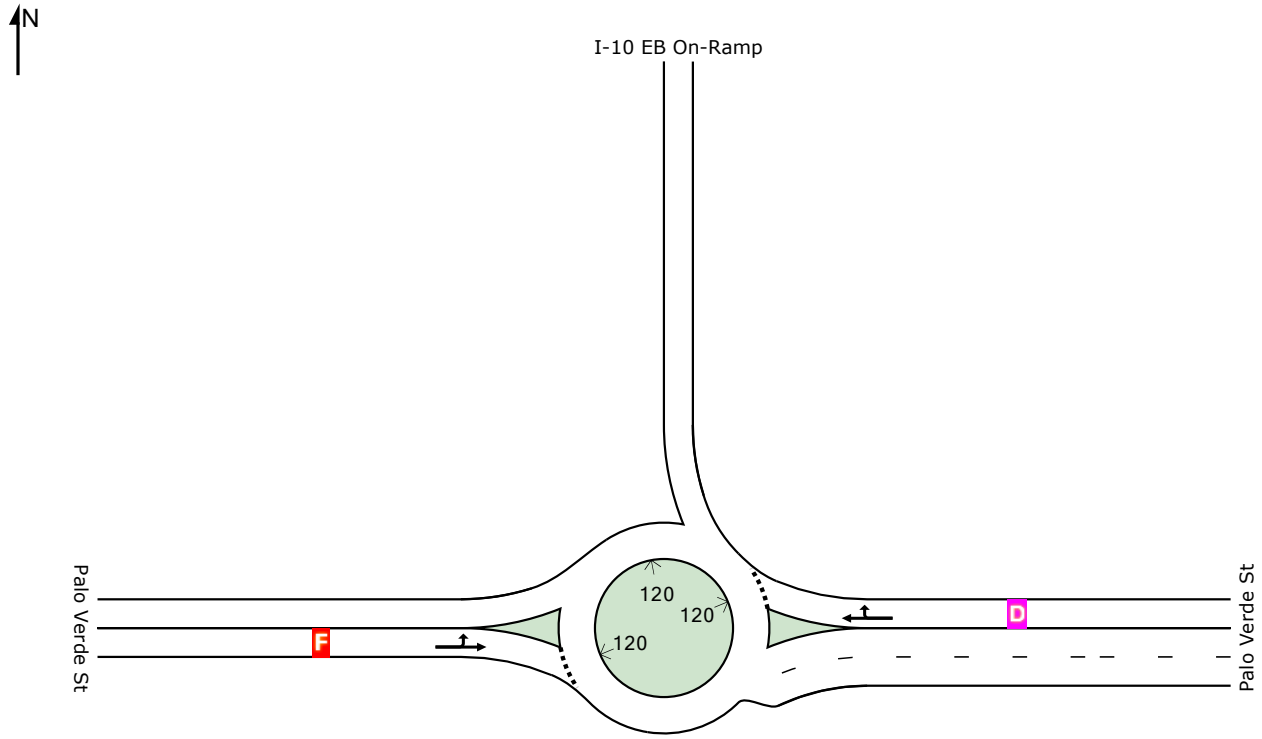
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	617,217	veh/y	740,661	pers/y
Delay	3,624	veh-h/y	4,348	pers-h/y
Effective Stops	137,016	veh/y	164,419	pers/y
Travel Distance	308,731	veh-mi/y	370,478	pers-mi/y
Travel Time	10,144	veh-h/y	12,173	pers-h/y
Cost	168,946	$/y	168,946	$/y
Fuel Consumption	6,785	gal/y		
Carbon Dioxide	60,498	kg/y		
Hydrocarbons	25	kg/y		
Carbon Monoxide	206	kg/y		
NOx	94	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Palo Verde St & I-10 EB Ramp-Existing plus Project-AM

Palo Verde St & I-10 EB Ramp
Roundabout



	East	West	Intersection
LOS	D	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Monday, December 12, 2016 4:36:48 PM
SIDRA INTERSECTION 6.0.11.3995
Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com
Project: C:\Users\sperumalla\Desktop\Montclair\Montclair_existing+prj.sip6
8001309, STANTEC CONSULTING SVCS INC, PLUS / 1PC

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Existing plus Project-AM

Palo Verde St & I-10 EB Ramp
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Palo Verde St											
6	T1	280	2.0	0.695	27.8	LOS D	4.0	101.0	0.82	1.88	22.7
16	R2	32	2.0	0.695	27.8	LOS D	4.0	101.0	0.82	1.88	22.7
Approach		312	2.0	0.695	27.8	LOS D	4.0	101.0	0.82	0.94	22.7
West: Palo Verde St											
5	L2	930	2.0	1.051	60.5	LOS F	17.5	444.2	1.00	0.08	15.6
2	T1	234	2.0	1.051	60.5	LOS F	17.5	444.2	1.00	0.08	15.6
Approach		1164	2.0	1.051	60.5	LOS F	17.5	444.2	1.00	0.04	15.6
All Vehicles		1476	2.0	1.051	53.6	LOS F	17.5	444.2	0.96	0.23	16.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Existing plus Project-AM

Palo Verde St & I-10 EB Ramp
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	1476	veh/h	1771	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.051			
Practical Spare Capacity	-19.1	%		
Effective Intersection Capacity	1405	veh/h		
Control Delay (Total)	21.98	veh-h/h	26.37	pers-h/h
Control Delay (Average)	53.6	sec	53.6	sec
Control Delay (Worst Lane)	60.5	sec		
Control Delay (Worst Movement)	60.5	sec	60.5	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	53.6	sec		
Idling Time (Average)	48.0	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	17.5	veh		
95% Back of Queue - Distance (Worst Lane)	444.2	ft		
Queue Storage Ratio (Worst Lane)	0.29			
Total Effective Stops	342	veh/h	410	pers/h
Effective Stop Rate	0.23	per veh	0.23	per pers
Proportion Queued	0.96		0.96	
Performance Index	77.1		77.1	
Travel Distance (Total)	746.6	veh-mi/h	896.0	pers-mi/h
Travel Distance (Average)	2671	ft	2671	ft
Travel Time (Total)	44.9	veh-h/h	53.8	pers-h/h
Travel Time (Average)	109.4	sec	109.4	sec
Travel Speed	16.6	mph	16.6	mph
Cost (Total)	705.57	$/h	705.57	$/h
Fuel Consumption (Total)	23.3	gal/h		
Carbon Dioxide (Total)	208.1	kg/h		
Hydrocarbons (Total)	0.113	kg/h		
Carbon Monoxide (Total)	0.720	kg/h		
NOx (Total)	0.256	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

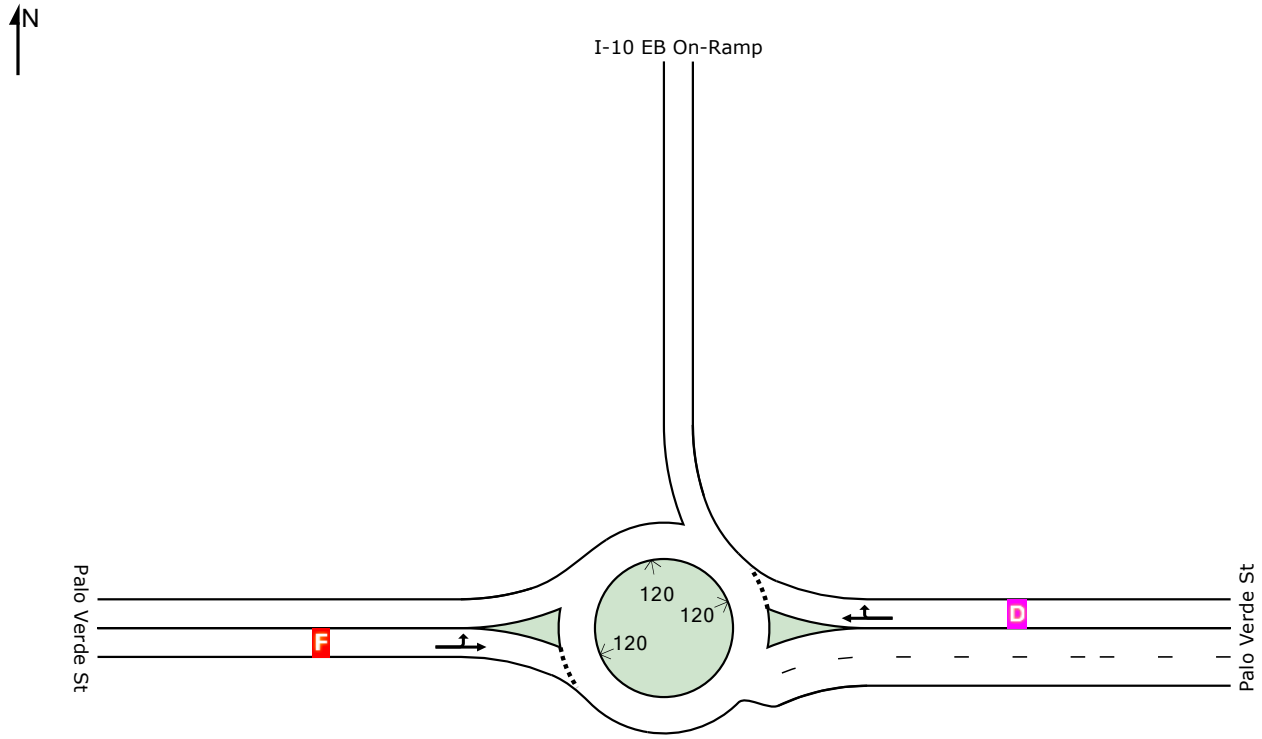
Intersection Performance - Annual Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	708,522	veh/y	850,226	pers/y
Delay	10,549	veh-h/y	12,659	pers-h/y
Effective Stops	164,174	veh/y	197,009	pers/y
Travel Distance	358,382	veh-mi/y	430,058	pers-mi/y
Travel Time	21,535	veh-h/y	25,842	pers-h/y
Cost	338,673	$/y	338,673	$/y
Fuel Consumption	11,203	gal/y		
Carbon Dioxide	99,901	kg/y		
Hydrocarbons	54	kg/y		
Carbon Monoxide	345	kg/y		
NOx	123	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Palo Verde St & I-10 EB Ramp-Existing plus Project-PM

Palo Verde St & I-10 EB Ramp
Roundabout



	East	West	Intersection
LOS	D	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Monday, December 12, 2016 4:36:52 PM
SIDRA INTERSECTION 6.0.11.3995
Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com
Project: C:\Users\sperumalla\Desktop\Montclair\Montclair_existing+prj.sip6
8001309, STANTEC CONSULTING SVCS INC, PLUS / 1PC

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Existing plus Project-PM

Palo Verde St & I-10 EB Ramp
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Palo Verde St											
6	T1	278	2.0	0.748	31.0	LOS D	4.8	121.7	0.84	1.97	21.8
16	R2	71	2.0	0.748	31.0	LOS D	4.8	121.7	0.84	1.97	21.8
Approach		349	2.0	0.748	31.0	LOS D	4.8	121.7	0.84	0.98	21.8
West: Palo Verde St											
5	L2	970	2.0	1.144	92.8	LOS F	49.6	1259.0	1.00	0.08	12.3
2	T1	298	2.0	1.144	92.8	LOS F	49.6	1259.0	1.00	0.08	12.3
Approach		1267	2.0	1.144	92.8	LOS F	49.6	1259.0	1.00	0.04	12.3
All Vehicles		1616	2.0	1.144	79.5	LOS F	49.6	1259.0	0.96	0.25	13.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Existing plus Project-PM

Palo Verde St & I-10 EB Ramp
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	1616	veh/h	1940	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.144			
Practical Spare Capacity	-25.7	%		
Effective Intersection Capacity	1413	veh/h		
Control Delay (Total)	35.68	veh-h/h	42.82	pers-h/h
Control Delay (Average)	79.5	sec	79.5	sec
Control Delay (Worst Lane)	92.8	sec		
Control Delay (Worst Movement)	92.8	sec	92.8	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	79.5	sec		
Idling Time (Average)	73.8	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	49.6	veh		
95% Back of Queue - Distance (Worst Lane)	1259.0	ft		
Queue Storage Ratio (Worst Lane)	0.83			
Total Effective Stops	397	veh/h	476	pers/h
Effective Stop Rate	0.25	per veh	0.25	per pers
Proportion Queued	0.96		0.96	
Performance Index	145.8		145.8	
Travel Distance (Total)	815.5	veh-mi/h	978.6	pers-mi/h
Travel Distance (Average)	2664	ft	2664	ft
Travel Time (Total)	60.6	veh-h/h	72.7	pers-h/h
Travel Time (Average)	135.0	sec	135.0	sec
Travel Speed	13.5	mph	13.5	mph
Cost (Total)	955.87	$/h	955.87	$/h
Fuel Consumption (Total)	29.8	gal/h		
Carbon Dioxide (Total)	266.0	kg/h		
Hydrocarbons (Total)	0.156	kg/h		
Carbon Monoxide (Total)	0.924	kg/h		
NOx (Total)	0.297	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

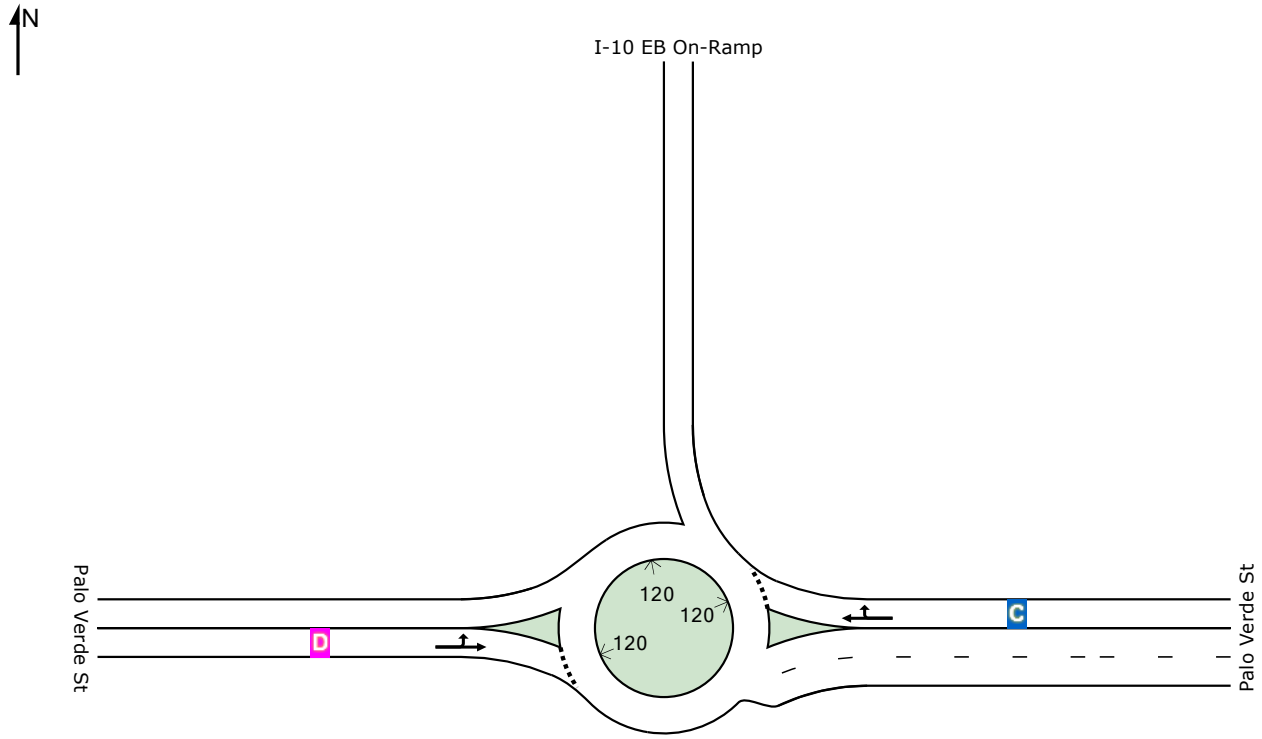
Intersection Performance - Annual Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	775,826	veh/y	930,991	pers/y
Delay	17,128	veh-h/y	20,553	pers-h/y
Effective Stops	190,375	veh/y	228,450	pers/y
Travel Distance	391,452	veh-mi/y	469,743	pers-mi/y
Travel Time	29,086	veh-h/y	34,903	pers-h/y
Cost	458,817	$/y	458,817	$/y
Fuel Consumption	14,317	gal/y		
Carbon Dioxide	127,666	kg/y		
Hydrocarbons	75	kg/y		
Carbon Monoxide	444	kg/y		
NOx	143	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Palo Verde St & I-10 EB Ramp-Long Range No Project-AM

Palo Verde St & I-10 EB Ramp
Roundabout



	East	West	Intersection
LOS	C	D	D

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Monday, December 12, 2016 3:57:15 PM
SIDRA INTERSECTION 6.0.11.3995
Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com
Project: C:\Users\sperumalla\Desktop\Montclair\Montclair_long_range_no_prj.sip6
8001309, STANTEC CONSULTING SVCS INC, PLUS / 1PC

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Long Range No Project-AM

Palo Verde St & I-10 EB Ramp
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Palo Verde St											
6	T1	273	2.0	0.537	17.6	LOS C	2.6	66.7	0.73	1.58	26.2
16	R2	1	2.0	0.537	17.6	LOS C	2.6	66.7	0.73	1.58	26.2
Approach		274	2.0	0.537	17.6	LOS C	2.6	66.7	0.73	0.79	26.2
West: Palo Verde St											
5	L2	761	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.1
2	T1	228	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.1
Approach		989	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.1
All Vehicles		1263	2.0	0.893	25.0	LOS D	2.6	66.7	0.16	0.17	30.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Long Range No Project-AM

Palo Verde St & I-10 EB Ramp
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	1263	veh/h	1516	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	0.893			
Practical Spare Capacity	-4.8	%		
Effective Intersection Capacity	1415	veh/h		
Control Delay (Total)	8.77	veh-h/h	10.53	pers-h/h
Control Delay (Average)	25.0	sec	25.0	sec
Control Delay (Worst Lane)	27.0	sec		
Control Delay (Worst Movement)	27.0	sec	27.0	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	25.0	sec		
Idling Time (Average)	2.4	sec		
Intersection Level of Service (LOS)	LOS D			
95% Back of Queue - Vehicles (Worst Lane)	2.6	veh		
95% Back of Queue - Distance (Worst Lane)	66.7	ft		
Queue Storage Ratio (Worst Lane)	0.04			
Total Effective Stops	216	veh/h	259	pers/h
Effective Stop Rate	0.17	per veh	0.17	per pers
Proportion Queued	0.16		0.16	
Performance Index	30.1		30.1	
Travel Distance (Total)	637.3	veh-mi/h	764.8	pers-mi/h
Travel Distance (Average)	2664	ft	2664	ft
Travel Time (Total)	20.8	veh-h/h	24.9	pers-h/h
Travel Time (Average)	59.2	sec	59.2	sec
Travel Speed	30.7	mph	30.7	mph
Cost (Total)	346.13	$/h	346.13	$/h
Fuel Consumption (Total)	13.9	gal/h		
Carbon Dioxide (Total)	124.2	kg/h		
Hydrocarbons (Total)	0.052	kg/h		
Carbon Monoxide (Total)	0.422	kg/h		
NOx (Total)	0.192	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

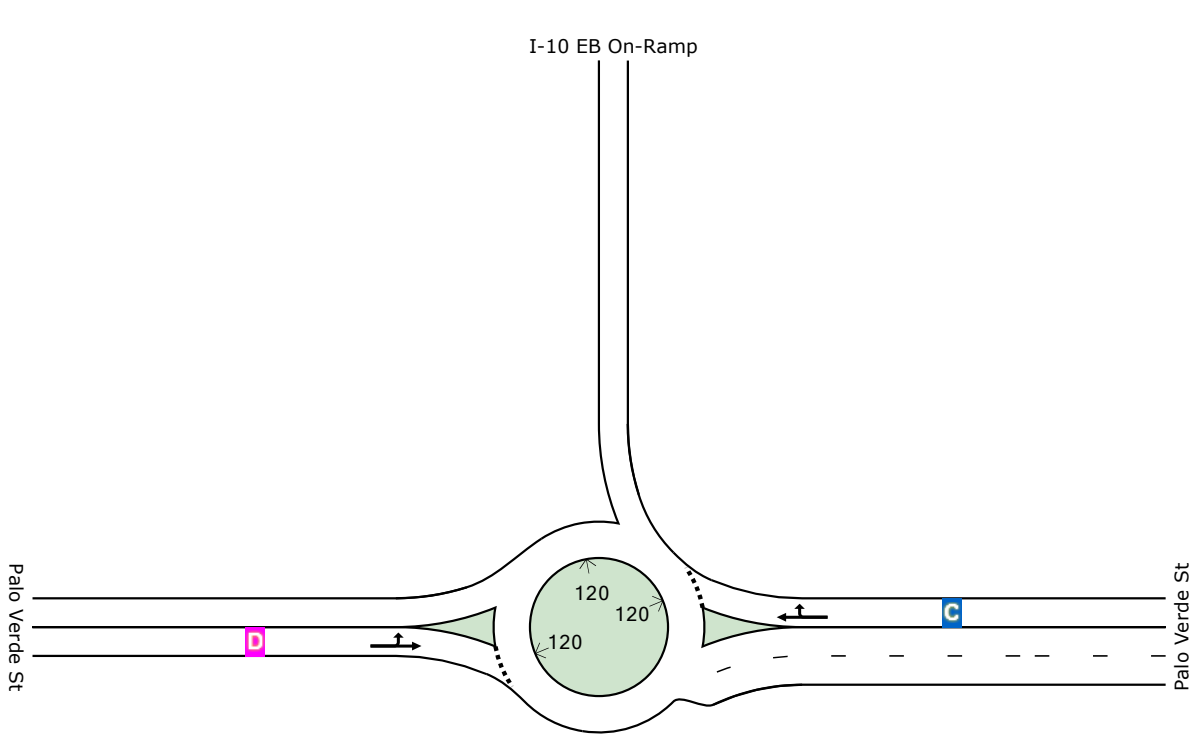
Intersection Performance - Annual Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	606,261	veh/y	727,513	pers/y
Delay	4,211	veh-h/y	5,053	pers-h/y
Effective Stops	103,727	veh/y	124,473	pers/y
Travel Distance	305,909	veh-mi/y	367,091	pers-mi/y
Travel Time	9,973	veh-h/y	11,968	pers-h/y
Cost	166,143	$/y	166,143	$/y
Fuel Consumption	6,684	gal/y		
Carbon Dioxide	59,601	kg/y		
Hydrocarbons	25	kg/y		
Carbon Monoxide	203	kg/y		
NOx	92	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Palo Verde St & I-10 EB Ramp-Long Range No Project-PM

Palo Verde St & I-10 EB Ramp
Roundabout



	East	West	Intersection
LOS	C	D	D

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Monday, December 12, 2016 3:57:19 PM
SIDRA INTERSECTION 6.0.11.3995
Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com
Project: C:\Users\sperumalla\Desktop\Montclair\Montclair_long_range_no_prj.sip6
8001309, STANTEC CONSULTING SVCS INC, PLUS / 1PC

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Long Range No Project-PM

Palo Verde St & I-10 EB Ramp
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Palo Verde St											
6	T1	304	2.0	0.612	19.9	LOS C	3.4	85.9	0.76	1.67	25.4
16	R2	22	2.0	0.612	19.9	LOS C	3.4	85.9	0.76	1.67	25.4
Approach		326	2.0	0.612	19.9	LOS C	3.4	85.9	0.76	0.84	25.4
West: Palo Verde St											
5	L2	717	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.3
2	T1	272	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.3
Approach		989	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.3
All Vehicles		1315	2.0	0.893	25.3	LOS D	3.4	85.9	0.19	0.21	30.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Long Range No Project-PM

Palo Verde St & I-10 EB Ramp
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	1315	veh/h	1578	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	0.893			
Practical Spare Capacity	-4.8	%		
Effective Intersection Capacity	1473	veh/h		
Control Delay (Total)	9.23	veh-h/h	11.08	pers-h/h
Control Delay (Average)	25.3	sec	25.3	sec
Control Delay (Worst Lane)	27.0	sec		
Control Delay (Worst Movement)	27.0	sec	27.0	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	25.3	sec		
Idling Time (Average)	3.2	sec		
Intersection Level of Service (LOS)	LOS D			
95% Back of Queue - Vehicles (Worst Lane)	3.4	veh		
95% Back of Queue - Distance (Worst Lane)	85.9	ft		
Queue Storage Ratio (Worst Lane)	0.06			
Total Effective Stops	273	veh/h	328	pers/h
Effective Stop Rate	0.21	per veh	0.21	per pers
Proportion Queued	0.19		0.19	
Performance Index	32.7		32.7	
Travel Distance (Total)	660.5	veh-mi/h	792.6	pers-mi/h
Travel Distance (Average)	2652	ft	2652	ft
Travel Time (Total)	21.8	veh-h/h	26.2	pers-h/h
Travel Time (Average)	59.7	sec	59.7	sec
Travel Speed	30.3	mph	30.3	mph
Cost (Total)	362.56	$/h	362.56	$/h
Fuel Consumption (Total)	14.5	gal/h		
Carbon Dioxide (Total)	129.6	kg/h		
Hydrocarbons (Total)	0.055	kg/h		
Carbon Monoxide (Total)	0.441	kg/h		
NOx (Total)	0.200	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

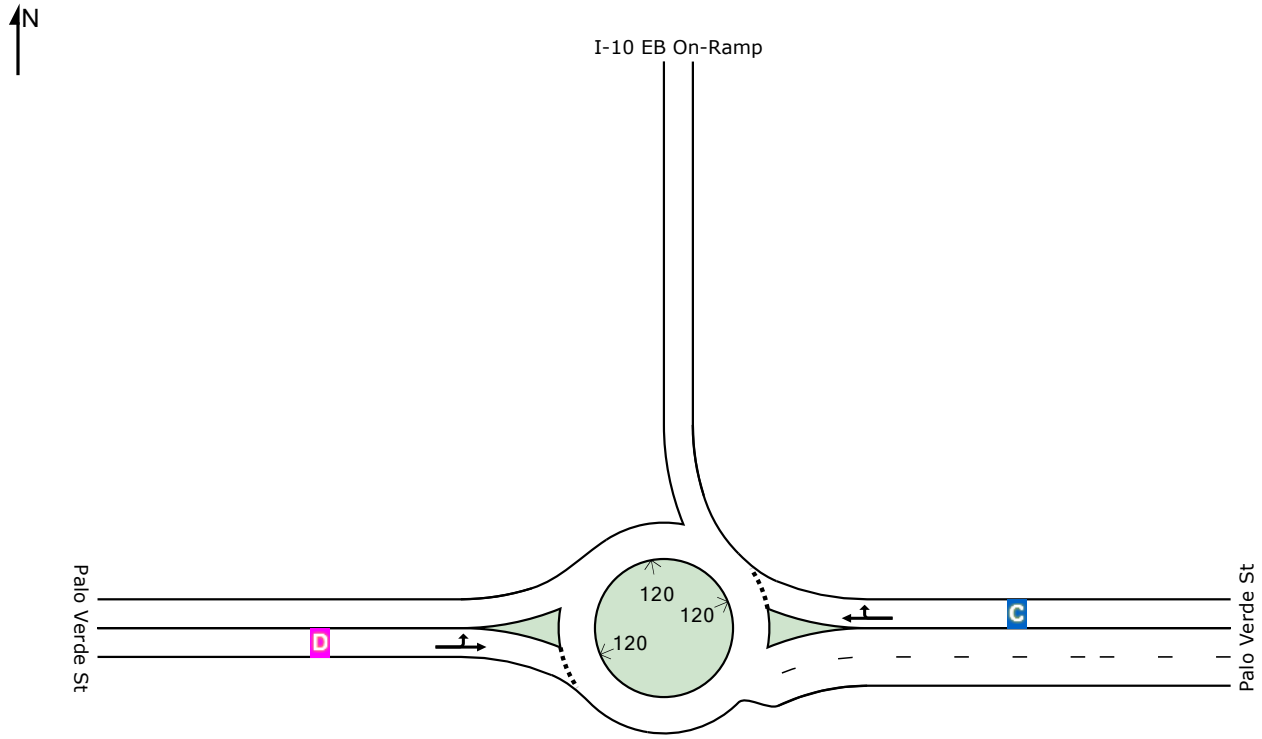
Intersection Performance - Annual Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	631,304	veh/y	757,565	pers/y
Delay	4,431	veh-h/y	5,317	pers-h/y
Effective Stops	131,070	veh/y	157,284	pers/y
Travel Distance	317,032	veh-mi/y	380,439	pers-mi/y
Travel Time	10,461	veh-h/y	12,553	pers-h/y
Cost	174,031	$/y	174,031	$/y
Fuel Consumption	6,975	gal/y		
Carbon Dioxide	62,200	kg/y		
Hydrocarbons	26	kg/y		
Carbon Monoxide	212	kg/y		
NOx	96	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Palo Verde St & I-10 EB Ramp-Long Range with Project-AM

Palo Verde St & I-10 EB Ramp
Roundabout



	East	West	Intersection
LOS	C	D	D

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Monday, December 12, 2016 3:08:50 PM
SIDRA INTERSECTION 6.0.11.3995
Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com
Project: C:\Users\sperumalla\Desktop\Montclair\Montclair_long_range_with_prj.sip6
8001309, STANTEC CONSULTING SVCS INC, PLUS / 1PC

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Long Range with Project-AM

Palo Verde St & I-10 EB Ramp
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Palo Verde St											
6	T1	283	2.0	0.576	19.1	LOS C	3.0	75.1	0.74	1.63	25.7
16	R2	11	2.0	0.576	19.1	LOS C	3.0	75.1	0.74	1.63	25.7
Approach		293	2.0	0.576	19.1	LOS C	3.0	75.1	0.74	0.82	25.7
West: Palo Verde St											
5	L2	761	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.1
2	T1	228	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.1
Approach		989	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.1
All Vehicles		1283	2.0	0.893	25.2	LOS D	3.0	75.1	0.17	0.19	30.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Long Range with Project-AM

Palo Verde St & I-10 EB Ramp
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1283	veh/h	1539	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	0.893			
Practical Spare Capacity	-4.8	%		
Effective Intersection Capacity	1437	veh/h		
Control Delay (Total)	8.99	veh-h/h	10.78	pers-h/h
Control Delay (Average)	25.2	sec	25.2	sec
Control Delay (Worst Lane)	27.0	sec		
Control Delay (Worst Movement)	27.0	sec	27.0	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	25.2	sec		
Idling Time (Average)	2.8	sec		
Intersection Level of Service (LOS)	LOS D			
95% Back of Queue - Vehicles (Worst Lane)	3.0	veh		
95% Back of Queue - Distance (Worst Lane)	75.1	ft		
Queue Storage Ratio (Worst Lane)	0.05			
Total Effective Stops	239	veh/h	287	pers/h
Effective Stop Rate	0.19	per veh	0.19	per pers
Proportion Queued	0.17		0.17	
Performance Index	31.2		31.2	
Travel Distance (Total)	646.7	veh-mi/h	776.0	pers-mi/h
Travel Distance (Average)	2662	ft	2662	ft
Travel Time (Total)	21.3	veh-h/h	25.5	pers-h/h
Travel Time (Average)	59.7	sec	59.7	sec
Travel Speed	30.4	mph	30.4	mph
Cost (Total)	353.69	$/h	353.69	$/h
Fuel Consumption (Total)	14.2	gal/h		
Carbon Dioxide (Total)	126.5	kg/h		
Hydrocarbons (Total)	0.053	kg/h		
Carbon Monoxide (Total)	0.431	kg/h		
NOx (Total)	0.195	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

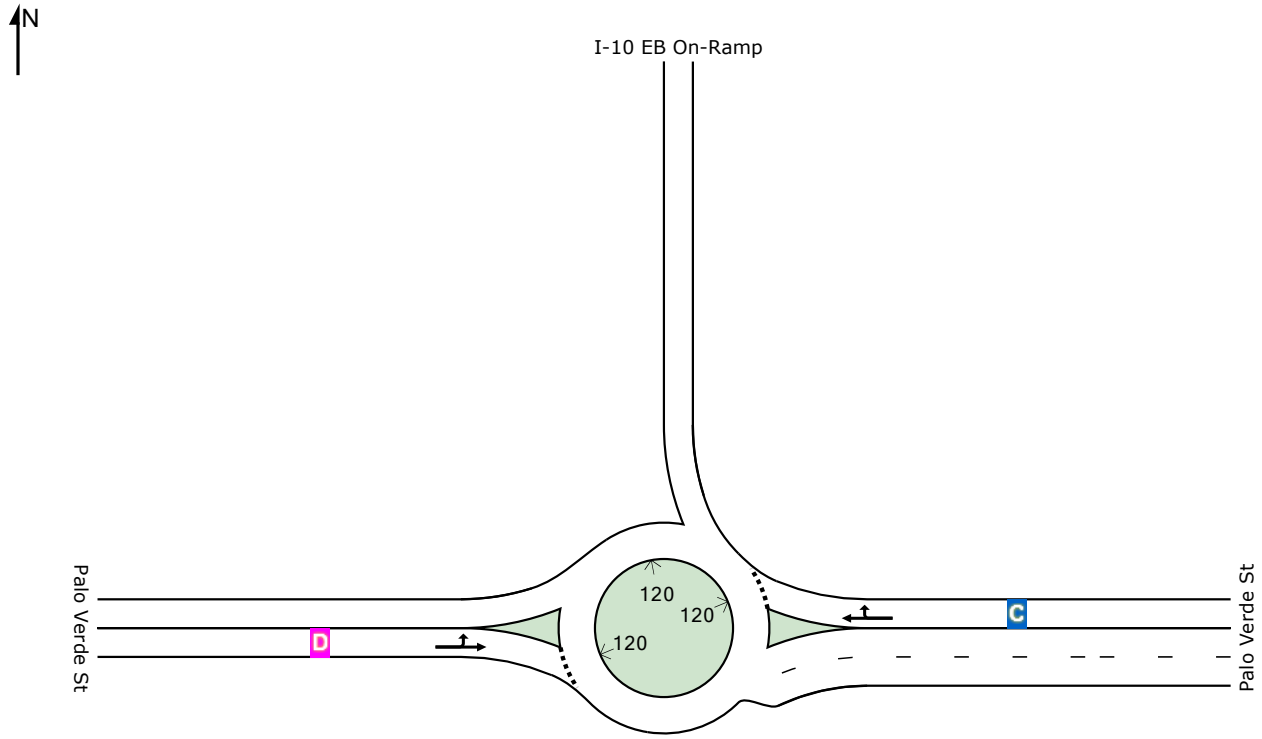
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	615,652	veh/y	738,783	pers/y
Delay	4,313	veh-h/y	5,176	pers-h/y
Effective Stops	114,929	veh/y	137,915	pers/y
Travel Distance	310,416	veh-mi/y	372,500	pers-mi/y
Travel Time	10,203	veh-h/y	12,243	pers-h/y
Cost	169,770	$/y	169,770	$/y
Fuel Consumption	6,811	gal/y		
Carbon Dioxide	60,734	kg/y		
Hydrocarbons	26	kg/y		
Carbon Monoxide	207	kg/y		
NOx	94	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Palo Verde St & I-10 EB Ramp-Long Range with Project-PM

Palo Verde St & I-10 EB Ramp
Roundabout



	East	West	Intersection
LOS	C	D	D

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Processed: Monday, December 12, 2016 3:08:53 PM
SIDRA INTERSECTION 6.0.11.3995
Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com
Project: C:\Users\sperumalla\Desktop\Montclair\Montclair_long_range_with_prj.sip6
8001309, STANTEC CONSULTING SVCS INC, PLUS / 1PC

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Long Range with Project-PM

Palo Verde St & I-10 EB Ramp
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Palo Verde St											
6	T1	304	2.0	0.612	19.9	LOS C	3.4	85.9	0.76	1.67	25.4
16	R2	22	2.0	0.612	19.9	LOS C	3.4	85.9	0.76	1.67	25.4
Approach		326	2.0	0.612	19.9	LOS C	3.4	85.9	0.76	0.84	25.4
West: Palo Verde St											
5	L2	717	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.3
2	T1	272	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.3
Approach		989	2.0	0.893	27.0	LOS D	0.0	0.0	0.00	0.00	32.3
All Vehicles		1315	2.0	0.893	25.3	LOS D	3.4	85.9	0.19	0.21	30.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Palo Verde St & I-10 EB Ramp-Long Range with Project-PM

Palo Verde St & I-10 EB Ramp
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	1315	veh/h	1578	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	0.893			
Practical Spare Capacity	-4.8	%		
Effective Intersection Capacity	1473	veh/h		
Control Delay (Total)	9.23	veh-h/h	11.08	pers-h/h
Control Delay (Average)	25.3	sec	25.3	sec
Control Delay (Worst Lane)	27.0	sec		
Control Delay (Worst Movement)	27.0	sec	27.0	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	25.3	sec		
Idling Time (Average)	3.2	sec		
Intersection Level of Service (LOS)	LOS D			
95% Back of Queue - Vehicles (Worst Lane)	3.4	veh		
95% Back of Queue - Distance (Worst Lane)	85.9	ft		
Queue Storage Ratio (Worst Lane)	0.06			
Total Effective Stops	273	veh/h	328	pers/h
Effective Stop Rate	0.21	per veh	0.21	per pers
Proportion Queued	0.19		0.19	
Performance Index	32.7		32.7	
Travel Distance (Total)	660.5	veh-mi/h	792.6	pers-mi/h
Travel Distance (Average)	2652	ft	2652	ft
Travel Time (Total)	21.8	veh-h/h	26.2	pers-h/h
Travel Time (Average)	59.7	sec	59.7	sec
Travel Speed	30.3	mph	30.3	mph
Cost (Total)	362.56	$/h	362.56	$/h
Fuel Consumption (Total)	14.5	gal/h		
Carbon Dioxide (Total)	129.6	kg/h		
Hydrocarbons (Total)	0.055	kg/h		
Carbon Monoxide (Total)	0.441	kg/h		
NOx (Total)	0.200	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

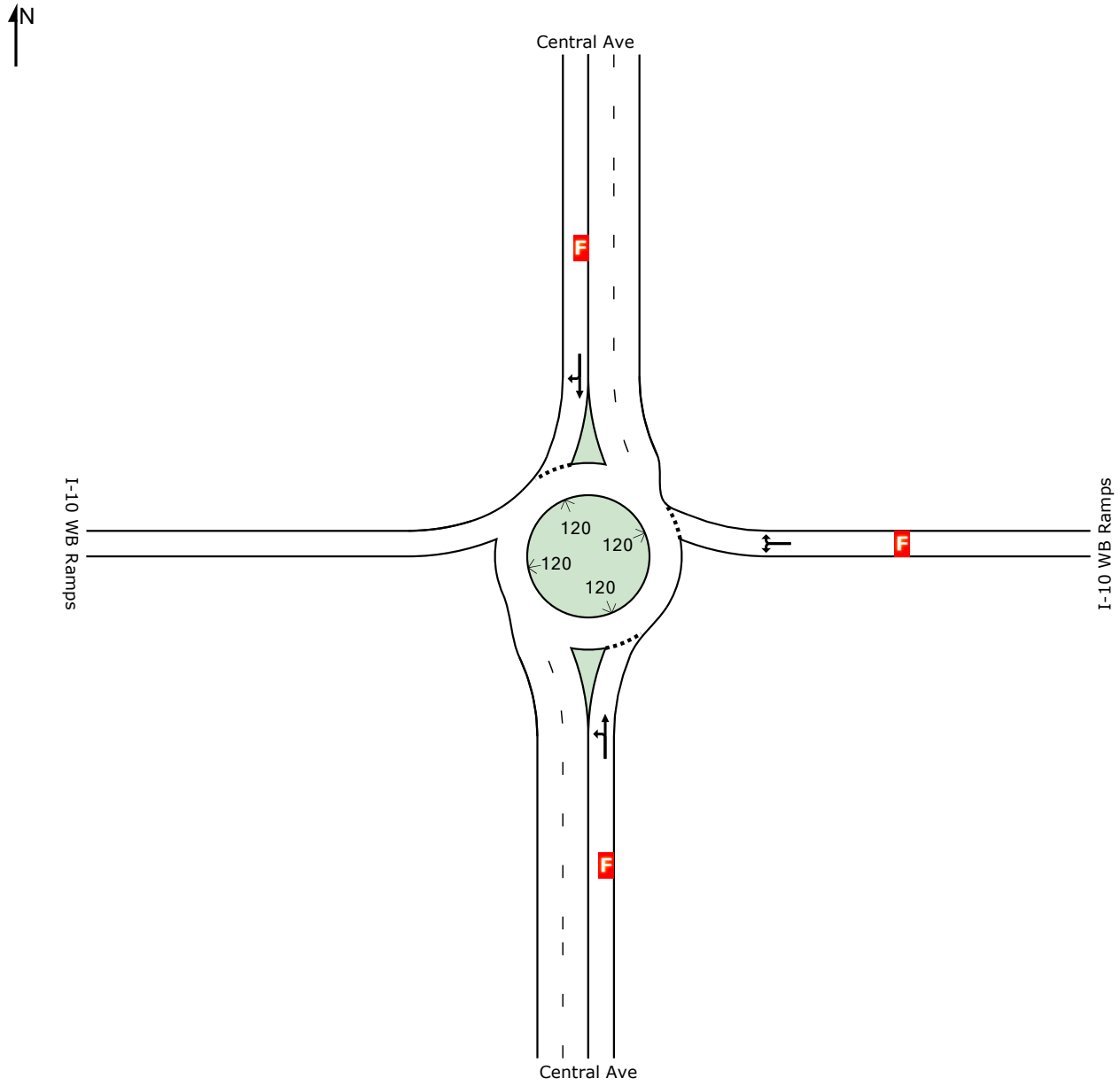
Intersection Performance - Annual Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	631,304	veh/y	757,565	pers/y
Delay	4,431	veh-h/y	5,317	pers-h/y
Effective Stops	131,070	veh/y	157,284	pers/y
Travel Distance	317,032	veh-mi/y	380,439	pers-mi/y
Travel Time	10,461	veh-h/y	12,553	pers-h/y
Cost	174,031	$/y	174,031	$/y
Fuel Consumption	6,975	gal/y		
Carbon Dioxide	62,200	kg/y		
Hydrocarbons	26	kg/y		
Carbon Monoxide	212	kg/y		
NOx	96	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 WB Ramps-Existing-AM

Central Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 WB Ramps-Existing-AM

Central Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
3	L2	447	2.0	1.142	92.1	LOS F	48.9	1241.8	1.00	0.08	12.3
8	T1	818	2.0	1.142	92.1	LOS F	48.9	1241.8	1.00	0.08	12.3
Approach		1265	2.0	1.142	92.1	LOS F	48.9	1241.8	1.00	0.04	12.3
East: I-10 WB Ramps											
1	L2	323	2.0	1.734	367.8	LOS F	91.0	2311.6	1.00	7.77	4.3
16	R2	298	2.0	1.734	367.8	LOS F	91.0	2311.6	1.00	7.77	4.3
Approach		621	2.0	1.734	367.8	LOS F	91.0	2311.6	1.00	3.88	4.3
North: Central Ave											
4	T1	516	2.0	1.317	174.7	LOS F	73.8	1875.6	1.00	6.44	7.7
14	R2	293	2.0	1.317	174.7	LOS F	73.8	1875.6	1.00	6.44	7.7
Approach		810	2.0	1.317	174.7	LOS F	73.8	1875.6	1.00	3.22	7.7
All Vehicles		2696	2.0	1.734	180.4	LOS F	91.0	2311.6	1.00	1.88	7.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 WB Ramps-Existing-AM

Central Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2696	veh/h	3235	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.734			
Practical Spare Capacity	-51.0	%		
Effective Intersection Capacity	1554	veh/h		
Control Delay (Total)	135.07	veh-h/h	162.09	pers-h/h
Control Delay (Average)	180.4	sec	180.4	sec
Control Delay (Worst Lane)	367.8	sec		
Control Delay (Worst Movement)	367.8	sec	367.8	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	180.4	sec		
Idling Time (Average)	144.2	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	91.0	veh		
95% Back of Queue - Distance (Worst Lane)	2311.6	ft		
Queue Storage Ratio (Worst Lane)	1.53			
Total Effective Stops	5073	veh/h	6088	pers/h
Effective Stop Rate	1.88	per veh	1.88	per pers
Proportion Queued	1.00		1.00	
Performance Index	540.4		540.4	
Travel Distance (Total)	1324.9	veh-mi/h	1589.9	pers-mi/h
Travel Distance (Average)	2595	ft	2595	ft
Travel Time (Total)	174.0	veh-h/h	208.7	pers-h/h
Travel Time (Average)	232.3	sec	232.3	sec
Travel Speed	7.6	mph	7.6	mph
Cost (Total)	2586.56	$/h	2586.56	$/h
Fuel Consumption (Total)	72.9	gal/h		
Carbon Dioxide (Total)	650.0	kg/h		
Hydrocarbons (Total)	0.434	kg/h		
Carbon Monoxide (Total)	2.277	kg/h		
NOx (Total)	0.607	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

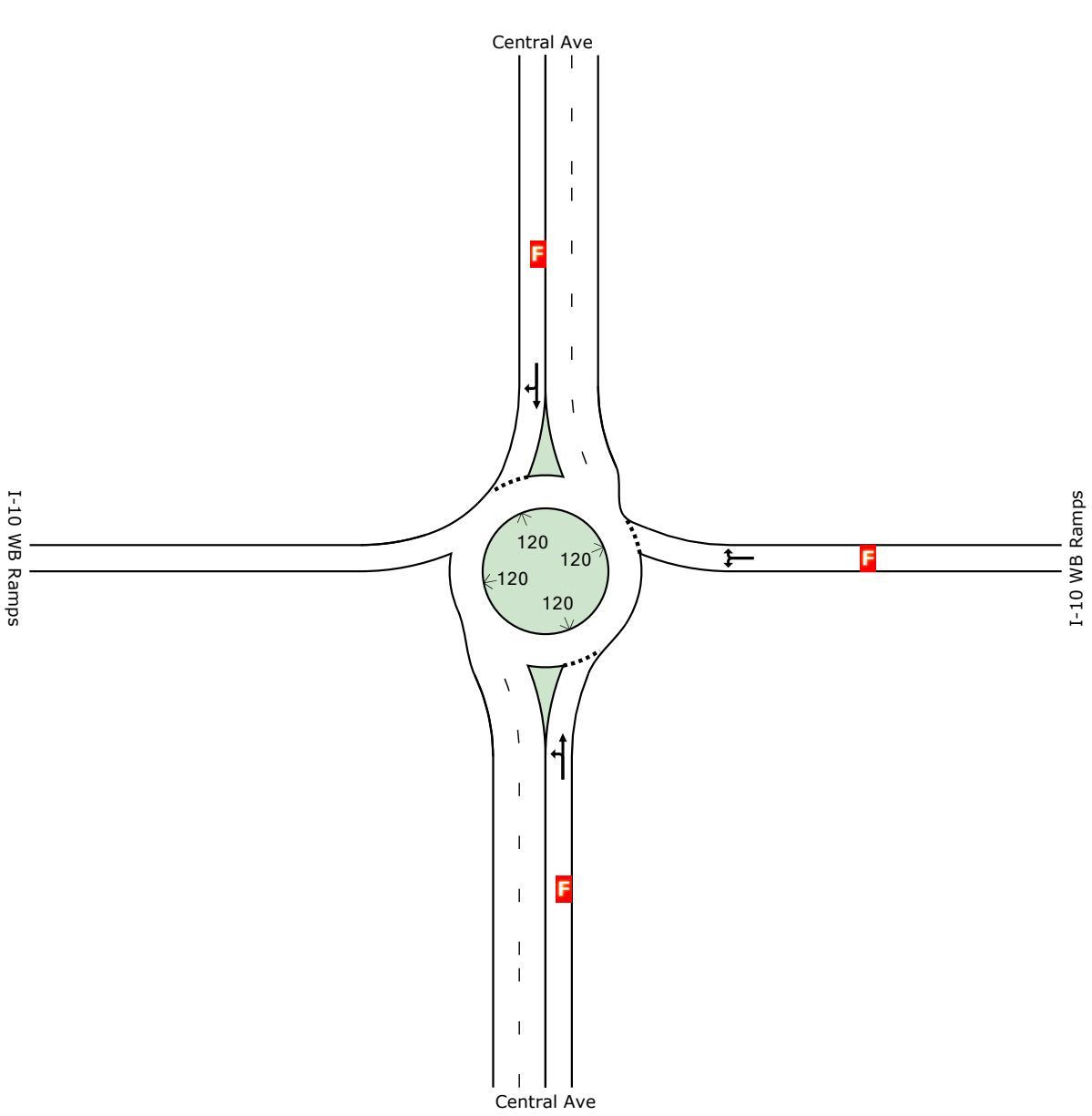
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,293,913	veh/y	1,552,696	pers/y
Delay	64,835	veh-h/y	77,802	pers-h/y
Effective Stops	2,435,160	veh/y	2,922,191	pers/y
Travel Distance	635,968	veh-mi/y	763,161	pers-mi/y
Travel Time	83,498	veh-h/y	100,198	pers-h/y
Cost	1,241,551	$/y	1,241,551	$/y
Fuel Consumption	34,988	gal/y		
Carbon Dioxide	311,994	kg/y		
Hydrocarbons	208	kg/y		
Carbon Monoxide	1,093	kg/y		
NOx	291	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 WB Ramps-Existing-PM

Central Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 WB Ramps-Existing-PM

Central Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
3	L2	351	2.0	1.435	214.4	LOS F	149.9	3806.4	1.00	0.09	6.6
8	T1	1239	2.0	1.435	214.4	LOS F	149.9	3806.4	1.00	0.09	6.6
Approach		1590	2.0	1.435	214.4	LOS F	149.9	3806.4	1.00	0.04	6.6
East: I-10 WB Ramps											
1	L2	430	2.0	2.557	732.0	LOS F	185.9	4721.6	1.00	10.16	2.3
16	R2	485	2.0	2.557	732.0	LOS F	185.9	4721.6	1.00	10.16	2.3
Approach		915	2.0	2.557	732.0	LOS F	185.9	4721.6	1.00	5.08	2.3
North: Central Ave											
4	T1	1298	2.0	2.398	647.4	LOS F	341.1	8663.2	1.00	12.32	2.5
14	R2	446	2.0	2.398	647.4	LOS F	341.1	8663.2	1.00	12.32	2.5
Approach		1743	2.0	2.398	647.4	LOS F	341.1	8663.2	1.00	6.16	2.5
All Vehicles		4249	2.0	2.557	503.6	LOS F	341.1	8663.2	1.00	3.64	3.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 WB Ramps-Existing-PM

Central Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	4249	veh/h	5099	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.557			
Practical Spare Capacity	-66.8	%		
Effective Intersection Capacity	1661	veh/h		
Control Delay (Total)	594.34	veh-h/h	713.21	pers-h/h
Control Delay (Average)	503.6	sec	503.6	sec
Control Delay (Worst Lane)	732.0	sec		
Control Delay (Worst Movement)	732.0	sec	732.0	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	503.6	sec		
Idling Time (Average)	430.9	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	341.1	veh		
95% Back of Queue - Distance (Worst Lane)	8663.2	ft		
Queue Storage Ratio (Worst Lane)	5.72			
Total Effective Stops	15464	veh/h	18557	pers/h
Effective Stop Rate	3.64	per veh	3.64	per pers
Proportion Queued	1.00		1.00	
Performance Index	1821.3		1821.3	
Travel Distance (Total)	2070.0	veh-mi/h	2484.0	pers-mi/h
Travel Distance (Average)	2572	ft	2572	ft
Travel Time (Total)	654.1	veh-h/h	785.0	pers-h/h
Travel Time (Average)	554.2	sec	554.2	sec
Travel Speed	3.2	mph	3.2	mph
Cost (Total)	9432.78	$/h	9432.78	$/h
Fuel Consumption (Total)	240.5	gal/h		
Carbon Dioxide (Total)	2144.6	kg/h		
Hydrocarbons (Total)	1.618	kg/h		
Carbon Monoxide (Total)	7.587	kg/h		
NOx (Total)	1.518	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

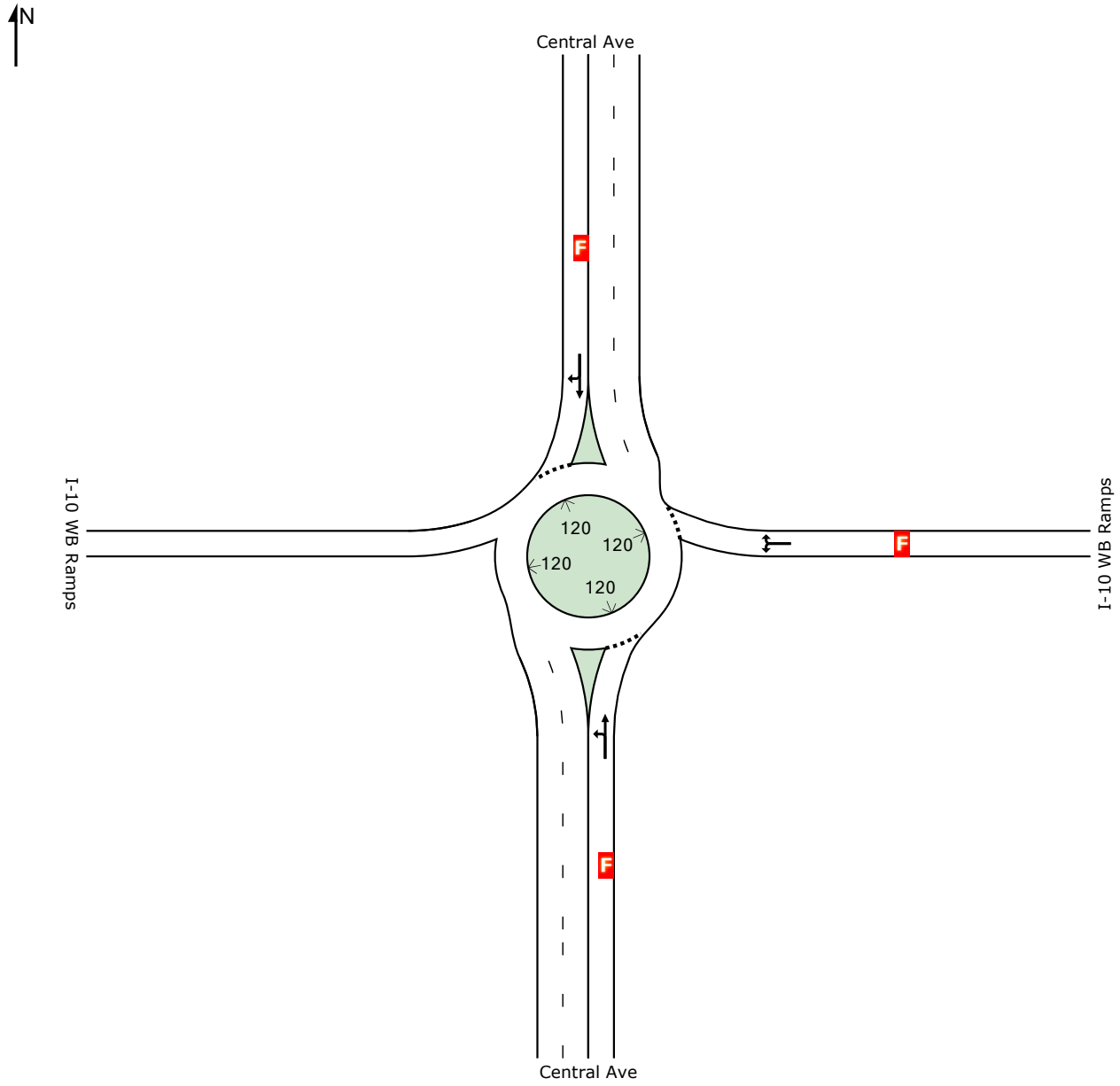
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,039,478	veh/y	2,447,374	pers/y
Delay	285,284	veh-h/y	342,341	pers-h/y
Effective Stops	7,422,643	veh/y	8,907,172	pers/y
Travel Distance	993,583	veh-mi/y	1,192,299	pers-mi/y
Travel Time	313,988	veh-h/y	376,785	pers-h/y
Cost	4,527,735	$/y	4,527,735	$/y
Fuel Consumption	115,442	gal/y		
Carbon Dioxide	1,029,409	kg/y		
Hydrocarbons	777	kg/y		
Carbon Monoxide	3,642	kg/y		
NOx	729	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 WB Ramps-Existing plus Project-AM

Central Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 WB Ramps-Existing plus Project-AM

Central Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
3	L2	447	2.0	1.546	263.0	LOS F	188.0	4775.6	1.00	0.09	5.6
8	T1	1266	2.0	1.546	263.0	LOS F	188.0	4775.6	1.00	0.09	5.6
Approach		1713	2.0	1.546	263.0	LOS F	188.0	4775.6	1.00	0.05	5.6
East: I-10 WB Ramps											
1	L2	323	2.0	2.047	505.2	LOS F	127.0	3226.0	1.00	8.90	3.2
16	R2	410	2.0	2.047	505.2	LOS F	127.0	3226.0	1.00	8.90	3.2
Approach		733	2.0	2.047	505.2	LOS F	127.0	3226.0	1.00	4.45	3.2
North: Central Ave											
4	T1	1027	2.0	2.008	473.9	LOS F	240.6	6110.3	1.00	10.95	3.3
14	R2	384	2.0	2.008	473.9	LOS F	240.6	6110.3	1.00	10.95	3.3
Approach		1411	2.0	2.008	473.9	LOS F	240.6	6110.3	1.00	5.48	3.3
All Vehicles		3857	2.0	2.047	386.1	LOS F	240.6	6110.3	1.00	2.87	4.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 WB Ramps-Existing plus Project-AM

Central Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3857	veh/h	4628	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.047			
Practical Spare Capacity	-58.5	%		
Effective Intersection Capacity	1884	veh/h		
Control Delay (Total)	413.65	veh-h/h	496.38	pers-h/h
Control Delay (Average)	386.1	sec	386.1	sec
Control Delay (Worst Lane)	505.2	sec		
Control Delay (Worst Movement)	505.2	sec	505.2	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	386.1	sec		
Idling Time (Average)	329.0	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	240.6	veh		
95% Back of Queue - Distance (Worst Lane)	6110.3	ft		
Queue Storage Ratio (Worst Lane)	4.03			
Total Effective Stops	11062	veh/h	13275	pers/h
Effective Stop Rate	2.87	per veh	2.87	per pers
Proportion Queued	1.00		1.00	
Performance Index	1416.3		1416.3	
Travel Distance (Total)	1881.3	veh-mi/h	2257.5	pers-mi/h
Travel Distance (Average)	2576	ft	2576	ft
Travel Time (Total)	468.1	veh-h/h	561.7	pers-h/h
Travel Time (Average)	437.0	sec	437.0	sec
Travel Speed	4.0	mph	4.0	mph
Cost (Total)	6828.15	$/h	6828.15	$/h
Fuel Consumption (Total)	177.6	gal/h		
Carbon Dioxide (Total)	1583.6	kg/h		
Hydrocarbons (Total)	1.166	kg/h		
Carbon Monoxide (Total)	5.591	kg/h		
NOx (Total)	1.194	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

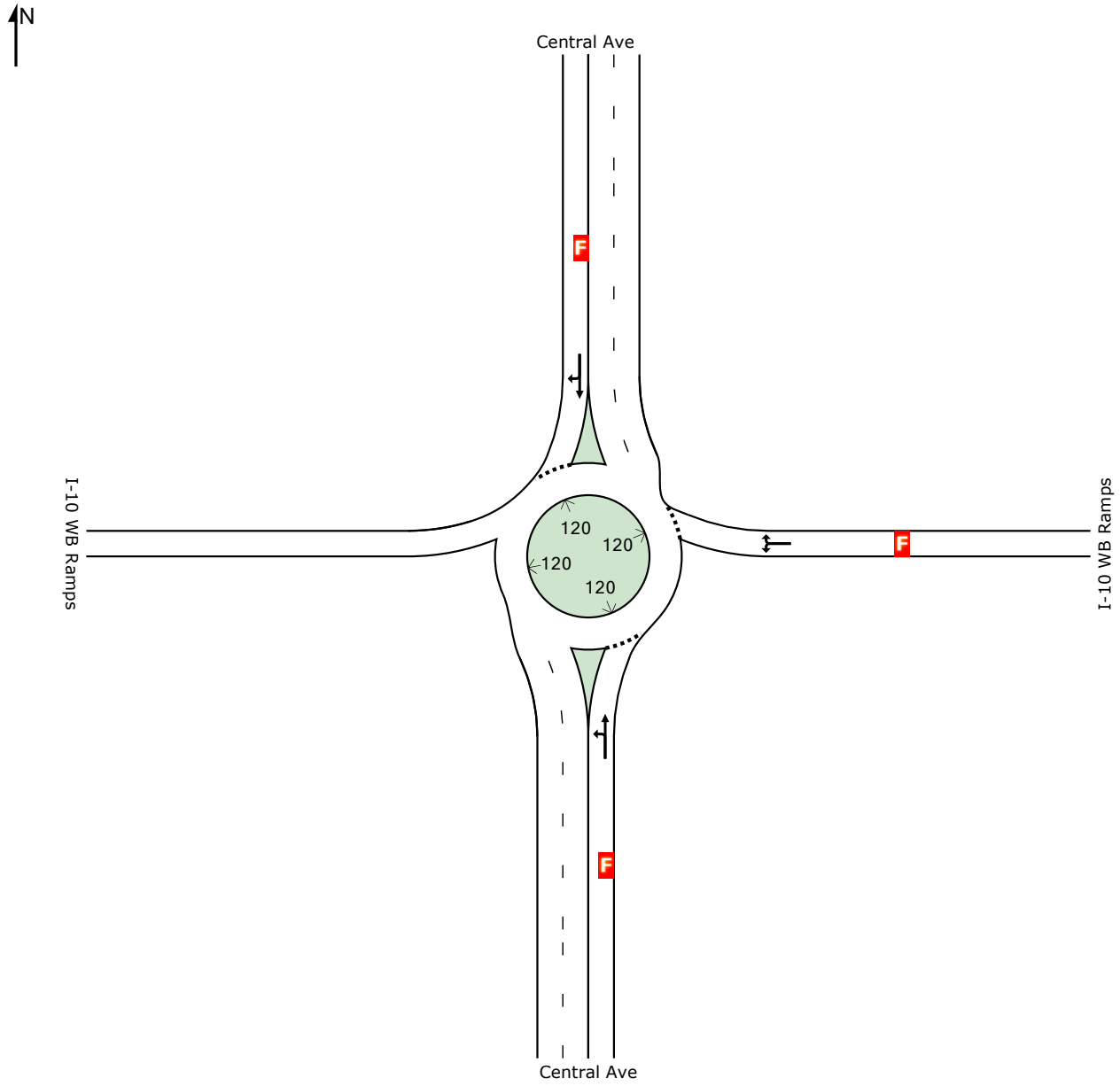
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,851,130	veh/y	2,221,357	pers/y
Delay	198,552	veh-h/y	238,263	pers-h/y
Effective Stops	5,309,895	veh/y	6,371,875	pers/y
Travel Distance	903,008	veh-mi/y	1,083,610	pers-mi/y
Travel Time	224,696	veh-h/y	269,635	pers-h/y
Cost	3,277,513	$/y	3,277,513	$/y
Fuel Consumption	85,244	gal/y		
Carbon Dioxide	760,127	kg/y		
Hydrocarbons	560	kg/y		
Carbon Monoxide	2,684	kg/y		
NOx	573	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 WB Ramps-Existing plus Project-PM

Central Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 WB Ramps-Existing plus Project-PM

Central Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
3	L2	351	2.0	2.001	464.9	LOS F	344.4	8746.8	1.00	0.10	3.4
8	T1	1865	2.0	2.001	464.9	LOS F	344.4	8746.8	1.00	0.10	3.4
Approach		2216	2.0	2.001	464.9	LOS F	344.4	8746.8	1.00	0.05	3.4
East: I-10 WB Ramps											
1	L2	430	2.0	2.995	927.6	LOS F	236.4	6005.0	1.00	10.91	1.8
16	R2	641	2.0	2.995	927.6	LOS F	236.4	6005.0	1.00	10.91	1.8
Approach		1072	2.0	2.995	927.6	LOS F	236.4	6005.0	1.00	5.45	1.8
North: Central Ave											
4	T1	2001	2.0	3.213	1012.1	LOS F	590.8	15005.8	1.00	13.78	1.6
14	R2	570	2.0	3.213	1012.1	LOS F	590.8	15005.8	1.00	13.78	1.6
Approach		2571	2.0	3.213	1012.1	LOS F	590.8	15005.8	1.00	6.89	1.6
All Vehicles		5859	2.0	3.213	789.6	LOS F	590.8	15005.8	1.00	4.04	2.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 WB Ramps-Existing plus Project-PM

Central Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	5859	veh/h	7030	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	3.213			
Practical Spare Capacity	-73.5	%		
Effective Intersection Capacity	1823	veh/h		
Control Delay (Total)	1285.03	veh-h/h	1542.04	pers-h/h
Control Delay (Average)	789.6	sec	789.6	sec
Control Delay (Worst Lane)	1012.1	sec		
Control Delay (Worst Movement)	1012.1	sec	1012.1	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	789.6	sec		
Idling Time (Average)	709.7	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	590.8	veh		
95% Back of Queue - Distance (Worst Lane)	15005.8	ft		
Queue Storage Ratio (Worst Lane)	9.90			
Total Effective Stops	23669	veh/h	28402	pers/h
Effective Stop Rate	4.04	per veh	4.04	per pers
Proportion Queued	1.00		1.00	
Performance Index	3373.1		3373.1	
Travel Distance (Total)	2841.4	veh-mi/h	3409.7	pers-mi/h
Travel Distance (Average)	2561	ft	2561	ft
Travel Time (Total)	1366.4	veh-h/h	1639.7	pers-h/h
Travel Time (Average)	839.6	sec	839.6	sec
Travel Speed	2.1	mph	2.1	mph
Cost (Total)	19529.06	$/h	19529.06	$/h
Fuel Consumption (Total)	484.5	gal/h		
Carbon Dioxide (Total)	4320.3	kg/h		
Hydrocarbons (Total)	3.368	kg/h		
Carbon Monoxide (Total)	15.329	kg/h		
NOx (Total)	2.755	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

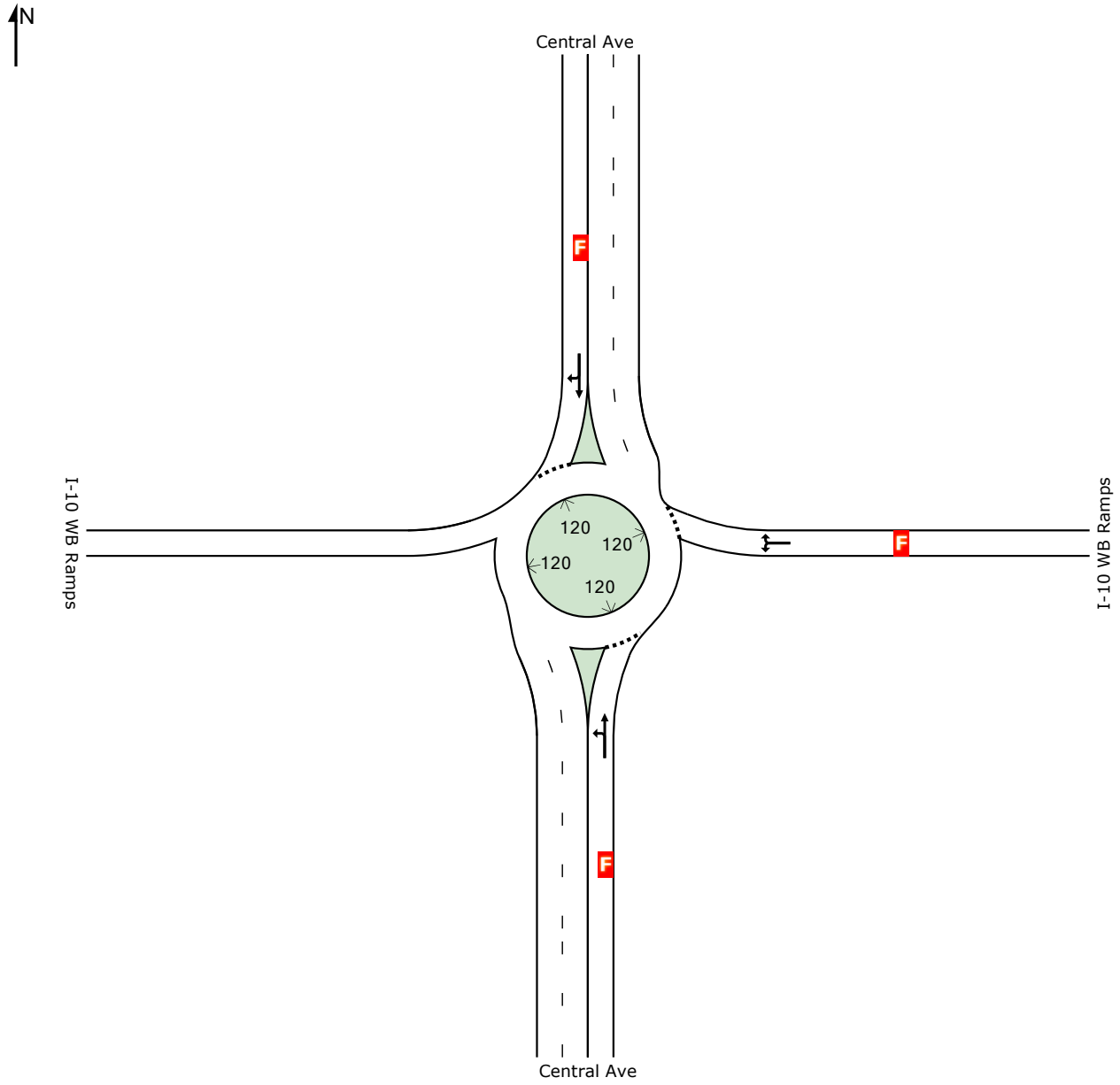
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,812,174	veh/y	3,374,609	pers/y
Delay	616,816	veh-h/y	740,179	pers-h/y
Effective Stops	11,360,990	veh/y	13,633,190	pers/y
Travel Distance	1,363,889	veh-mi/y	1,636,666	pers-mi/y
Travel Time	655,891	veh-h/y	787,069	pers-h/y
Cost	9,373,947	$/y	9,373,947	$/y
Fuel Consumption	232,556	gal/y		
Carbon Dioxide	2,073,727	kg/y		
Hydrocarbons	1,617	kg/y		
Carbon Monoxide	7,358	kg/y		
NOx	1,322	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 WB Ramps-Long Range No Project-AM

Central Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 WB Ramps-Long Range No Project-AM

Central Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
3	L2	370	2.0	1.200	114.7	LOS F	68.8	1747.9	1.00	0.09	10.6
8	T1	960	2.0	1.200	114.7	LOS F	68.8	1747.9	1.00	0.09	10.6
Approach		1329	2.0	1.200	114.7	LOS F	68.8	1747.9	1.00	0.04	10.6
East: I-10 WB Ramps											
1	L2	261	2.0	1.816	403.6	LOS F	100.4	2551.0	1.00	8.10	3.9
16	R2	389	2.0	1.816	403.6	LOS F	100.4	2551.0	1.00	8.10	3.9
Approach		650	2.0	1.816	403.6	LOS F	100.4	2551.0	1.00	4.05	3.9
North: Central Ave											
4	T1	587	2.0	1.555	273.7	LOS F	137.5	3491.8	1.00	8.45	5.4
14	R2	500	2.0	1.555	273.7	LOS F	137.5	3491.8	1.00	8.45	5.4
Approach		1087	2.0	1.555	273.7	LOS F	137.5	3491.8	1.00	4.22	5.4
All Vehicles		3066	2.0	1.816	232.3	LOS F	137.5	3491.8	1.00	2.37	6.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 WB Ramps-Long Range No Project-AM

Central Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3066	veh/h	3680	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.816			
Practical Spare Capacity	-53.2	%		
Effective Intersection Capacity	1688	veh/h		
Control Delay (Total)	197.85	veh-h/h	237.42	pers-h/h
Control Delay (Average)	232.3	sec	232.3	sec
Control Delay (Worst Lane)	403.6	sec		
Control Delay (Worst Movement)	403.6	sec	403.6	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	232.3	sec		
Idling Time (Average)	186.2	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	137.5	veh		
95% Back of Queue - Distance (Worst Lane)	3491.8	ft		
Queue Storage Ratio (Worst Lane)	2.30			
Total Effective Stops	7281	veh/h	8737	pers/h
Effective Stop Rate	2.37	per veh	2.37	per pers
Proportion Queued	1.00		1.00	
Performance Index	769.4		769.4	
Travel Distance (Total)	1497.1	veh-mi/h	1796.5	pers-mi/h
Travel Distance (Average)	2578	ft	2578	ft
Travel Time (Total)	241.3	veh-h/h	289.6	pers-h/h
Travel Time (Average)	283.3	sec	283.3	sec
Travel Speed	6.2	mph	6.2	mph
Cost (Total)	3563.57	$/h	3563.57	$/h
Fuel Consumption (Total)	97.5	gal/h		
Carbon Dioxide (Total)	869.6	kg/h		
Hydrocarbons (Total)	0.602	kg/h		
Carbon Monoxide (Total)	3.053	kg/h		
NOx (Total)	0.764	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

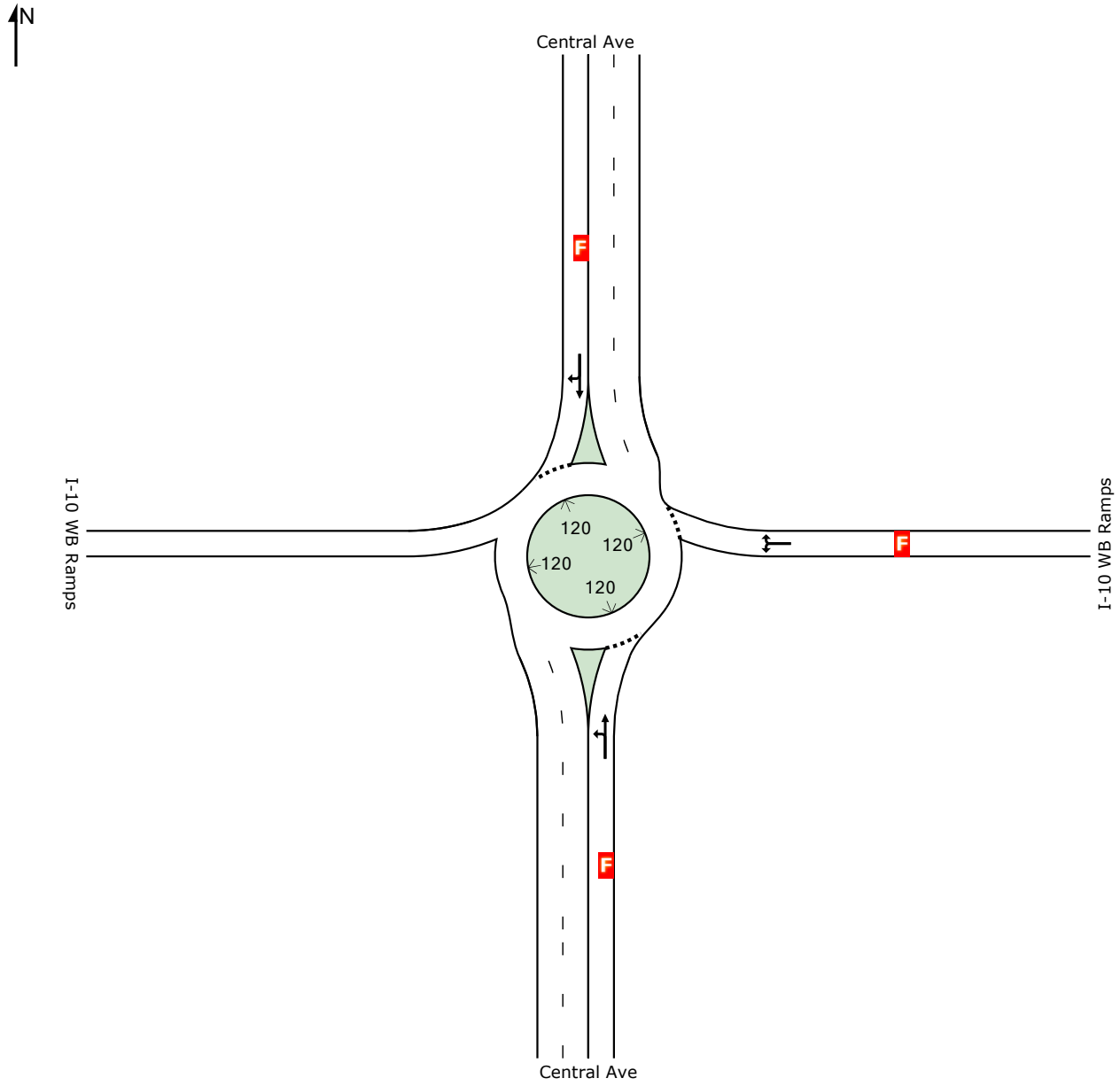
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,471,826	veh/y	1,766,191	pers/y
Delay	94,969	veh-h/y	113,963	pers-h/y
Effective Stops	3,494,812	veh/y	4,193,774	pers/y
Travel Distance	718,609	veh-mi/y	862,330	pers-mi/y
Travel Time	115,842	veh-h/y	139,011	pers-h/y
Cost	1,710,511	$/y	1,710,511	$/y
Fuel Consumption	46,810	gal/y		
Carbon Dioxide	417,407	kg/y		
Hydrocarbons	289	kg/y		
Carbon Monoxide	1,466	kg/y		
NOx	367	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 WB Ramps-Long Range No Project-PM

Central Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 WB Ramps-Long Range No Project-PM

Central Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
3	L2	239	2.0	1.494	240.1	LOS F	170.1	4321.0	1.00	0.09	6.0
8	T1	1416	2.0	1.494	240.1	LOS F	170.1	4321.0	1.00	0.09	6.0
Approach		1655	2.0	1.494	240.1	LOS F	170.1	4321.0	1.00	0.05	6.0
East: I-10 WB Ramps											
1	L2	293	2.0	2.688	790.4	LOS F	201.0	5104.8	1.00	10.41	2.1
16	R2	668	2.0	2.688	790.4	LOS F	201.0	5104.8	1.00	10.41	2.1
Approach		962	2.0	2.688	790.4	LOS F	201.0	5104.8	1.00	5.21	2.1
North: Central Ave											
4	T1	1570	2.0	2.752	804.1	LOS F	498.8	12669.4	1.00	12.52	2.0
14	R2	747	2.0	2.752	804.1	LOS F	498.8	12669.4	1.00	12.52	2.0
Approach		2316	2.0	2.752	804.1	LOS F	498.8	12669.4	1.00	6.26	2.0
All Vehicles		4934	2.0	2.752	612.2	LOS F	498.8	12669.4	1.00	3.97	2.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 WB Ramps-Long Range No Project-PM

Central Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	4934	veh/h	5920	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.752			
Practical Spare Capacity	-69.1	%		
Effective Intersection Capacity	1793	veh/h		
Control Delay (Total)	838.99	veh-h/h	1006.78	pers-h/h
Control Delay (Average)	612.2	sec	612.2	sec
Control Delay (Worst Lane)	804.1	sec		
Control Delay (Worst Movement)	804.1	sec	804.1	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	612.2	sec		
Idling Time (Average)	535.8	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	498.8	veh		
95% Back of Queue - Distance (Worst Lane)	12669.4	ft		
Queue Storage Ratio (Worst Lane)	8.36			
Total Effective Stops	19579	veh/h	23495	pers/h
Effective Stop Rate	3.97	per veh	3.97	per pers
Proportion Queued	1.00		1.00	
Performance Index	2407.5		2407.5	
Travel Distance (Total)	2388.3	veh-mi/h	2865.9	pers-mi/h
Travel Distance (Average)	2556	ft	2556	ft
Travel Time (Total)	907.3	veh-h/h	1088.7	pers-h/h
Travel Time (Average)	662.0	sec	662.0	sec
Travel Speed	2.6	mph	2.6	mph
Cost (Total)	13027.54	$/h	13027.54	$/h
Fuel Consumption (Total)	328.4	gal/h		
Carbon Dioxide (Total)	2928.0	kg/h		
Hydrocarbons (Total)	2.240	kg/h		
Carbon Monoxide (Total)	10.363	kg/h		
NOx (Total)	2.023	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

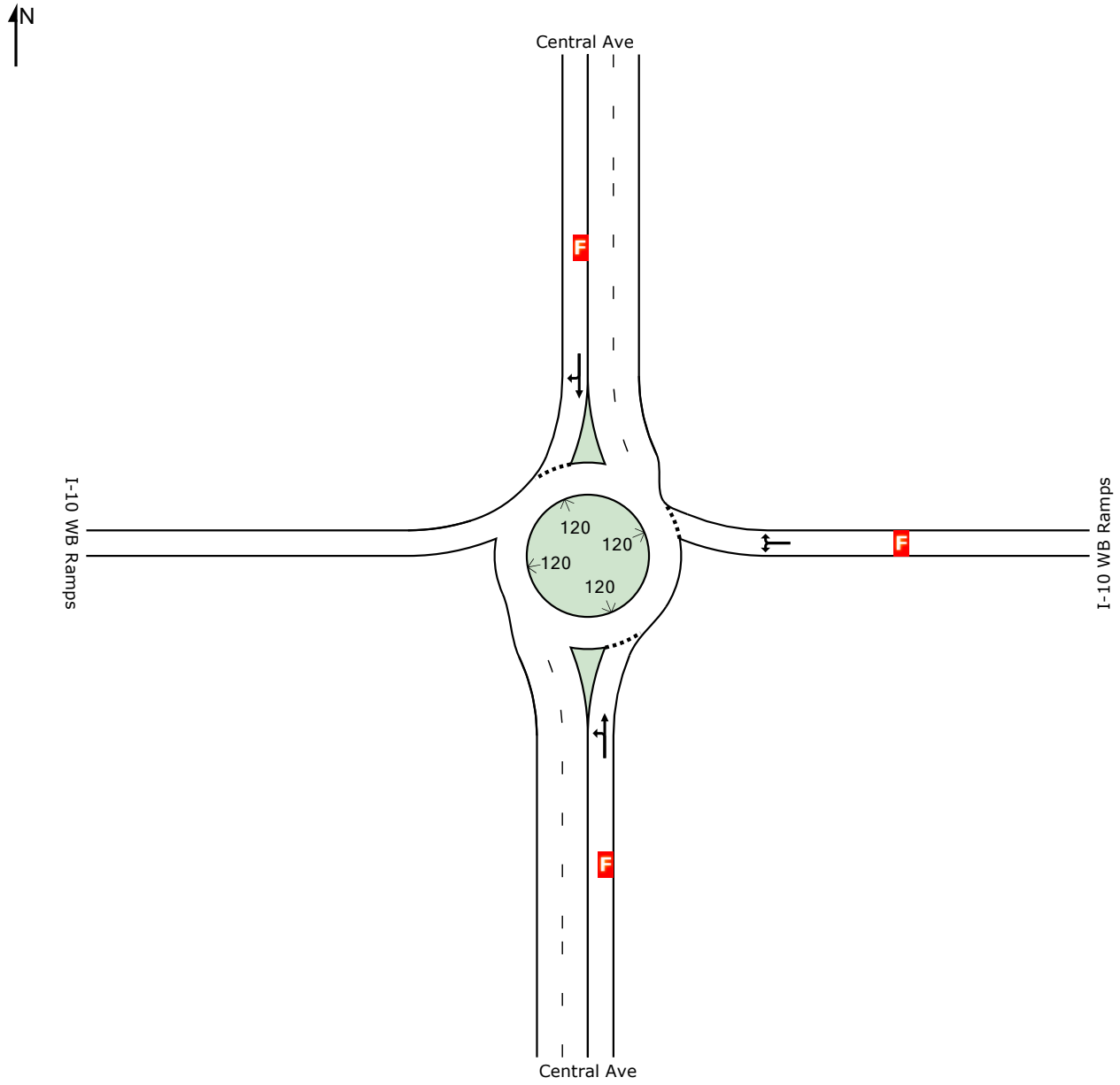
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,368,174	veh/y	2,841,809	pers/y
Delay	402,714	veh-h/y	483,256	pers-h/y
Effective Stops	9,397,967	veh/y	11,277,560	pers/y
Travel Distance	1,146,365	veh-mi/y	1,375,638	pers-mi/y
Travel Time	435,497	veh-h/y	522,597	pers-h/y
Cost	6,253,220	$/y	6,253,220	$/y
Fuel Consumption	157,613	gal/y		
Carbon Dioxide	1,405,453	kg/y		
Hydrocarbons	1,075	kg/y		
Carbon Monoxide	4,974	kg/y		
NOx	971	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 WB Ramps-Long Range with Project-AM

Central Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 WB Ramps-Long Range with Project-AM

Central Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
3	L2	380	2.0	1.344	174.9	LOS F	118.5	3008.7	1.00	0.09	7.8
8	T1	1109	2.0	1.344	174.9	LOS F	118.5	3008.7	1.00	0.09	7.8
Approach		1489	2.0	1.344	174.9	LOS F	118.5	3008.7	1.00	0.04	7.8
East: I-10 WB Ramps											
1	L2	272	2.0	1.913	446.2	LOS F	111.6	2835.0	1.00	8.46	3.6
16	R2	413	2.0	1.913	446.2	LOS F	111.6	2835.0	1.00	8.46	3.6
Approach		685	2.0	1.913	446.2	LOS F	111.6	2835.0	1.00	4.23	3.6
North: Central Ave											
4	T1	696	2.0	1.695	334.7	LOS F	173.8	4415.6	1.00	9.34	4.5
14	R2	522	2.0	1.695	334.7	LOS F	173.8	4415.6	1.00	9.34	4.5
Approach		1217	2.0	1.695	334.7	LOS F	173.8	4415.6	1.00	4.67	4.5
All Vehicles		3391	2.0	1.913	287.0	LOS F	173.8	4415.6	1.00	2.55	5.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 WB Ramps-Long Range with Project-AM

Central Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3391	veh/h	4070	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.913			
Practical Spare Capacity	-55.6	%		
Effective Intersection Capacity	1772	veh/h		
Control Delay (Total)	270.40	veh-h/h	324.48	pers-h/h
Control Delay (Average)	287.0	sec	287.0	sec
Control Delay (Worst Lane)	446.2	sec		
Control Delay (Worst Movement)	446.2	sec	446.2	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	287.0	sec		
Idling Time (Average)	237.1	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	173.8	veh		
95% Back of Queue - Distance (Worst Lane)	4415.6	ft		
Queue Storage Ratio (Worst Lane)	2.91			
Total Effective Stops	8650	veh/h	10380	pers/h
Effective Stop Rate	2.55	per veh	2.55	per pers
Proportion Queued	1.00		1.00	
Performance Index	1009.9		1009.9	
Travel Distance (Total)	1653.8	veh-mi/h	1984.5	pers-mi/h
Travel Distance (Average)	2575	ft	2575	ft
Travel Time (Total)	318.3	veh-h/h	382.0	pers-h/h
Travel Time (Average)	337.9	sec	337.9	sec
Travel Speed	5.2	mph	5.2	mph
Cost (Total)	4679.84	$/h	4679.84	$/h
Fuel Consumption (Total)	125.2	gal/h		
Carbon Dioxide (Total)	1116.1	kg/h		
Hydrocarbons (Total)	0.794	kg/h		
Carbon Monoxide (Total)	3.928	kg/h		
NOx (Total)	0.920	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

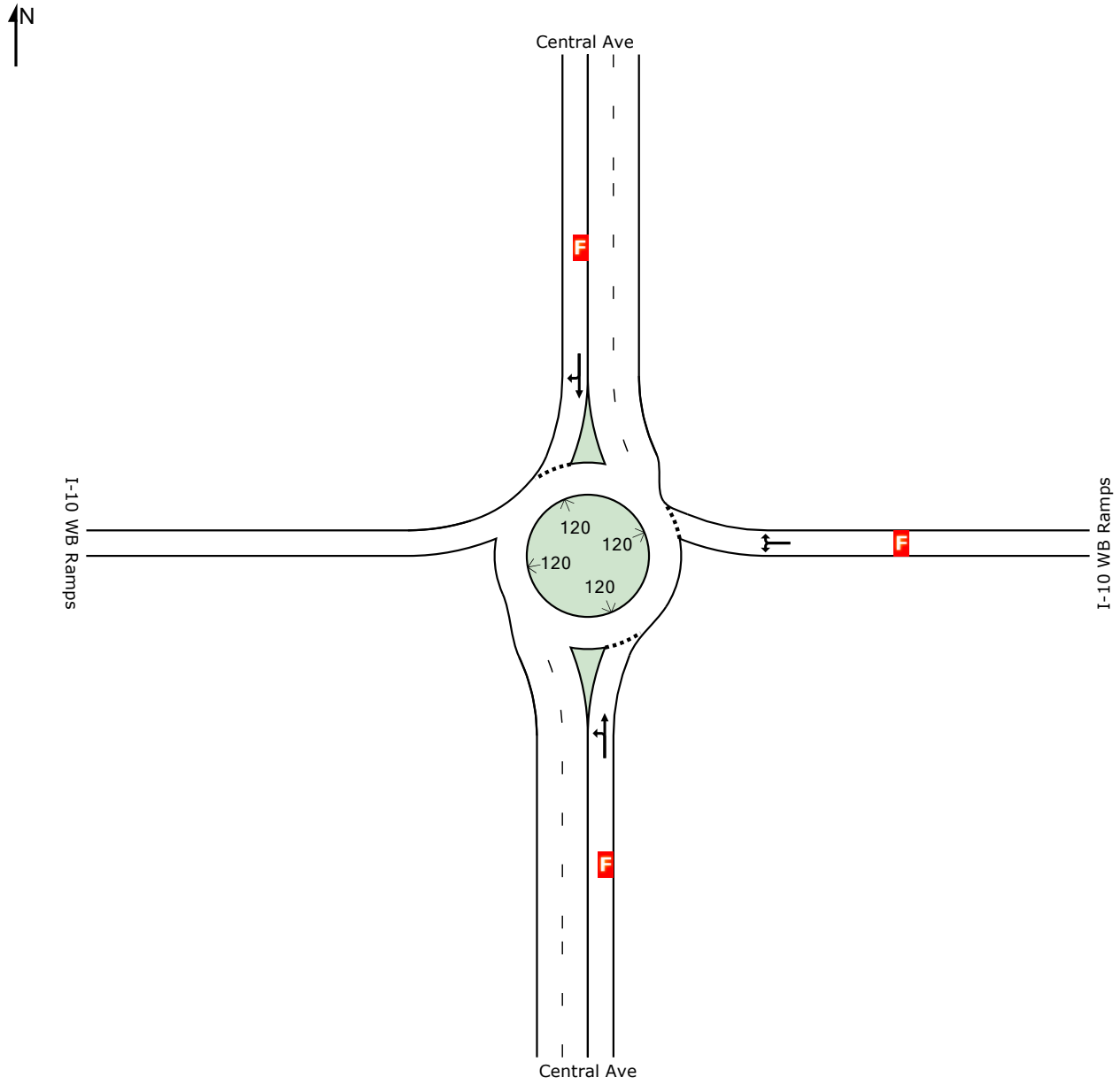
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,627,826	veh/y	1,953,391	pers/y
Delay	129,794	veh-h/y	155,753	pers-h/y
Effective Stops	4,151,929	veh/y	4,982,315	pers/y
Travel Distance	793,804	veh-mi/y	952,565	pers-mi/y
Travel Time	152,794	veh-h/y	183,353	pers-h/y
Cost	2,246,324	$/y	2,246,324	$/y
Fuel Consumption	60,078	gal/y		
Carbon Dioxide	535,725	kg/y		
Hydrocarbons	381	kg/y		
Carbon Monoxide	1,885	kg/y		
NOx	442	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 WB Ramps-Long Range with Project-PM

Central Ave & I-10 WB Ramps
Roundabout



	South	East	North	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 WB Ramps-Long Range with Project-PM

Central Ave & I-10 WB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
3	L2	239	2.0	1.688	325.4	LOS F	236.6	6010.7	1.00	0.09	4.6
8	T1	1630	2.0	1.688	325.4	LOS F	236.6	6010.7	1.00	0.09	4.6
Approach		1870	2.0	1.688	325.4	LOS F	236.6	6010.7	1.00	0.05	4.6
East: I-10 WB Ramps											
1	L2	304	2.0	2.855	865.0	LOS F	220.3	5595.0	1.00	10.70	1.9
16	R2	717	2.0	2.855	865.0	LOS F	220.3	5595.0	1.00	10.70	1.9
Approach		1022	2.0	2.855	865.0	LOS F	220.3	5595.0	1.00	5.35	1.9
North: Central Ave											
4	T1	1815	2.0	3.021	924.8	LOS F	587.5	14921.4	1.00	12.82	1.8
14	R2	783	2.0	3.021	924.8	LOS F	587.5	14921.4	1.00	12.82	1.8
Approach		2598	2.0	3.021	924.8	LOS F	587.5	14921.4	1.00	6.41	1.8
All Vehicles		5489	2.0	3.021	709.5	LOS F	587.5	14921.4	1.00	4.04	2.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 WB Ramps-Long Range with Project-PM

Central Ave & I-10 WB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	5489	veh/h	6587	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	3.021			
Practical Spare Capacity	-71.9	%		
Effective Intersection Capacity	1817	veh/h		
Control Delay (Total)	1081.85	veh-h/h	1298.22	pers-h/h
Control Delay (Average)	709.5	sec	709.5	sec
Control Delay (Worst Lane)	924.8	sec		
Control Delay (Worst Movement)	924.8	sec	924.8	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	709.5	sec		
Idling Time (Average)	632.1	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	587.5	veh		
95% Back of Queue - Distance (Worst Lane)	14921.4	ft		
Queue Storage Ratio (Worst Lane)	9.85			
Total Effective Stops	22202	veh/h	26643	pers/h
Effective Stop Rate	4.04	per veh	4.04	per pers
Proportion Queued	1.00		1.00	
Performance Index	2952.4		2952.4	
Travel Distance (Total)	2654.9	veh-mi/h	3185.9	pers-mi/h
Travel Distance (Average)	2554	ft	2554	ft
Travel Time (Total)	1157.6	veh-h/h	1389.2	pers-h/h
Travel Time (Average)	759.2	sec	759.2	sec
Travel Speed	2.3	mph	2.3	mph
Cost (Total)	16575.12	$/h	16575.12	$/h
Fuel Consumption (Total)	414.1	gal/h		
Carbon Dioxide (Total)	3693.0	kg/h		
Hydrocarbons (Total)	2.855	kg/h		
Carbon Monoxide (Total)	13.083	kg/h		
NOx (Total)	2.464	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

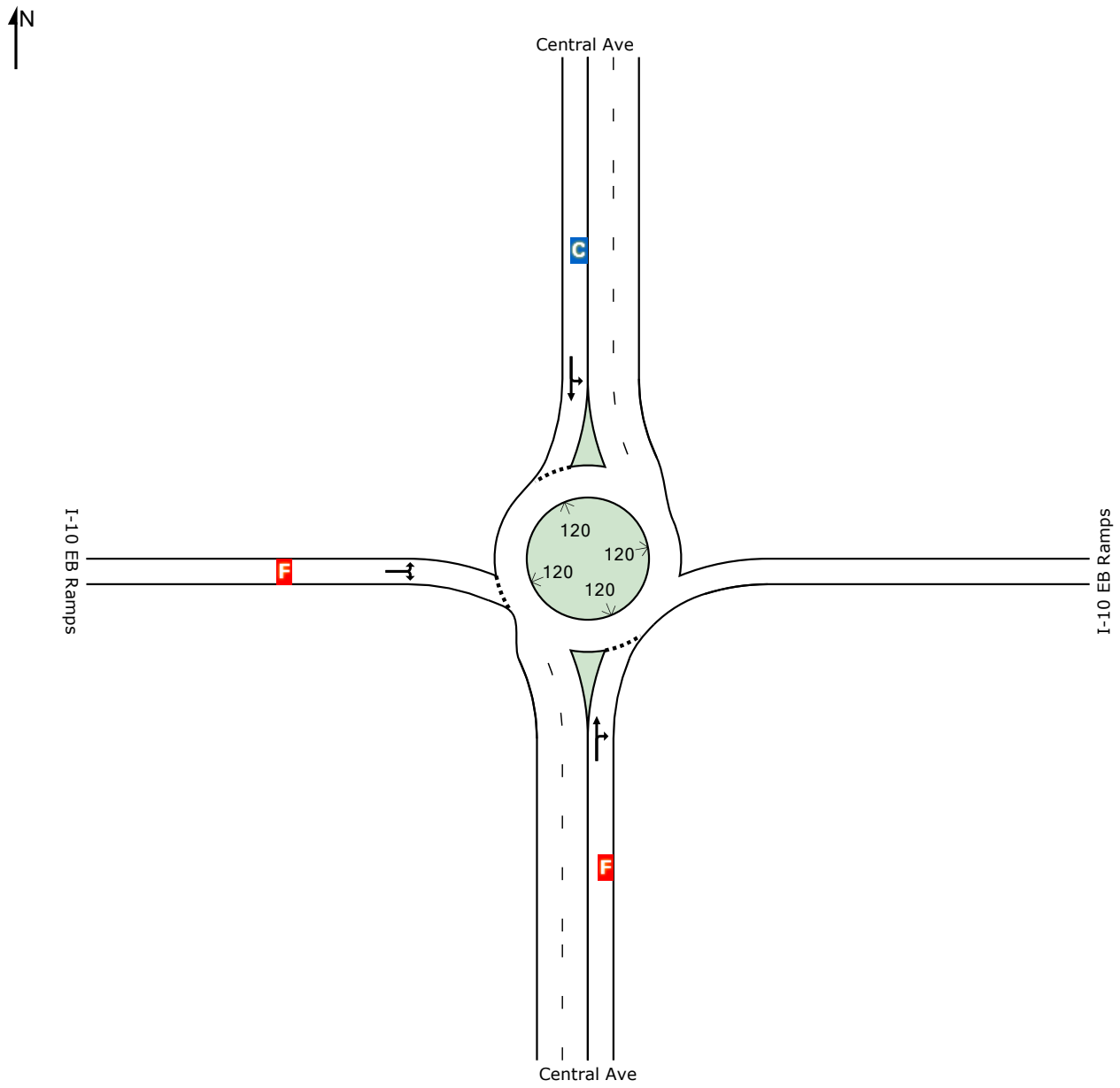
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,634,783	veh/y	3,161,739	pers/y
Delay	519,287	veh-h/y	623,145	pers-h/y
Effective Stops	10,657,180	veh/y	12,788,620	pers/y
Travel Distance	1,274,346	veh-mi/y	1,529,214	pers-mi/y
Travel Time	555,665	veh-h/y	666,798	pers-h/y
Cost	7,956,056	$/y	7,956,056	$/y
Fuel Consumption	198,789	gal/y		
Carbon Dioxide	1,772,622	kg/y		
Hydrocarbons	1,370	kg/y		
Carbon Monoxide	6,280	kg/y		
NOx	1,183	kg/y		

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 EB Ramps-Existing-AM

Central Ave & I-10 EB Ramps
Roundabout



	South	North	West	Intersection
LOS	F	C	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 EB Ramps-Existing-AM

Central Ave & I-10 EB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
8	T1	954	2.0	1.979	460.4	LOS F	239.0	6069.6	1.00	10.81	3.4
18	R2	464	2.0	1.979	460.4	LOS F	239.0	6069.6	1.00	10.81	3.4
Approach		1418	2.0	1.979	460.4	LOS F	239.0	6069.6	1.00	5.40	3.4
North: Central Ave											
7	L2	177	2.0	0.785	17.9	LOS C	0.0	0.0	0.00	0.00	34.7
4	T1	692	2.0	0.785	17.9	LOS C	0.0	0.0	0.00	0.00	34.7
Approach		870	2.0	0.785	17.9	LOS C	0.0	0.0	0.00	0.00	34.7
West: I-10 EB Ramps											
5	L2	316	2.0	1.267	163.1	LOS F	47.8	1214.2	1.00	5.57	7.3
12	R2	262	2.0	1.267	163.1	LOS F	47.8	1214.2	1.00	5.57	7.3
Approach		578	2.0	1.267	163.1	LOS F	47.8	1214.2	1.00	2.79	7.3
All Vehicles		2866	2.0	1.979	266.2	LOS F	239.0	6069.6	0.70	3.24	5.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 EB Ramps-Existing-AM

Central Ave & I-10 EB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2866	veh/h	3440	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	1.979			
Practical Spare Capacity	-57.0	%		
Effective Intersection Capacity	1449	veh/h		
Control Delay (Total)	211.92	veh-h/h	254.30	pers-h/h
Control Delay (Average)	266.2	sec	266.2	sec
Control Delay (Worst Lane)	460.4	sec		
Control Delay (Worst Movement)	460.4	sec	460.4	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	266.2	sec		
Idling Time (Average)	200.6	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	239.0	veh		
95% Back of Queue - Distance (Worst Lane)	6069.6	ft		
Queue Storage Ratio (Worst Lane)	4.01			
Total Effective Stops	9275	veh/h	11131	pers/h
Effective Stop Rate	3.24	per veh	3.24	per pers
Proportion Queued	0.70		0.70	
Performance Index	758.8		758.8	
Travel Distance (Total)	1351.3	veh-mi/h	1621.6	pers-mi/h
Travel Distance (Average)	2489	ft	2489	ft
Travel Time (Total)	246.8	veh-h/h	296.1	pers-h/h
Travel Time (Average)	309.9	sec	309.9	sec
Travel Speed	5.5	mph	5.5	mph
Cost (Total)	3612.17	$/h	3612.17	$/h
Fuel Consumption (Total)	97.6	gal/h		
Carbon Dioxide (Total)	870.5	kg/h		
Hydrocarbons (Total)	0.612	kg/h		
Carbon Monoxide (Total)	3.055	kg/h		
NOx (Total)	0.758	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

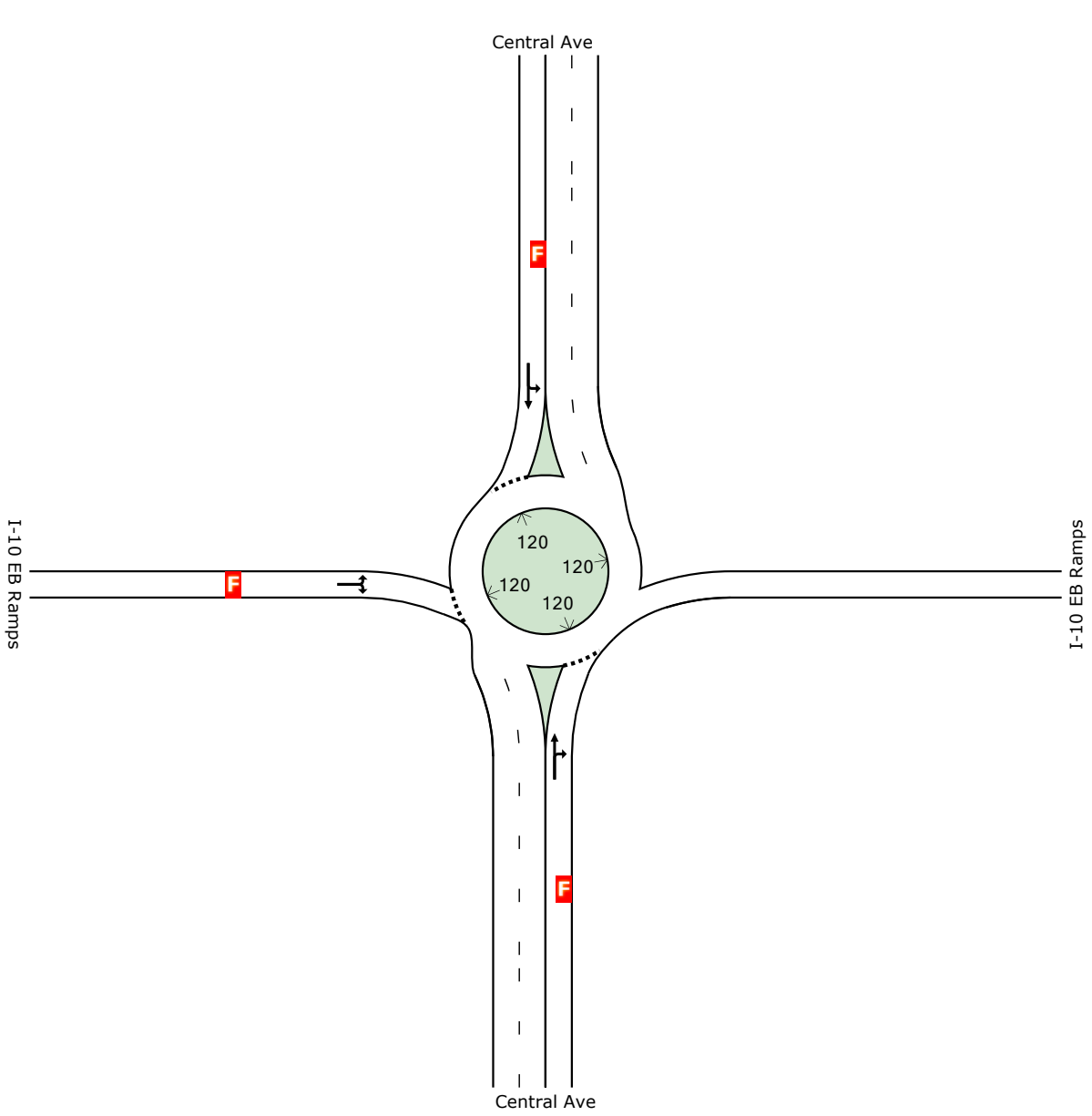
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,375,826	veh/y	1,650,991	pers/y
Delay	101,721	veh-h/y	122,066	pers-h/y
Effective Stops	4,452,212	veh/y	5,342,655	pers/y
Travel Distance	648,645	veh-mi/y	778,374	pers-mi/y
Travel Time	118,445	veh-h/y	142,134	pers-h/y
Cost	1,733,842	$/y	1,733,842	$/y
Fuel Consumption	46,856	gal/y		
Carbon Dioxide	417,822	kg/y		
Hydrocarbons	294	kg/y		
Carbon Monoxide	1,467	kg/y		
NOx	364	kg/y		

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 EB Ramps-Existing-PM

Central Ave & I-10 EB Ramps
Roundabout



	South	North	West	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 EB Ramps-Existing-PM

Central Ave & I-10 EB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
8	T1	1197	2.0	2.653	762.7	LOS F	363.8	9240.0	1.00	13.04	2.1
18	R2	561	2.0	2.653	762.7	LOS F	363.8	9240.0	1.00	13.04	2.1
Approach		1758	2.0	2.653	762.7	LOS F	363.8	9240.0	1.00	6.52	2.1
North: Central Ave											
7	L2	500	2.0	1.564	270.7	LOS F	194.1	4930.0	1.00	0.09	5.5
4	T1	1233	2.0	1.564	270.7	LOS F	194.1	4930.0	1.00	0.09	5.5
Approach		1733	2.0	1.564	270.7	LOS F	194.1	4930.0	1.00	0.05	5.5
West: I-10 EB Ramps											
5	L2	416	2.0	2.260	599.4	LOS F	151.5	3848.8	1.00	9.49	2.4
12	R2	392	2.0	2.260	599.4	LOS F	151.5	3848.8	1.00	9.49	2.4
Approach		809	2.0	2.260	599.4	LOS F	151.5	3848.8	1.00	4.75	2.4
All Vehicles		4299	2.0	2.653	533.7	LOS F	363.8	9240.0	1.00	3.58	2.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 EB Ramps-Existing-PM

Central Ave & I-10 EB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	4299	veh/h	5159	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.653			
Practical Spare Capacity	-68.0	%		
Effective Intersection Capacity	1621	veh/h		
Control Delay (Total)	637.35	veh-h/h	764.81	pers-h/h
Control Delay (Average)	533.7	sec	533.7	sec
Control Delay (Worst Lane)	762.7	sec		
Control Delay (Worst Movement)	762.7	sec	762.7	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	533.7	sec		
Idling Time (Average)	461.3	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	363.8	veh		
95% Back of Queue - Distance (Worst Lane)	9240.0	ft		
Queue Storage Ratio (Worst Lane)	6.10			
Total Effective Stops	15378	veh/h	18453	pers/h
Effective Stop Rate	3.58	per veh	3.58	per pers
Proportion Queued	1.00		1.00	
Performance Index	1915.5		1915.5	
Travel Distance (Total)	2038.4	veh-mi/h	2446.1	pers-mi/h
Travel Distance (Average)	2504	ft	2504	ft
Travel Time (Total)	696.8	veh-h/h	836.1	pers-h/h
Travel Time (Average)	583.5	sec	583.5	sec
Travel Speed	2.9	mph	2.9	mph
Cost (Total)	10044.22	$/h	10044.22	$/h
Fuel Consumption (Total)	254.5	gal/h		
Carbon Dioxide (Total)	2269.4	kg/h		
Hydrocarbons (Total)	1.725	kg/h		
Carbon Monoxide (Total)	8.034	kg/h		
NOx (Total)	1.565	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

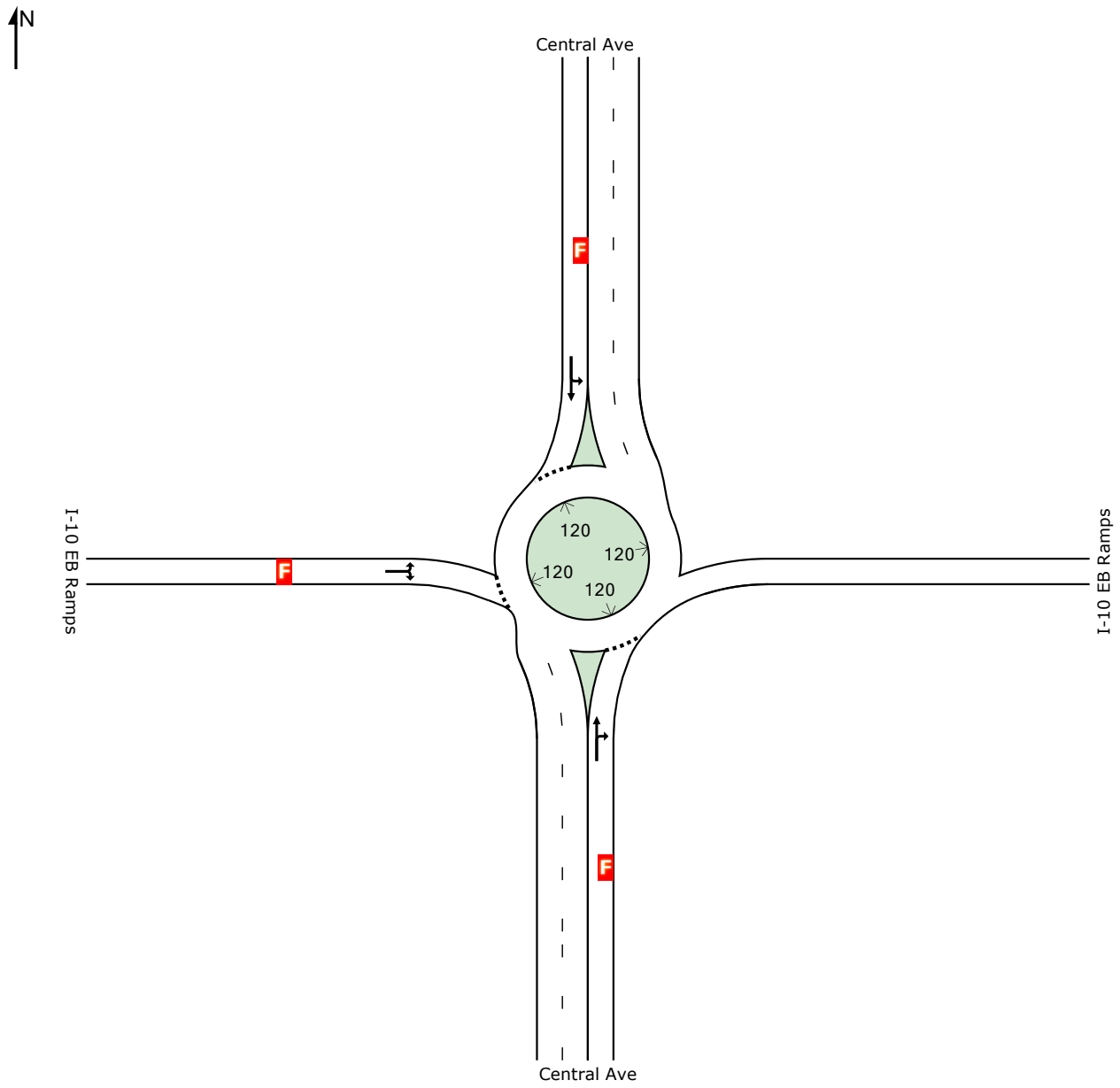
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,063,478	veh/y	2,476,174	pers/y
Delay	305,926	veh-h/y	367,111	pers-h/y
Effective Stops	7,381,332	veh/y	8,857,599	pers/y
Travel Distance	978,451	veh-mi/y	1,174,141	pers-mi/y
Travel Time	334,443	veh-h/y	401,332	pers-h/y
Cost	4,821,225	$/y	4,821,225	$/y
Fuel Consumption	122,159	gal/y		
Carbon Dioxide	1,089,305	kg/y		
Hydrocarbons	828	kg/y		
Carbon Monoxide	3,856	kg/y		
NOx	751	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 EB Ramps-Existing plus Project-AM

Central Ave & I-10 EB Ramps
Roundabout



	South	North	West	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 EB Ramps-Existing plus Project-AM

Central Ave & I-10 EB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
8	T1	1318	2.0	2.560	720.4	LOS F	362.2	9200.3	1.00	12.82	2.2
18	R2	464	2.0	2.560	720.4	LOS F	362.2	9200.3	1.00	12.82	2.2
Approach		1783	2.0	2.560	720.4	LOS F	362.2	9200.3	1.00	6.41	2.2
North: Central Ave											
7	L2	298	2.0	1.247	133.9	LOS F	85.0	2159.6	1.00	0.09	9.5
4	T1	1084	2.0	1.247	133.9	LOS F	85.0	2159.6	1.00	0.09	9.5
Approach		1382	2.0	1.247	133.9	LOS F	85.0	2159.6	1.00	0.04	9.5
West: I-10 EB Ramps											
5	L2	400	2.0	1.850	418.2	LOS F	104.3	2648.6	1.00	8.23	3.3
12	R2	262	2.0	1.850	418.2	LOS F	104.3	2648.6	1.00	8.23	3.3
Approach		662	2.0	1.850	418.2	LOS F	104.3	2648.6	1.00	4.11	3.3
All Vehicles		3826	2.0	2.560	456.3	LOS F	362.2	9200.3	1.00	3.71	3.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 EB Ramps-Existing plus Project-AM

Central Ave & I-10 EB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3826	veh/h	4591	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.560			
Practical Spare Capacity	-66.8	%		
Effective Intersection Capacity	1495	veh/h		
Control Delay (Total)	484.99	veh-h/h	581.99	pers-h/h
Control Delay (Average)	456.3	sec	456.3	sec
Control Delay (Worst Lane)	720.4	sec		
Control Delay (Worst Movement)	720.4	sec	720.4	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	456.3	sec		
Idling Time (Average)	382.3	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	362.2	veh		
95% Back of Queue - Distance (Worst Lane)	9200.3	ft		
Queue Storage Ratio (Worst Lane)	6.07			
Total Effective Stops	14210	veh/h	17052	pers/h
Effective Stop Rate	3.71	per veh	3.71	per pers
Proportion Queued	1.00		1.00	
Performance Index	1496.9		1496.9	
Travel Distance (Total)	1813.3	veh-mi/h	2176.0	pers-mi/h
Travel Distance (Average)	2502	ft	2502	ft
Travel Time (Total)	537.5	veh-h/h	645.0	pers-h/h
Travel Time (Average)	505.8	sec	505.8	sec
Travel Speed	3.4	mph	3.4	mph
Cost (Total)	7757.39	$/h	7757.39	$/h
Fuel Consumption (Total)	199.0	gal/h		
Carbon Dioxide (Total)	1774.8	kg/h		
Hydrocarbons (Total)	1.329	kg/h		
Carbon Monoxide (Total)	6.272	kg/h		
NOx (Total)	1.297	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

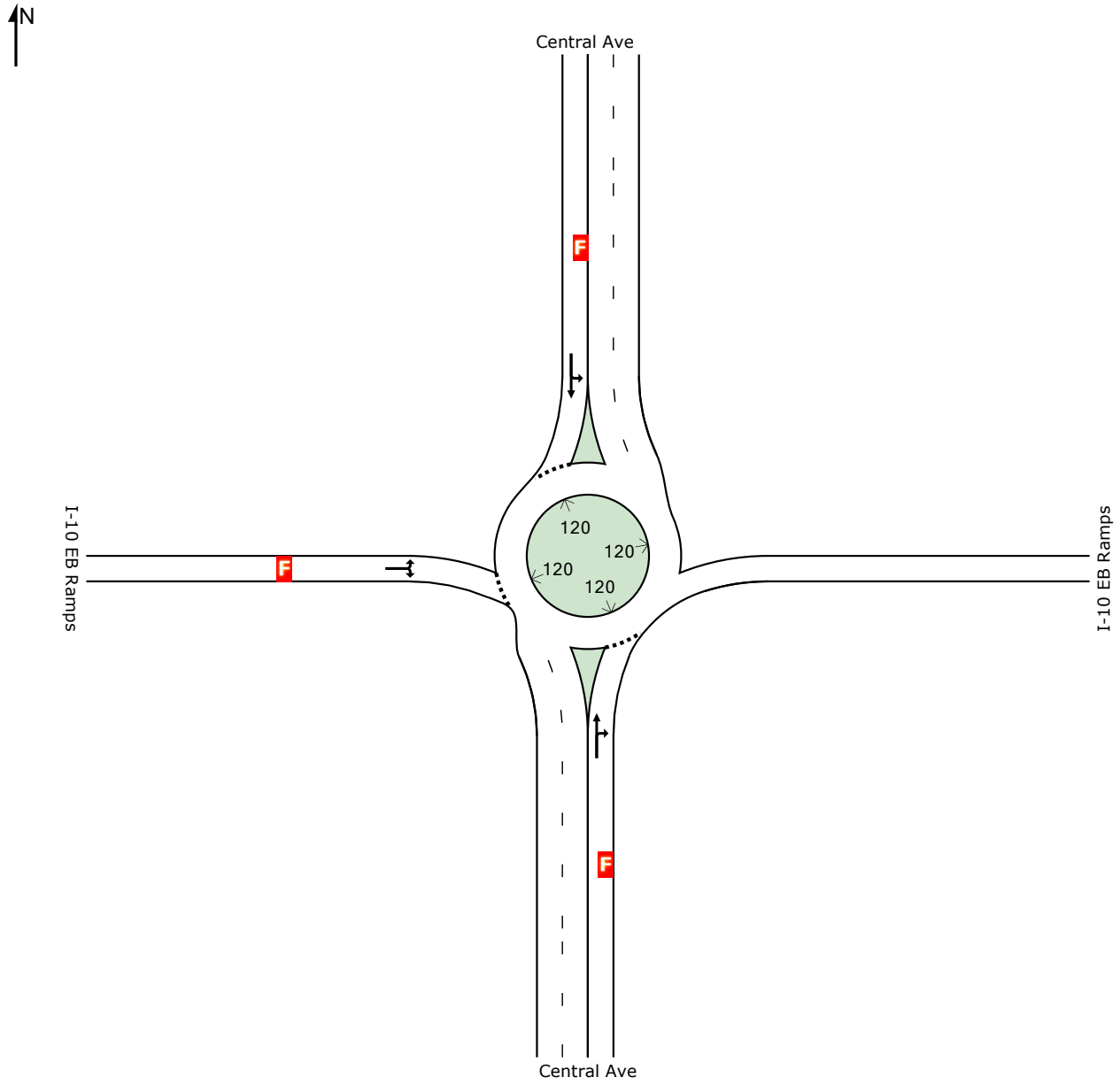
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,836,522	veh/y	2,203,826	pers/y
Delay	232,797	veh-h/y	279,356	pers-h/y
Effective Stops	6,820,676	veh/y	8,184,811	pers/y
Travel Distance	870,406	veh-mi/y	1,044,488	pers-mi/y
Travel Time	258,007	veh-h/y	309,609	pers-h/y
Cost	3,723,547	$/y	3,723,547	$/y
Fuel Consumption	95,533	gal/y		
Carbon Dioxide	851,881	kg/y		
Hydrocarbons	638	kg/y		
Carbon Monoxide	3,010	kg/y		
NOx	622	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 EB Ramps-Existing plus Project-PM

Central Ave & I-10 EB Ramps
Roundabout



	South	North	West	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 EB Ramps-Existing plus Project-PM

Central Ave & I-10 EB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
8	T1	1705	2.0	3.438	1115.1	LOS F	528.8	13432.6	1.00	14.54	1.5
18	R2	561	2.0	3.438	1115.1	LOS F	528.8	13432.6	1.00	14.54	1.5
Approach		2266	2.0	3.438	1115.1	LOS F	528.8	13432.6	1.00	7.27	1.5
North: Central Ave											
7	L2	665	2.0	2.198	553.1	LOS F	412.2	10470.8	1.00	0.10	2.9
4	T1	1770	2.0	2.198	553.1	LOS F	412.2	10470.8	1.00	0.10	2.9
Approach		2435	2.0	2.198	553.1	LOS F	412.2	10470.8	1.00	0.05	2.9
West: I-10 EB Ramps											
5	L2	534	2.0	2.588	745.6	LOS F	189.4	4810.7	1.00	10.22	1.9
12	R2	392	2.0	2.588	745.6	LOS F	189.4	4810.7	1.00	10.22	1.9
Approach		926	2.0	2.588	745.6	LOS F	189.4	4810.7	1.00	5.11	1.9
All Vehicles		5627	2.0	3.438	811.1	LOS F	528.8	13432.6	1.00	3.79	2.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 EB Ramps-Existing plus Project-PM

Central Ave & I-10 EB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	5627	veh/h	6753	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	3.438			
Practical Spare Capacity	-75.3	%		
Effective Intersection Capacity	1637	veh/h		
Control Delay (Total)	1267.91	veh-h/h	1521.49	pers-h/h
Control Delay (Average)	811.1	sec	811.1	sec
Control Delay (Worst Lane)	1115.1	sec		
Control Delay (Worst Movement)	1115.1	sec	1115.1	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	811.1	sec		
Idling Time (Average)	733.4	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	528.8	veh		
95% Back of Queue - Distance (Worst Lane)	13432.6	ft		
Queue Storage Ratio (Worst Lane)	8.87			
Total Effective Stops	21322	veh/h	25586	pers/h
Effective Stop Rate	3.79	per veh	3.79	per pers
Proportion Queued	1.00		1.00	
Performance Index	3272.7		3272.7	
Travel Distance (Total)	2677.7	veh-mi/h	3213.2	pers-mi/h
Travel Distance (Average)	2512	ft	2512	ft
Travel Time (Total)	1345.8	veh-h/h	1615.0	pers-h/h
Travel Time (Average)	861.0	sec	861.0	sec
Travel Speed	2.0	mph	2.0	mph
Cost (Total)	19238.08	$/h	19238.08	$/h
Fuel Consumption (Total)	475.5	gal/h		
Carbon Dioxide (Total)	4240.2	kg/h		
Hydrocarbons (Total)	3.320	kg/h		
Carbon Monoxide (Total)	15.058	kg/h		
NOx (Total)	2.619	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

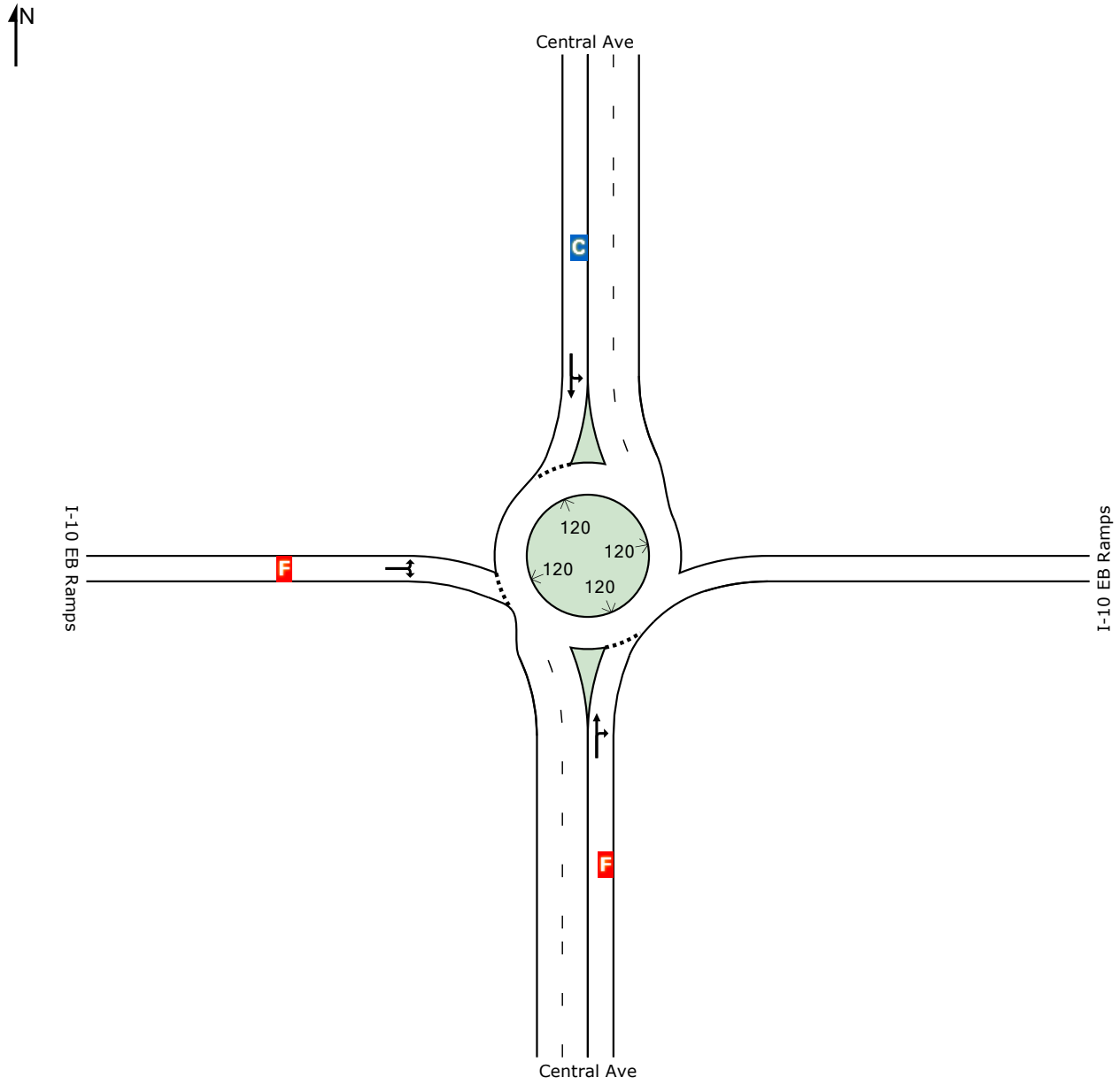
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,701,043	veh/y	3,241,253	pers/y
Delay	608,594	veh-h/y	730,313	pers-h/y
Effective Stops	10,234,560	veh/y	12,281,470	pers/y
Travel Distance	1,285,289	veh-mi/y	1,542,347	pers-mi/y
Travel Time	645,980	veh-h/y	775,176	pers-h/y
Cost	9,234,278	$/y	9,234,278	$/y
Fuel Consumption	228,244	gal/y		
Carbon Dioxide	2,035,277	kg/y		
Hydrocarbons	1,594	kg/y		
Carbon Monoxide	7,228	kg/y		
NOx	1,257	kg/y		

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 EB Ramps-Long Range No Project-AM

Central Ave & I-10 EB Ramps
Roundabout



	South	North	West	Intersection
LOS	F	C	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 EB Ramps-Long Range No Project-AM

Central Ave & I-10 EB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
8	T1	1063	2.0	2.065	497.7	LOS F	278.8	7080.4	1.00	11.03	3.2
18	R2	522	2.0	2.065	497.7	LOS F	278.8	7080.4	1.00	11.03	3.2
Approach		1585	2.0	2.065	497.7	LOS F	278.8	7080.4	1.00	5.52	3.2
North: Central Ave											
7	L2	147	2.0	0.785	17.9	LOS C	0.0	0.0	0.00	0.00	34.9
4	T1	723	2.0	0.785	17.9	LOS C	0.0	0.0	0.00	0.00	34.9
Approach		870	2.0	0.785	17.9	LOS C	0.0	0.0	0.00	0.00	34.9
West: I-10 EB Ramps											
5	L2	266	2.0	1.251	156.5	LOS F	45.5	1154.9	1.00	5.43	7.5
12	R2	304	2.0	1.251	156.5	LOS F	45.5	1154.9	1.00	5.43	7.5
Approach		571	2.0	1.251	156.5	LOS F	45.5	1154.9	1.00	2.71	7.5
All Vehicles		3025	2.0	2.065	295.4	LOS F	278.8	7080.4	0.71	3.40	5.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 EB Ramps-Long Range No Project-AM

Central Ave & I-10 EB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3025	veh/h	3630	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.065			
Practical Spare Capacity	-58.8	%		
Effective Intersection Capacity	1465	veh/h		
Control Delay (Total)	248.21	veh-h/h	297.85	pers-h/h
Control Delay (Average)	295.4	sec	295.4	sec
Control Delay (Worst Lane)	497.7	sec		
Control Delay (Worst Movement)	497.7	sec	497.7	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	295.4	sec		
Idling Time (Average)	227.7	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	278.8	veh		
95% Back of Queue - Distance (Worst Lane)	7080.4	ft		
Queue Storage Ratio (Worst Lane)	4.67			
Total Effective Stops	10289	veh/h	12347	pers/h
Effective Stop Rate	3.40	per veh	3.40	per pers
Proportion Queued	0.71		0.71	
Performance Index	862.8		862.8	
Travel Distance (Total)	1424.7	veh-mi/h	1709.6	pers-mi/h
Travel Distance (Average)	2487	ft	2487	ft
Travel Time (Total)	285.0	veh-h/h	341.9	pers-h/h
Travel Time (Average)	339.1	sec	339.1	sec
Travel Speed	5.0	mph	5.0	mph
Cost (Total)	4161.67	$/h	4161.67	$/h
Fuel Consumption (Total)	111.3	gal/h		
Carbon Dioxide (Total)	992.8	kg/h		
Hydrocarbons (Total)	0.707	kg/h		
Carbon Monoxide (Total)	3.487	kg/h		
NOx (Total)	0.848	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

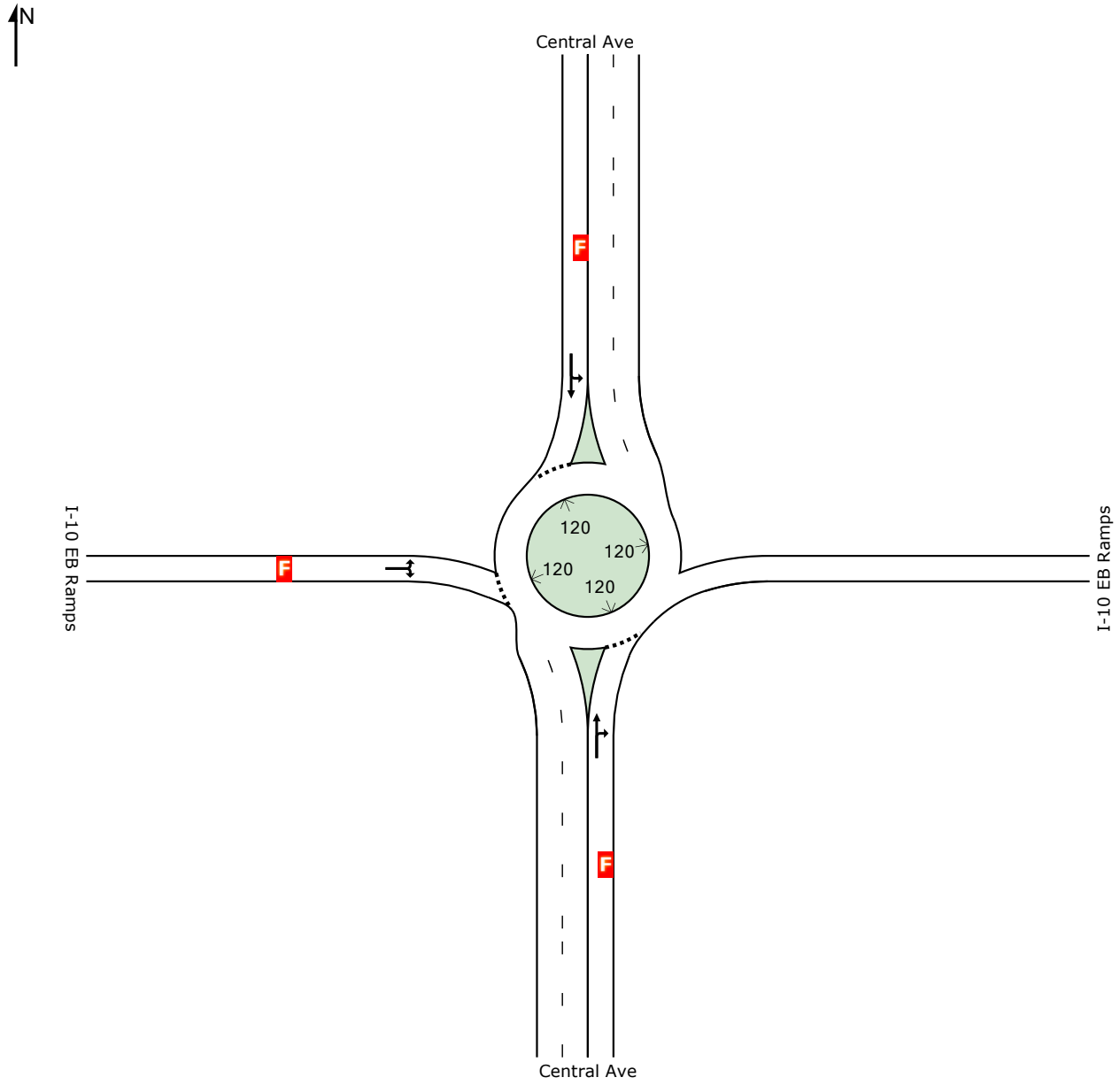
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,452,000	veh/y	1,742,400	pers/y
Delay	119,141	veh-h/y	142,969	pers-h/y
Effective Stops	4,938,635	veh/y	5,926,362	pers/y
Travel Distance	683,851	veh-mi/y	820,621	pers-mi/y
Travel Time	136,778	veh-h/y	164,134	pers-h/y
Cost	1,997,600	$/y	1,997,600	$/y
Fuel Consumption	53,443	gal/y		
Carbon Dioxide	476,561	kg/y		
Hydrocarbons	339	kg/y		
Carbon Monoxide	1,674	kg/y		
NOx	407	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 EB Ramps-Long Range No Project-PM

Central Ave & I-10 EB Ramps
Roundabout



	South	North	West	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 EB Ramps-Long Range No Project-PM

Central Ave & I-10 EB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
8	T1	1332	2.0	2.778	817.8	LOS F	422.3	10725.6	1.00	13.34	2.0
18	R2	652	2.0	2.778	817.8	LOS F	422.3	10725.6	1.00	13.34	2.0
Approach		1984	2.0	2.778	817.8	LOS F	422.3	10725.6	1.00	6.67	2.0
North: Central Ave											
7	L2	437	2.0	1.613	292.4	LOS F	211.0	5358.9	1.00	0.09	5.1
4	T1	1350	2.0	1.613	292.4	LOS F	211.0	5358.9	1.00	0.09	5.1
Approach		1787	2.0	1.613	292.4	LOS F	211.0	5358.9	1.00	0.05	5.1
West: I-10 EB Ramps											
5	L2	367	2.0	2.302	618.4	LOS F	156.4	3973.4	1.00	9.60	2.3
12	R2	457	2.0	2.302	618.4	LOS F	156.4	3973.4	1.00	9.60	2.3
Approach		824	2.0	2.302	618.4	LOS F	156.4	3973.4	1.00	4.80	2.3
All Vehicles		4595	2.0	2.778	577.7	LOS F	422.3	10725.6	1.00	3.76	2.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

INTERSECTION SUMMARY

Site: Central Ave & I-10 EB Ramps-Long Range No Project-PM

Central Ave & I-10 EB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	4595	veh/h	5513	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.778			
Practical Spare Capacity	-69.4	%		
Effective Intersection Capacity	1654	veh/h		
Control Delay (Total)	737.30	veh-h/h	884.76	pers-h/h
Control Delay (Average)	577.7	sec	577.7	sec
Control Delay (Worst Lane)	817.8	sec		
Control Delay (Worst Movement)	817.8	sec	817.8	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	577.7	sec		
Idling Time (Average)	502.3	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	422.3	veh		
95% Back of Queue - Distance (Worst Lane)	10725.6	ft		
Queue Storage Ratio (Worst Lane)	7.08			
Total Effective Stops	17267	veh/h	20720	pers/h
Effective Stop Rate	3.76	per veh	3.76	per pers
Proportion Queued	1.00		1.00	
Performance Index	2158.5		2158.5	
Travel Distance (Total)	2174.4	veh-mi/h	2609.3	pers-mi/h
Travel Distance (Average)	2499	ft	2499	ft
Travel Time (Total)	800.3	veh-h/h	960.4	pers-h/h
Travel Time (Average)	627.1	sec	627.1	sec
Travel Speed	2.7	mph	2.7	mph
Cost (Total)	11516.06	$/h	11516.06	$/h
Fuel Consumption (Total)	290.4	gal/h		
Carbon Dioxide (Total)	2589.7	kg/h		
Hydrocarbons (Total)	1.980	kg/h		
Carbon Monoxide (Total)	9.171	kg/h		
NOx (Total)	1.764	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

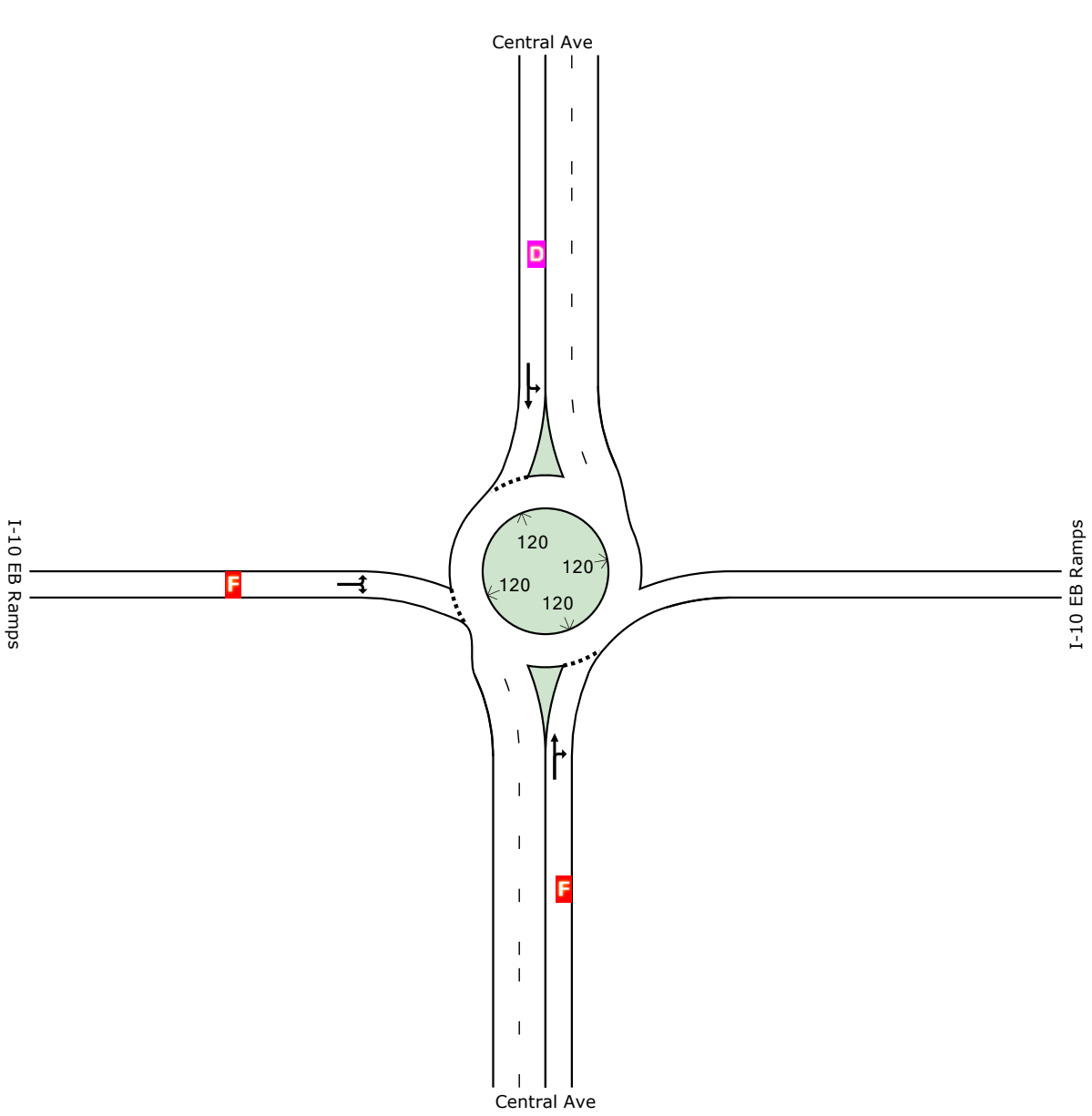
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,205,391	veh/y	2,646,470	pers/y
Delay	353,904	veh-h/y	424,684	pers-h/y
Effective Stops	8,287,929	veh/y	9,945,515	pers/y
Travel Distance	1,043,716	veh-mi/y	1,252,460	pers-mi/y
Travel Time	384,150	veh-h/y	460,980	pers-h/y
Cost	5,527,709	$/y	5,527,709	$/y
Fuel Consumption	139,401	gal/y		
Carbon Dioxide	1,243,057	kg/y		
Hydrocarbons	950	kg/y		
Carbon Monoxide	4,402	kg/y		
NOx	847	kg/y		

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 EB Ramps-Long Range with Project-AM

Central Ave & I-10 EB Ramps
Roundabout



	South	North	West	Intersection
LOS	F	D	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 EB Ramps-Long Range with Project-AM

Central Ave & I-10 EB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
8	T1	1185	2.0	2.350	625.6	LOS F	336.1	8536.6	1.00	12.14	2.6
18	R2	554	2.0	2.350	625.6	LOS F	336.1	8536.6	1.00	12.14	2.6
Approach		1739	2.0	2.350	625.6	LOS F	336.1	8536.6	1.00	6.07	2.6
North: Central Ave											
7	L2	196	2.0	0.903	28.3	LOS D	0.0	0.0	0.00	0.00	34.8
4	T1	804	2.0	0.903	28.3	LOS D	0.0	0.0	0.00	0.00	34.8
Approach		1000	2.0	0.903	28.3	LOS D	0.0	0.0	0.00	0.00	34.8
West: I-10 EB Ramps											
5	L2	304	2.0	1.524	273.5	LOS F	74.3	1888.2	1.00	7.09	4.8
12	R2	304	2.0	1.524	273.5	LOS F	74.3	1888.2	1.00	7.09	4.8
Approach		609	2.0	1.524	273.5	LOS F	74.3	1888.2	1.00	3.54	4.8
All Vehicles		3348	2.0	2.350	383.1	LOS F	336.1	8536.6	0.70	3.80	4.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 EB Ramps-Long Range with Project-AM

Central Ave & I-10 EB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3348	veh/h	4017	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	2.350			
Practical Spare Capacity	-63.8	%		
Effective Intersection Capacity	1425	veh/h		
Control Delay (Total)	356.30	veh-h/h	427.57	pers-h/h
Control Delay (Average)	383.1	sec	383.1	sec
Control Delay (Worst Lane)	625.6	sec		
Control Delay (Worst Movement)	625.6	sec	625.6	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	383.1	sec		
Idling Time (Average)	302.6	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	336.1	veh		
95% Back of Queue - Distance (Worst Lane)	8536.6	ft		
Queue Storage Ratio (Worst Lane)	5.63			
Total Effective Stops	12714	veh/h	15257	pers/h
Effective Stop Rate	3.80	per veh	3.80	per pers
Proportion Queued	0.70		0.70	
Performance Index	1127.0		1127.0	
Travel Distance (Total)	1580.2	veh-mi/h	1896.2	pers-mi/h
Travel Distance (Average)	2492	ft	2492	ft
Travel Time (Total)	394.1	veh-h/h	472.9	pers-h/h
Travel Time (Average)	423.7	sec	423.7	sec
Travel Speed	4.0	mph	4.0	mph
Cost (Total)	5702.31	$/h	5702.31	$/h
Fuel Consumption (Total)	148.9	gal/h		
Carbon Dioxide (Total)	1327.5	kg/h		
Hydrocarbons (Total)	0.973	kg/h		
Carbon Monoxide (Total)	4.678	kg/h		
NOx (Total)	1.043	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

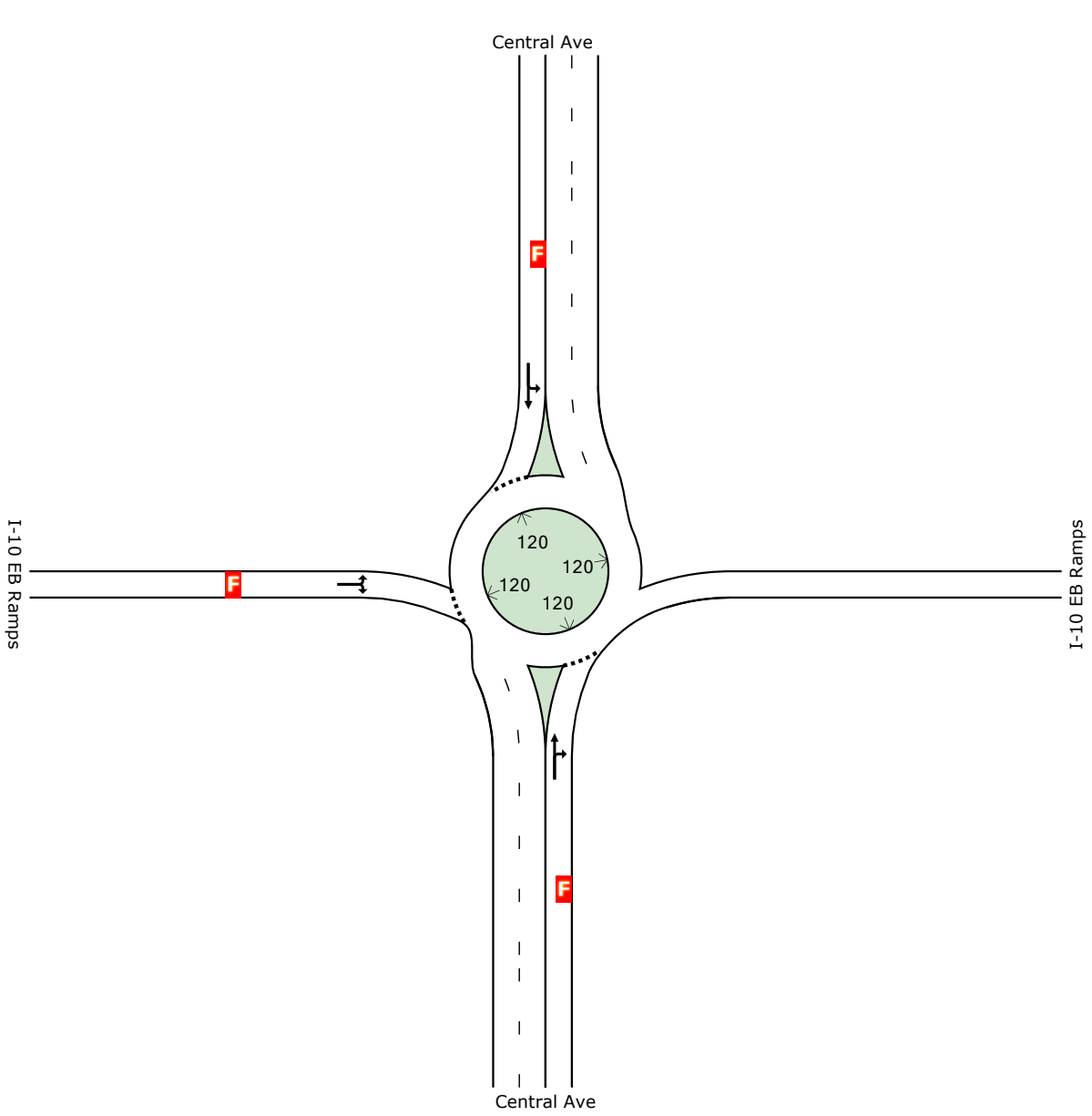
Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,606,956	veh/y	1,928,348	pers/y
Delay	171,026	veh-h/y	205,231	pers-h/y
Effective Stops	6,102,841	veh/y	7,323,409	pers/y
Travel Distance	758,486	veh-mi/y	910,183	pers-mi/y
Travel Time	189,145	veh-h/y	226,974	pers-h/y
Cost	2,737,110	$/y	2,737,110	$/y
Fuel Consumption	71,458	gal/y		
Carbon Dioxide	637,197	kg/y		
Hydrocarbons	467	kg/y		
Carbon Monoxide	2,245	kg/y		
NOx	501	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd

LEVEL OF SERVICE

Site: Central Ave & I-10 EB Ramps-Long Range with Project-PM

Central Ave & I-10 EB Ramps
Roundabout



	South	North	West	Intersection
LOS	F	F	F	F

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

 Copyright © 2000-2013 Akcelik and Associates Pty Ltd

MOVEMENT SUMMARY

Site: Central Ave & I-10 EB Ramps-Long Range with Project-PM

Central Ave & I-10 EB Ramps
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Central Ave											
8	T1	1489	2.0	3.179	998.2	LOS F	492.1	12498.7	1.00	14.15	1.6
18	R2	685	2.0	3.179	998.2	LOS F	492.1	12498.7	1.00	14.15	1.6
Approach		2174	2.0	3.179	998.2	LOS F	492.1	12498.7	1.00	7.07	1.6
North: Central Ave											
7	L2	554	2.0	1.845	395.3	LOS F	290.7	7383.1	1.00	0.09	4.0
4	T1	1489	2.0	1.845	395.3	LOS F	290.7	7383.1	1.00	0.09	4.0
Approach		2043	2.0	1.845	395.3	LOS F	290.7	7383.1	1.00	0.05	4.0
West: I-10 EB Ramps											
5	L2	424	2.0	2.460	688.7	LOS F	174.7	4436.5	1.00	9.96	2.1
12	R2	457	2.0	2.460	688.7	LOS F	174.7	4436.5	1.00	9.96	2.1
Approach		880	2.0	2.460	688.7	LOS F	174.7	4436.5	1.00	4.98	2.1
All Vehicles		5098	2.0	3.179	703.1	LOS F	492.1	12498.7	1.00	3.90	2.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Copyright © 2000-2013 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Central Ave & I-10 EB Ramps-Long Range with Project-PM

Central Ave & I-10 EB Ramps
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	5098	veh/h	6117	pers/h
Percent Heavy Vehicles (Demand)	2.0	%		
Degree of Saturation	3.179			
Practical Spare Capacity	-73.3	%		
Effective Intersection Capacity	1604	veh/h		
Control Delay (Total)	995.58	veh-h/h	1194.70	pers-h/h
Control Delay (Average)	703.1	sec	703.1	sec
Control Delay (Worst Lane)	998.2	sec		
Control Delay (Worst Movement)	998.2	sec	998.2	sec
Geometric Delay (Average)	0.0	sec		
Stop-Line Delay (Average)	703.1	sec		
Idling Time (Average)	623.9	sec		
Intersection Level of Service (LOS)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	492.1	veh		
95% Back of Queue - Distance (Worst Lane)	12498.7	ft		
Queue Storage Ratio (Worst Lane)	8.25			
Total Effective Stops	19861	veh/h	23834	pers/h
Effective Stop Rate	3.90	per veh	3.90	per pers
Proportion Queued	1.00		1.00	
Performance Index	2707.3		2707.3	
Travel Distance (Total)	2418.6	veh-mi/h	2902.3	pers-mi/h
Travel Distance (Average)	2505	ft	2505	ft
Travel Time (Total)	1065.8	veh-h/h	1279.0	pers-h/h
Travel Time (Average)	752.7	sec	752.7	sec
Travel Speed	2.3	mph	2.3	mph
Cost (Total)	15271.44	$/h	15271.44	$/h
Fuel Consumption (Total)	380.5	gal/h		
Carbon Dioxide (Total)	3392.7	kg/h		
Hydrocarbons (Total)	2.632	kg/h		
Carbon Monoxide (Total)	12.035	kg/h		
NOx (Total)	2.184	kg/h		

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	2,446,956	veh/y	2,936,348	pers/y
Delay	477,878	veh-h/y	573,454	pers-h/y
Effective Stops	9,533,401	veh/y	11,440,080	pers/y
Travel Distance	1,160,936	veh-mi/y	1,393,123	pers-mi/y
Travel Time	511,592	veh-h/y	613,910	pers-h/y
Cost	7,330,290	$/y	7,330,290	$/y
Fuel Consumption	182,624	gal/y		
Carbon Dioxide	1,628,480	kg/y		
Hydrocarbons	1,263	kg/y		
Carbon Monoxide	5,777	kg/y		
NOx	1,048	kg/y		

Copyright © 2000-2013 Akcelik and Associates Pty Ltd