DRAFT

Baseline/Alder Warehouse Project
(CUP No. 2018-0006, TPM No. 2018-0003, PPD No. 2018-0025, MC No. 2018-0028)
Initial Study/Mitigated Negative Declaration

Prepared for:

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
µg/m^3	micrograms per cubic meter
AB	Assembly Bill
ACM	asbestos-containing material
ADT	average daily traffic
APN	Assessor's Parcel Number
AQMP	air quality management plan
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
CALGAPS	California GHG Analysis of Policies Spreadsheet
CALGreen	California Green Building Standards
Cal Recycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CA MUTCD	California Manual of Uniform Traffic Control Devices
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH_4	methane
City	City of Rialto
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CRHR	California Register of Historical Resources
CSC	California Species of Special Concern
dBA	A-weighted decibel
DPM	diesel particulate matter
E	(x 10^)
EIR	environmental impact report
EMP	Employment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FSR	Feasibility Study Report
FWC	Fontana Water Company
GHG	greenhouse gas
gpd	gallons per day

Acronym/Abbreviation	Definition
gpm	gallons per minute
HCM	Highway Capacity Manual
HI	Hazard Index
I-	Interstate
I-PID	Planned Industrial Development
IEUA	Inland Empire Utilities Agency
IS/MND	Initial Study/Mitigated Negative Declaration
L_{eq}	energy equivalent level
L_{max}	maximum sound level
LOS	level of service
LST	Localized Significance Threshold
MGD	million gallons per day
MICR	maximum individual cancer risk
MM	mitigation measure
MS4	Municipal Separate Storm Sewer System
MT CO_2e	metric tons carbon dioxide equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
PCE	passenger-car equivalent
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	particulate matter less than or equal to 10 microns in diameter
ppm	parts per million
PRC	California Public Resources Code
proposed project	Baseline/Alder Warehouse project
RCNM	Roadway Construction Noise Model
RFD	Rialto Fire Department
RP	Regional Plant
RPD	Rialto Police Department
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
SR-	State Route
TAC	toxic air contaminant
TIA	Traffic Impact Analysis

Acronym/Abbreviation	Definition
USFWS	U.S. Fish and Wildlife Service
UWMP	Urban Water Management Plan
V/C	volume-to-capacity ratio
VMT	vehicle miles traveled
VOC	volatile organic compound
vph	vehicles per hour

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1 INTRODUCTION

1.1 Project Overview

The City of Rialto (City) received an application from CH Realty VIII/I Rialto Alder South LP (project applicant) requesting the following approvals for development of the Baseline/Alder Warehouse project (proposed project):

- Conditional Use Permit No. 2018-0006
- Tentative Parcel Map No. 2018-0003
- Precise Plan of Design No. 2018-0025
- Master Case No. 2018-0028

The proposed project includes construction of an approximately 255,173-square-foot, one-story industrial/warehouse building on an approximately 11.63-acre (gross) property located in the northwest part of the City. In addition to the industrial/warehouse building, the project would include landscaping areas, loading docks, and surface parking spaces for passenger vehicles and truck trailers.

The project is the subject of analysis in this document pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA Guidelines Section 15367, the City is the lead agency with principal responsibility to consider the project for approval.

1.2 California Environmental Quality Act Compliance

CEQA, a statewide environmental law described in California Public Resources Code (PRC), Sections 21000–21177, applies to most public agency decisions to carry out, authorize, or approve actions that have the potential to adversely affect the environment (PRC Section 21000 et seq.). The overarching goal of CEQA is to protect the physical environment. To achieve that goal, CEQA requires that public agencies identify the environmental consequences of their discretionary actions and consider alternatives and mitigation measures that could avoid or reduce significant adverse impacts when avoidance or reduction is feasible. It also gives other public agencies and the public an opportunity to comment on the information. If significant adverse impacts cannot be avoided, reduced, or mitigated to below a level of significance, the public agency is required to prepare an environmental impact report (EIR) and balance the project's environmental concerns with other goals and benefits in a statement of overriding considerations.

1.3 Preparation and Processing of this CEQA Document

The City's Development Services Department, Planning Division, directed and supervised the preparation of this Initial Study/Mitigated Negative Declaration (IS/MND). Although prepared with assistance from the consulting firm Dudek, the content contained within and the conclusions drawn by this IS/MND reflect the independent judgement of the City.

1.4 Public Review Process

Public participation is an essential part of the CEQA process. As required by CEQA, the City shall provide adequate time for other public agencies and members of the public to review and comment on a CEQA document that has been prepared. This MND has been made available to members of the public, agencies, and interested parties for a 20-day public review period in accordance with CEQA Guidelines Section 15105. Public review of the MND is intended to focus "on the proposed finding that the project will not have a significant effect on the environment. If persons and public agencies believe that the project may have a significant effect, they should: (1) identify the specific effect, (2) explain why they believe the effect would occur, and (3) explain why they believe the effect would be significant" (14 CCR 15204).

This MND is available for review during the 20-day public review period at the following locations:

In-Person

City of Rialto Website
Development Services Department, Planning Division,
150 S. Palm Ave.
Rialto, California 92376

Online

http://yourrialto.com/city-hall/departments/development-services-department/

Once the 20-day public review period has concluded, any advisory body of a public agency shall consider the MND together with any comments received during the public review process. The decision-making body shall adopt the proposed MND if it finds there is no substantial evidence that the proposed project will have a significant effect on the environment and that the MND reflects the lead agency's independent judgment and analysis. After approval of the project, the City shall file a Notice of Determination at the San Bernardino County Recorder-Clerk's office within five working days after deciding to carry out or approve the proposed project.

1.5 Initial Study Checklist

Dudek, under the City's guidance, prepared the proposed project's Environmental Checklist (i.e., Initial Study) per CEQA Guidelines Sections 15063–15065. The CEQA Guidelines include a suggested checklist to indicate whether a project would have an adverse impact on the environment. The checklist is found in Section 3 of this document. Following the Environmental Checklist, Sections 3.1 through 3.19 include an explanation and discussion of each significance determination made in the checklist for the proposed project.

For this IS/MND, the following four possible responses to each individual environmental issue area are included in the checklist:

1. Potentially Significant Impact
2. Less-Than-Significant Impact with Mitigation Incorporated
3. Less Than Significant Impact
4. No Impact

The checklist and accompanying explanation of checklist responses provide the information and analysis necessary to assess relative environmental impacts of the proposed project. In doing so, the City will determine the extent of additional environmental review, if any, for the proposed project.

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2 PROJECT DESCRIPTION

2.1 Project Location

The project site is located in the northwest part of the City in the southwestern portion of San Bernardino County. Regionally, the City is bordered by unincorporated Riverside County and the Cajon Pass to the north, the Cities of San Bernardino and Colton to the east, unincorporated Riverside County and the City of Riverside to the south, and the City of Fontana to the west. Locally, the project site is bounded by vacant land, industrial/warehouse uses, and limited residential uses to the north; Alder Avenue and industrial/warehouse uses to the east; Baseline Road, municipal uses, and residential uses to the south; and residential uses and industrial/warehouse uses to the west (Figure 1). The project site is composed of 12 parcels (Assessor's Parcel Numbers [APNs] 0204-201-10, 0240-201-12, 0240-201-13, 0240-201-14, 0240-201-15, 0240-201-18, 0240-201-38, 0240-201-42, 0240-201-44, 0240-201-45, 0240-201-46, and 0240-201-47).

2.2 Environmental Setting

City of Rialto

The City's land use pattern is defined by nearly 100 years of historical growth. The historic downtown and surrounding older neighborhoods, with smaller residential lots and small central business district, provide a walkable urban core. Suburban tract homes from the 1950s and 1960s, away from downtown, have defined much of the City. Newer residential neighborhoods have filled in the northern areas.

Commercial uses are focused along Foothill Boulevard (Historic Route 66), Riverside Avenue, Valley Boulevard, and Baseline Road at Riverside Avenue. These corridors and intersections, along with downtown, constitute the City's major commercial areas.

Industrial and warehouse facilities are clustered along the City's rail lines, where access to shipping facilities was important through the mid-1900s, particularly for the citrus industry. Other industrial activities have clustered north of State Route (SR-) 210 and south of Interstate (I-) 10. Other industrial areas include land adjacent to the Rialto Airport in the north and near SR-210, and I-10 and the Union Pacific railroad line in the south. Many of the industrial businesses take advantage of the City's location and access to this distribution network (City of Rialto 2010a).

Renaissance Specific Plan

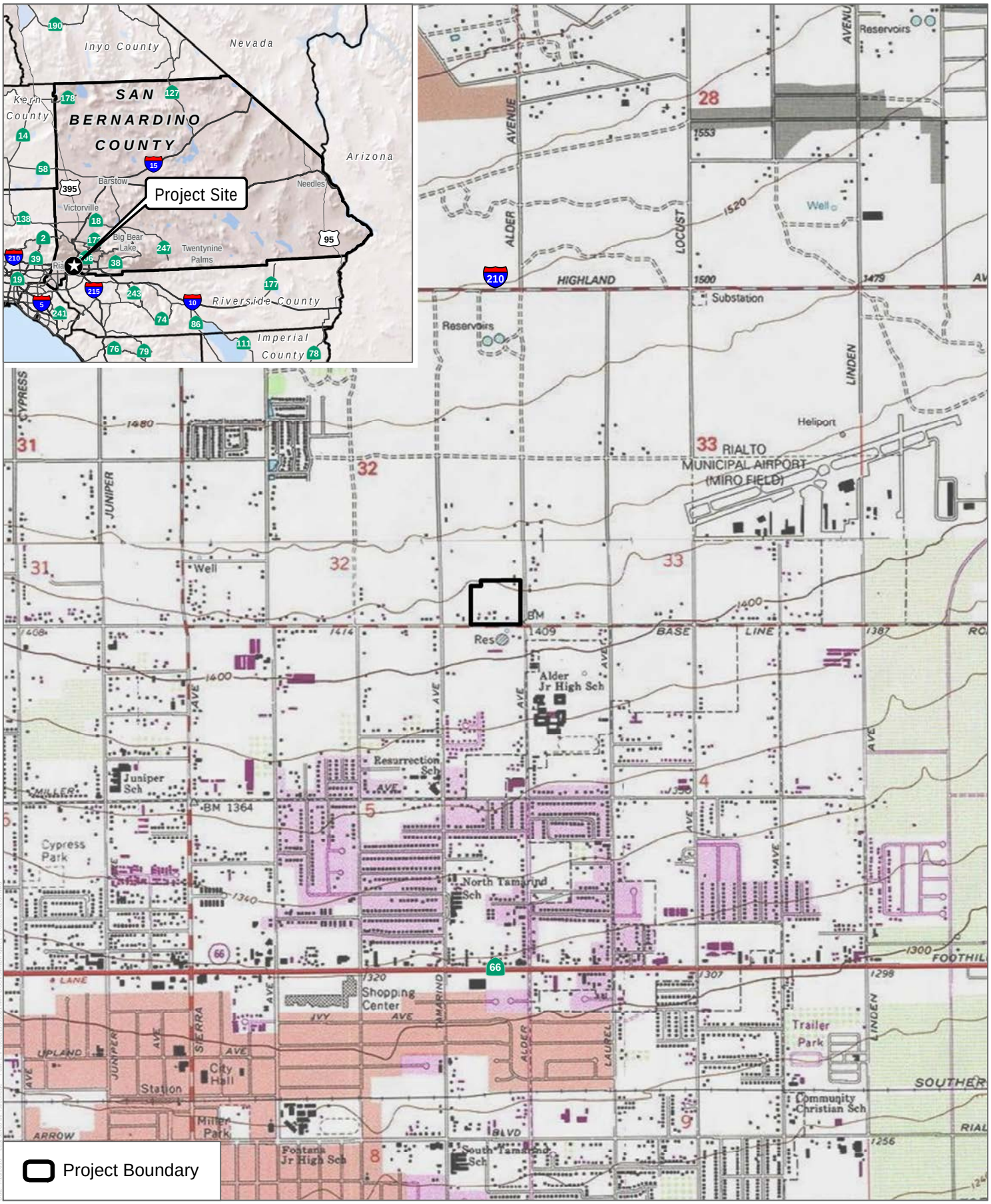
The project site is located within the boundaries of the City's Renaissance Specific Plan. The Renaissance Specific Plan is designed as a master-planned community on approximately 1,439 acres that, upon buildout, will contain a variety of logistics, employment, business, shopping, residential, and community facilities that are integrated by open spaces and amenities. The Renaissance Specific Plan, adopted in 2010, serves as the long-range plan for the development of Renaissance and the guide to all future development proposals within the Specific Plan area. This Specific Plan provides detailed text and exhibits describing the various land uses, amenities, and infrastructure improvements envisioned for the community. This document will guide the buildout of the property in a manner consistent with City and state policies and standards to ensure that the various community elements identified in the Renaissance Specific Plan will be developed in a coordinated manner (City of Rialto 2010b). A portion of the Renaissance Specific Plan was amended in 2016; however, this portion does not include the project site.

Project Site

The approximately 11.63-acre (gross) project site is located on the northwest corner of Baseline Road and Alder Avenue (Figure 2). The project site is composed of 12 parcels and is generally undeveloped with scattered residential uses. APNs 0240-201-12, 0240-201-13, 0240-201-14, 0240-201-38, 0240-201-42, 0240-201-45, 0240-201-46, and 0240-201-47 are currently undeveloped, while APNs 0240-201-18, 0240-201-15, 0240-201-44, and 0240-201-10 contain existing residential properties. Property 1 located at 2406 West Baseline Road (APN 0240-201-18) contains a single-family residence built in 1947. Property 2 at 2374 West Baseline Road (APNs 0240-201-15 and 0240-201-44) contains two single-family residential buildings and multiple temporary structures and shipping crates to the north of the residential properties. Property 3 at 7196 Alder Avenue (APN 0204-201-10) contains one single-family residence built in 1948.

The project site is situated within the eastern Transverse Ranges Geomorphic Province in Southern California. Geologic structures within the Transverse Ranges Province trend mostly east–west, in contrast to the prevailing northwest trend elsewhere in the state. The surface geology at the site is characterized as alluvium deposits of recent Quaternary age (refer to Section 3.6, Geology and Soils).

The City's General Plan Existing Land Use Map designates the project site as Specific Plan (Figure 3). The City's Zoning Map designates the project site as Renaissance Specific Plan (Figure 4). Specifically, the Renaissance Specific Plan Land Use designates the site as 14 Employment, 16 Employment, and 17 Employment (with Commercial Overlay) (Figure 5). Regional access to the project area is provided by SR-210 to the north of the project site, I-15 to the west, and I-215 to the east.



SOURCE: USGS 7.5-Minute Series Fontana Quadrangle; San Bernardino County 2017

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Baseline Alder Warehouse Project

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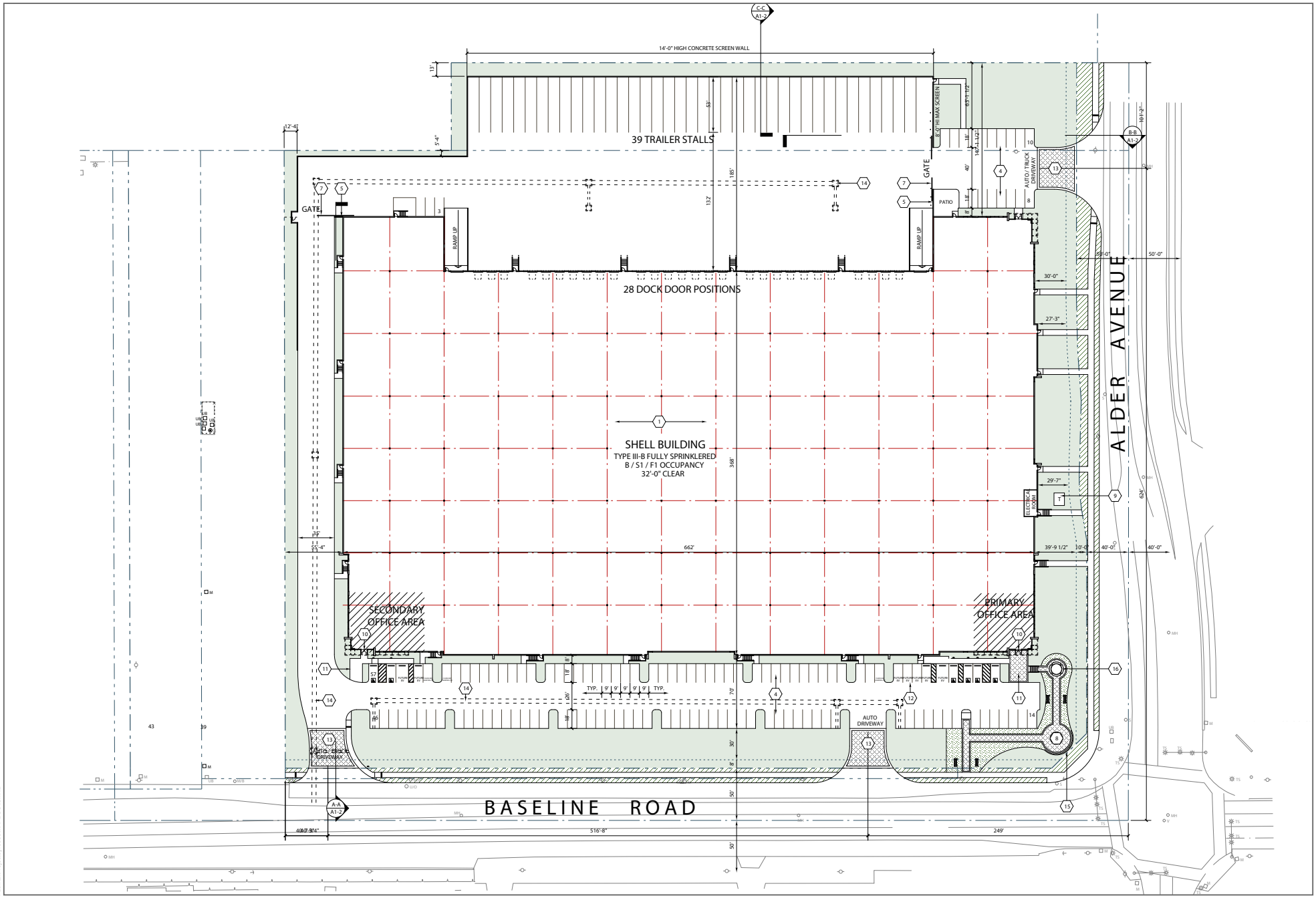

SOURCE: RGA 2018

DUDEK

FIGURE 2

Site Plan

Baseline Alder Warehouse Project

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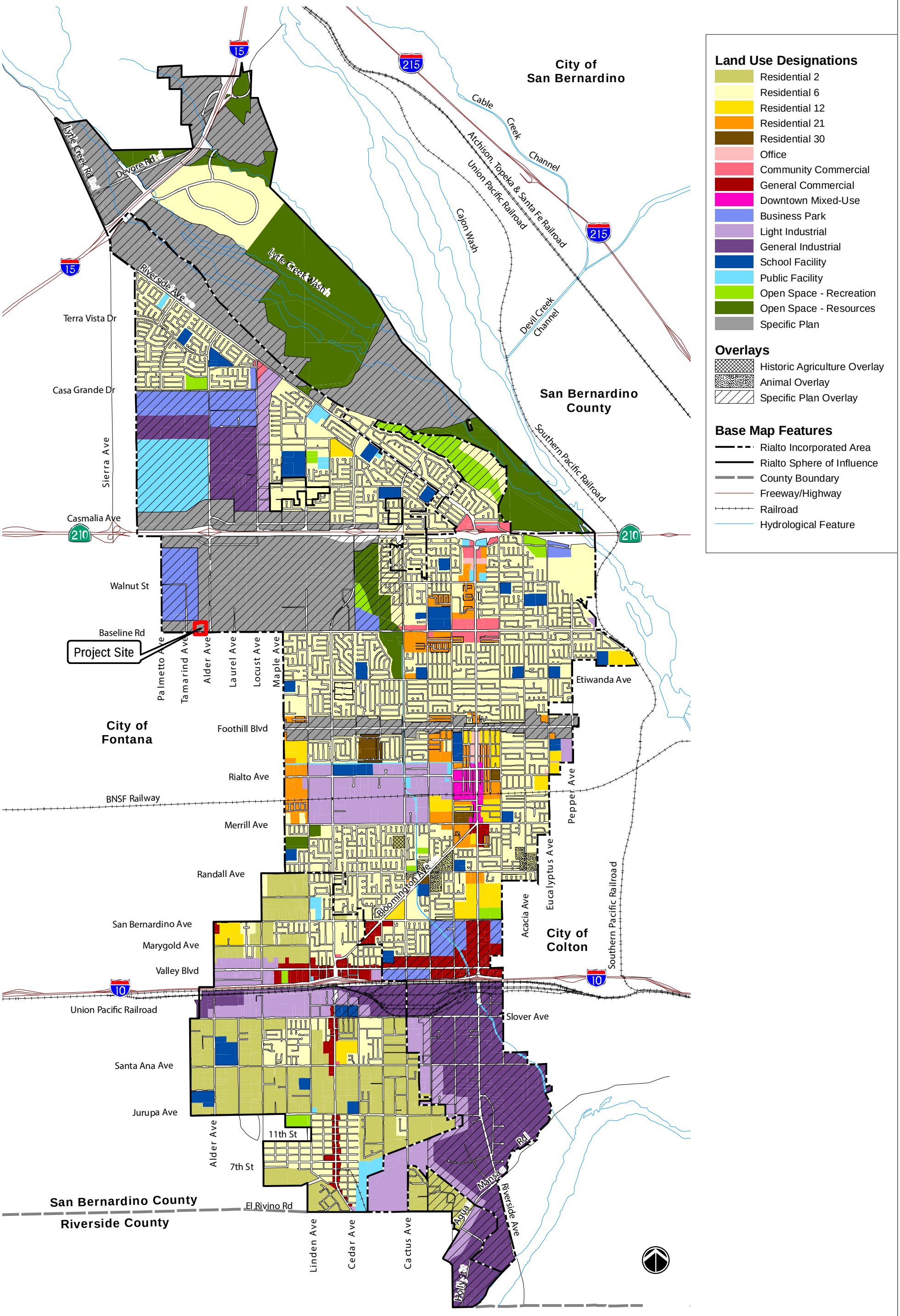

SOURCE: Hogle-Ireland 2010

FIGURE 3

General Plan Land Use

Baseline Alder Warehouse Project

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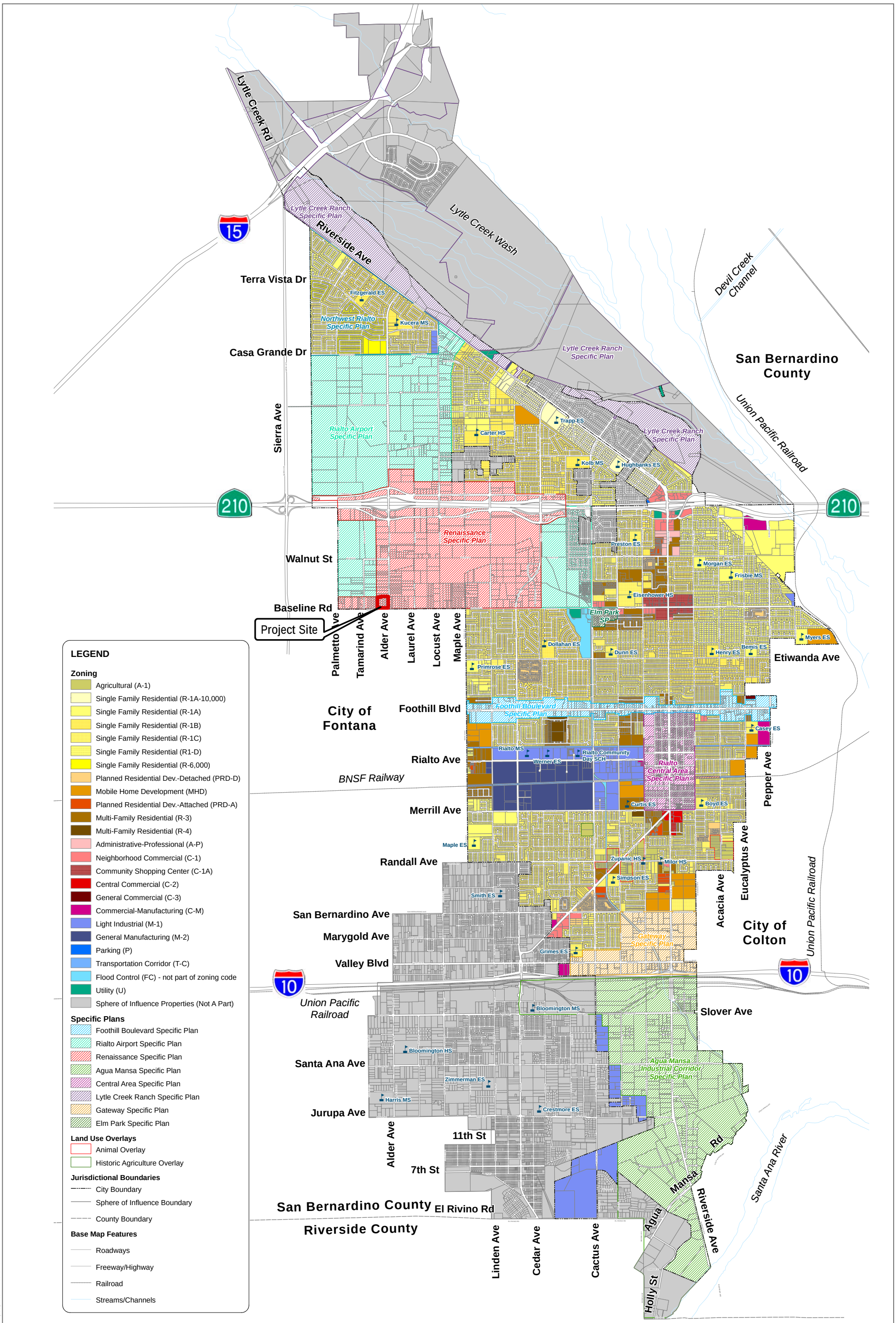

SOURCE: City of Rialto 2010

DUDEK

FIGURE 4
Zoning
Baseline Alder Warehouse Project

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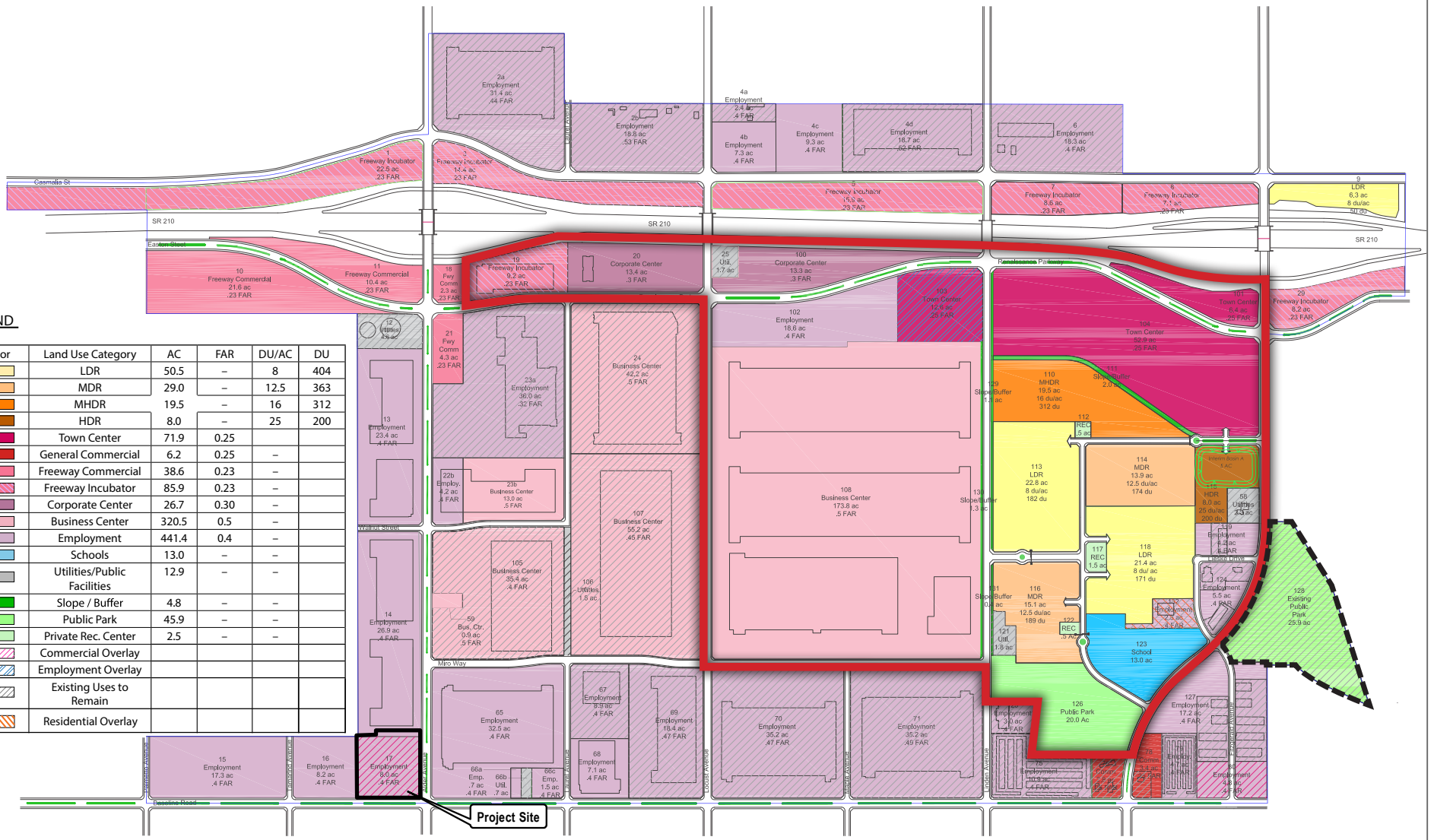

Color	Land Use Category	AC	FAR	DU/AC	DU
	LDR	50.5	–	8	404
	MDR	29.0	–	12.5	363
	MHDR	19.5	–	16	312
	HDR	8.0	–	25	200
	Town Center	71.9	0.25		
	General Commercial	6.2	0.25	–	
	Freeway Commercial	38.6	0.23	–	
	Freeway Incubator	85.9	0.23	–	
	Corporate Center	26.7	0.30	–	
	Business Center	320.5	0.5	–	
	Employment	441.4	0.4	–	
	Schools	13.0	–	–	
	Utilities/Public Facilities	12.9	–	–	
	Slope / Buffer	4.8	–	–	
	Public Park	45.9	–	–	
	Private Rec. Center	2.5	–	–	
	Commercial Overlay				
	Employment Overlay				
	Existing Uses to Remain				
	Residential Overlay				

SOURCE: Kimley-Horn 2016

FIGURE 5

Renaissance Specific Plan Land Use

Baseline Alder Warehouse Project

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Surrounding Land Uses

The project site is located within a quickly developing part of the City and is surrounded by a mix of urbanized land uses. Specific land uses in the immediate project area include the following:

- **North:** Vacant land, industrial/warehouse uses, and limited residential uses
- **East:** Alder Avenue and industrial/warehouse uses
- **South:** Baseline Road, municipal uses, and residential uses
- **West:** Residential uses and industrial/warehouse uses

2.3 Proposed Project

The proposed project would include construction of 255,173-square feet (gross area, inclusive of mezzanine/office spaces), one-story industrial/warehouse building on an approximately 11.63-acre (gross) property. The industrial/warehouse building would be composed of approximately 252,568 square feet of warehouse space and 2,606 square feet of mezzanine space. The proposed project would also include approximately 60,000 square feet of landscaping, 138 passenger vehicle parking spaces, 28 loading docks, and 39 truck parking spaces. The project would not contain any cold storage space and would have a clear height of 36 feet.

On-Site and Off-Site Adjacent Improvements

The project would also include improvements to Baseline Road and Alder Avenue along the project's street frontage, including landscape, sidewalk, and parkway improvements. A variety of trees, shrubs, plants, and land covers would be planted within the project frontage's landscape setback area, within the landscape areas found around the proposed industrial/warehouse building, and throughout the project site.

Site Access, Circulation, and Parking

Access to the project site would be provided by three right-turn in/out driveways: one at the northern corner of the project site, on Alder Avenue, for passenger cars and trucks; one at the southeast part of the project site, on Baseline Road, for passenger cars only; and one on the southwest corner of the project site, on Baseline Road, for passenger cars and trucks. Paved passenger vehicle parking areas would be provided along the southern and northeastern parts of the project site, while truck parking would be located along the northern side of the project site. Gated entry is proposed on both sides of the main truck parking and dock areas. The project site would include 138 passenger vehicle parking spaces, 28 loading docks, 39 trailer parking spaces, and a secure bicycle storage area.

Storm Drain and Other Utility Improvements

The proposed project would include a detention/infiltration basin on the property to capture and infiltrate stormwater runoff. All proposed surface waters would flow into on-site catch basins and down drains/area drains. Stormwater flows will pass through the infiltration facilities and will then flow through to the public system via sub-surface piping. Preventative low impact development (LID) site design practices have been incorporated into the proposed project to maintain the historic drainage pattern by utilizing the same drainage paths and outlets, with the detention/infiltration basins limiting outlet of stormwater to the project site's pre-development condition (refer to Section 3.9, Hydrology and Water Quality).

2.4 Project Construction and Phasing

The project applicant intends to construct the project in a single continuous phase, starting in or around 2018 and last through 2020. Table 1 provides the tentative project construction schedule, as used in the air quality, greenhouse gas (GHG) emissions, and health risk assessment impact analysis[1] (see Sections 3.3 and 3.7 of this IS/MND; also see Appendix A).

Table 1
Tentative Project Construction Schedule

Phase Name	Phase Start Date	Phase End Date
Demolition	November 2018	November 2018
Site preparation	November 2018	December 2018
Grading	December 2018	January 2019
Building construction	January 2019	March 2020
Paving	March 2020	April 2020
Architectural coating	March 2020	May 2020

Source: Appendix A

2.5 Project Approvals

The following discretionary approvals would be required before implementing the project. This list is preliminary and may not be comprehensive:

- Conditional Use Permit No. 2018-0006
- Tentative Parcel Map No. 2018-0003
- Precise Plan of Design No. 2018-0025
- Master Case No. 2018-0028

[1] The construction schedule utilized in the analysis represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.

3 INITIAL STUDY CHECKLIST

1. Project title:

Baseline/Alder Warehouse Project

2. Lead agency name and address:

City of Rialto
Development Services Department, Planning Division
150 S. Palm Avenue
Rialto, California 92376

3. Contact person and phone number:

Daniel Rosas, Assistant Planner
909.820.2525

4. Project location:

The project site is located in the northwest part of the City in the southwestern portion of San Bernardino County. Regionally, the City is bordered by unincorporated Riverside County and the Cajon Pass to the north, the Cities of San Bernardino and Colton to the east, unincorporated Riverside County and the City of Riverside to the south, and the City of Fontana to the west. Locally, the project site is bounded by vacant land, industrial/warehouse uses, and limited residential uses to the north, Alder Avenue and industrial/warehouse uses to the east, Baseline Road, municipal and residential uses to the south, and residential uses and industrial/warehouse uses to the west. The approximately 11.63-acre (gross), rectangular-shaped project site is located on the southeast corner of Baseline Drive and Alder Avenue. The project site is composed of 12 parcels (Assessor's Parcel Numbers (APNs) 2040-201-10, 0240-201-12, 0240-201-13, 0240-201-14, 0240-201-15, 0240-201-18, 0240-201-38, 0240-201-42, 0240-201-44, 0240-201-45, 0240-201-46, and 0240-201-47).

5. Project sponsor's name and address:

CH Realty VIII/I Rialto Alder South LP

6. General plan designation:

Specific Plan

7. Zoning:

Renaissance Specific Plan—14 Employment, 16 Employment, and 17 Employment (with Commercial Overlay)

8. Description of project. (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary):

The proposed project includes construction of an approximately 255,173-square-foot, one-story industrial/warehouse building on an approximately 11.63-acre (gross) property located in the northwest part of the City. In addition to the industrial/warehouse building, the project would include landscaping areas, loading docks, and surface parking spaces for passenger vehicles and truck trailers.

Refer to Section 2.3 for a detailed project description.

9. Surrounding land uses and setting (Briefly describe the project's surroundings):

The project site is located within a quickly developing part of the City and is surrounded by a mix of urbanized land uses. Specific land uses in the immediate project area include the following:

- **North:** Vacant land, industrial/warehouse uses, and limited residential uses
- **East:** Alder Avenue and industrial/warehouse uses
- **South:** Baseline Road, municipal uses, and residential uses
- **West:** Residential uses and industrial/warehouse uses

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

- Rialto Fire Department: Site Plan Review
- Rialto Police Department: Site Plan Review
- County of San Bernardino (National Pollutant Discharge Elimination System (NPDES) General Construction Permit)

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

Yes. Refer to Section 3.17 for additional details.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "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	☐ Tribal Cultural Resources	☐ Utilities and Service Systems
☐ Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "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 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. 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.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. 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 Analysis 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.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," 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 project.

6. 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.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. 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.
9. The explanation of each issue should identify:
   a. The significance criteria or threshold, if any, used to evaluate each question; and
   b. The mitigation measure identified, if any, to reduce the impact to less than significant.

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
I.	**AESTHETICS –** Would the project:				
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?	☐	☐	☒	☐

3.1 Aesthetics

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

Less-Than-Significant Impact. Scenic vistas and other important visual resources are typically associated with natural landforms such as mountains, foothills, ridgelines, coastlines, and open space areas. The City of Rialto General Plan Open Space and Conservation Element states that, "the views of the San Gabriel and San Bernardino Mountains and the foothills provide the perfect backdrop for creating scenic vistas

throughout the City," and "the City should take great care in ensuring that building heights and scale of projects do not hinder or impede scenic view" (City of Rialto 2010a).

The San Gabriel Mountains and the San Bernardino Mountains are located approximately 4 miles to the north and east, and the Jurupa Mountains and foothills are found approximately 6 miles to the south. Based on these distances, as well as the presence of existing intervening natural topographical variations and man-made urban features, the project site is not located within the direct viewshed of these scenic vistas. In addition, the proposed project would be of a similar height as other industrial/warehouse buildings surrounding the project site. As such, the proposed project is not expected to block views of or from these scenic resources. Therefore, impacts associated with scenic vistas would be **less than significant**.

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 Impact. According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System (Caltrans 2016), the only officially designated state scenic highway in San Bernardino County is a 16-mile portion of SR-38 from South Fork Campground to State Lane. This roadway segment is located more than 14 miles southeast of the project site. Based on the distance between this officially designated state scenic highway, and because of the intervening natural topography and urban improvements between this roadway segment and the project site, the project would not be located within the viewshed of this officially designated state scenic highway. In addition, the Rialto General Plan does not identify any locally designated scenic corridors. Therefore, **no impact** associated with scenic highways would occur.

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

Short-Term Construction Impacts

Less-Than-Significant Impact. Consistent with standard construction practices, equipment, vehicles, and materials are expected to be staged within a designated area on the project site during project construction. Although equipment staging could potentially be viewed from adjacent properties, this would be temporary and would cease upon completion of construction. Therefore, short-term construction impacts associated with the existing visual character and quality would be **less than significant**.

Long-Term Operational Impacts

Less-Than-Significant Impact. The project site is located in an urbanized, industrial portion of the City and is bound by existing and future development in all directions. The project site is currently comprised predominantly of undeveloped land, although a smaller portion of the site contains two existing single-family residences. Other than these residences, small soil and debris stockpiles are found on the project site. The proposed project would alter the land use and development intensity on the project site, thus altering the existing visual character of the site compared with the existing conditions.

However, as a warehouse building, the proposed project would be visually consistent with the existing industrial development. The proposed project would be of a similar height as other industrial/warehouse buildings surrounding the project site. In addition, the 255,173-square-foot proposed project would be of similar size and scale compared to the existing surrounding development in the project area. Thus, the development of the proposed project would not represent an adverse or detrimental impact on existing on-site or off-site visual character.

Regarding visual quality, the project would incorporate similar architectural elements, including a complementary neutral color palette and a variety of building materials, to existing development located in the project area. The project was designed to include vertical and horizontal elements that would break up the overall massing of the buildings and provide visual interest. Setback landscape areas along the project frontages would also soften views of the project site and enhance the visual quality of the project.

The warehouse building and associated improvements were designed with a strong and appropriately scaled framework of architectural and landscape architecture elements. The building mass and landscaping throughout the project site were designed to create a sense of unity both on site and off site. High-quality development features would be provided through site design (e.g., building orientation, screening, and placement of service areas), architecture (e.g., mass, scale, form, style, material, and color), and streetscape elements (e.g., lighting, paving materials). Overall, the project would enhance and strengthen the existing quality of the project site through new landscaping, hardscape, and other improvements both on site and along the public right-of-way.

Additionally, to ensure that both current and future development within the City is designed and constructed to conform to existing visual character and quality of the surrounding built environment, the City's Zoning Code includes design standards related to building height, parking, landscaping requirements, and other visual considerations. The purpose is to regulate and restrict the uses of buildings and structures, and to

encourage the most appropriate use of land. As a part of the City's development review process, project plans are reviewed with the intent of encouraging efficient, aesthetic, and desirable use of land by considering proposals. Therefore, long-term operational impacts associated with the existing visual character and quality would be **less than significant**.

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

Short-Term Construction Impacts

No Impact. In compliance with the City's Noise Ordinance, between October 1 and April 30^{t} construction activities of the proposed project would be limited to between 7:00 a.m. to 5:30 p.m. on Monday through Friday, and between 8:00 a.m. to 5:00 p.m. on Saturday. No construction work is permissible on Sunday or state holidays. Between May 1 through September 30, construction work is limited to between 6:00 a.m. to 7:00 p.m. on Monday through Friday, and 8:00 a.m. to 5:00 p.m. on Saturday. No construction work is permissible on Sundays or state holidays (City of Rialto 2008). As such, project construction would be limited to the daytime hours, and nighttime lighting would not be required until the project is operational. Therefore**, no short-term construction impacts** associated with light and glare would occur.

Long-Term Operational Impacts

Less-Than-Significant Impact. Consistent with Section 18.61.140 of the City's Zoning Code, exterior lighting shall be provided for security and safety purposes; however, the lighting shall be designed to avoid spillover glare beyond the site boundaries (City of Rialto 2006). Thus, all exterior lighting has been designed to be shielded/hooded to prevent light trespass onto nearby properties. Additionally, the project would use a variety of non-reflective building materials, and although some new reflective improvements (i.e., windows) would be introduced onto the project site, the project as a whole would not be considered a source of glare in the project area. Therefore, long-term operational impacts associated with light and glare would be **less than significant**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
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?	☐	☐	☐	☒

3.2 Agriculture and Forestry Resources

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 Impact. According to the California Department of Conservation Important Farmland Finder (CDOC 2016a), a portion of the project site is identified as "Urban and Built-Up Land," and the eastern portion is designated as "Other Land." The project site does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (collectively, "Important Farmland"). The project would not occur within

any farmland locations, and would not result in the conversion of Prime or Unique Farmland, or Farmland of Statewide Importance. Therefore **no impacts** associated with the conversion of Important Farmland would occur.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. According to the California Department of Conservation's 2015/2016 San Bernardino County (South) Williamson Act Map, there are no Williamson Act lands on or within the project area (CDOC 2016b). In addition, the project site is zoned Renaissance Specific Plan—14 Employment, 16 Employment, and 17 Employment (with Commercial Overlay), and none of the parcels surrounding the project site are zoned for agricultural use. Therefore, **no impacts** associated with agricultural zoning or Williamson Act contracts would occur.

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 Impact. According to the California Department of Forestry and Fire Protection (CAL FIRE) Management Landscape map (CAL FIRE 2003), no public or private land managed for timber is located in the project area. The project site is not zoned as forest land or Timberland Production; Therefore, **no impacts** associated with forest land or timberland would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. Refer to response 3.2(c) above.

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 Impact. Refer to responses 3.2(a) through 3.2(c) above.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
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?	☐	☐	☒	☐

3.3 Air Quality

The following analysis is based on the Baseline/Alder Warehouse Project Air Quality Impact Analysis, the Greenhouse Gas Emissions Analysis, and the Health Risk Assessment prepared by Urban Crossroads and included as Appendix A.

Regional Air Quality

The project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAB includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County. Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are used to determine whether a region's air quality is healthful or unhealthful. The determination is made by comparing contaminant levels in ambient air samples in a region to the state and federal standards. Table 2 provides the federal and state ambient air quality attainment designation (NAAQS and CAAQS) for applicable criteria pollutants within SCAB.

Table 2
South Coast Air Basin Attainment Status

Pollutant	State Designation (CAAQS)	Federal Designation (NAAQS)
Ozone – 1-hour standard	Nonattainment	Nonattainment ("extreme")
Ozone – 8-hour standard	Nonattainment	Nonattainment ("extreme")
$PM_{2.5}$	Nonattainment	Nonattainment ("serious")
PM_{10}	Nonattainment	Attainment (maintenance)
CO	Attainment	Attainment (maintenance)
NO_2	Attainment	Attainment/Unclassifiable
SO_2	Attainment	Attainment/Unclassifiable
Pb[1]	Attainment	Nonattainment (partial)

Source: CARB 2017 (see Appendix A for a detailed map of State/National Area Designations within the SCAB).
Notes: CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; CO = carbon monoxide; NO_2 = nitrogen dioxide; SO2 = sulfur dioxide; Pb = lead.
1 The federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of SCAB.

As shown in Table 2, SCAB has been designated by the U.S. Environmental Protection Agency (EPA) as a federal nonattainment area for ozone (O_3) and particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and partial nonattainment for lead. Currently, SCAB is in attainment with the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter less than or equal to 10 microns in diameter (PM_{10}). SCAB has been designated by the California Air Resources Board (CARB) as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. SCAQMD is the agency responsible for air pollution control within SCAB. SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments, and cooperates actively with all federal and state agencies.

Local Air Quality

Relative to the project site, the nearest long-term air quality monitoring site for O_3, CO, NO_2, and PM_{10} is the SCAQMD Central San Bernardino Valley 1 (Source Receptor Area 34) monitoring station, located approximately 4.29 miles southwest of the project site.

Table 3 identifies the number of days ambient air quality was exceeded for the Air Quality Impact Analysis study area, which is considered to be representative of the local air quality at the project site.

Table 3
Project Area Air Quality Monitoring Summary 2014–2016

Pollutant	Standard	Year		
		2014	*2015*	*2016*
O_3				
Maximum 1-Hour Concentration (ppm)		0.127	0.133	0.139
Maximum 8-Hour Concentration (ppm)		0.105	0.111	0.105
Number of Days Exceeding State 1-Hour Standard	>0.09 ppm	31	36	34
Number of Days Exceeding State 8-Hour Standard	>0.07 ppm	52	59	52
Number of Days Exceeding Federal 1-Hour Standard	>0.12 ppm	1	3	3
Number of Days Exceeding Federal 8-Hour Standard	>0.075 ppm	52	57	49
Number of Days Exceeding Health Advisory	≥0.15 ppm	—	—	—
CO				
Maximum 1-Hour Concentration (ppm)		3.0	2.8	1.7
Maximum 8-Hour Concentration (ppm)		1.2	1.2	1.0
NO_2				
Maximum 1-Hour Concentration (ppm)		0.070	0.079	0.072
Annual Arithmetic Mean Concentration (ppm)		0.020	0.036	0.018
PM_{10}				
Maximum 24-Hour Concentration (µg/m^3)		68	96	94
Number of Samples		58	55	61
Number of Samples Exceeding State Standard	>50 µg/m^3	13	13	15
Number of Samples Exceeding Federal Standard	>150 µg/m^3	0	0	0
$PM_{2.5}$				
Maximum 24-Hour Concentration (µg/m^3)		78.9	47.3	30.5
Annual Arithmetic Mean (µg/m^3)		13.2	10.7	12.0
Number of Samples Exceeding Federal 24-Hour Standard	>35 µg/m^3	1	2	0

Source: Appendix A.
Notes: O_3 = ozone; ppm = parts per million; CO = carbon monoxide; NO_2 = nitrogen dioxide; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; µg/m3 = micrograms per cubic meter; — = data not available from SCAQMD or CARB.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less-Than-Significant Impact With Mitigation Incorporated. The project site is located within SCAB, which is characterized by relatively poor air quality. SCAQMD has jurisdiction over an approximately 10,743-square-mile area consisting of the four-county SCAB, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County. In these areas, SCAQMD is principally responsible for air pollution control and works directly with SCAG, county transportation commissions, and

local governments, as well as state and federal agencies, to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient air quality standards.

Currently, the CAAQS and NAAQS are exceeded in most parts of SCAB. In response, the SCAQMD has adopted a series of air quality management plans (AQMPs) to meet the CAAQS and NAAQS. The AQMPs are updated regularly to more effectively reduce emissions, accommodate growth, and minimize any negative fiscal impacts of air pollution control on the economy.

In March 2017, SCAQMD released the Final 2016 AQMP (SCAQMD 2017a). The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the CAAQS and NAAQS, as well as explore new and innovative methods to reach its goals. Some of these approaches include using incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels. Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy and updated emission inventory methodologies for various source categories. The project's consistency with the AQMP would be determined using the 2016 AQMP, discussed as follows.

The SCAQMD CEQA Handbook identifies two key indicators of consistency (SCAQMD 1993):

1. Whether the project will 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 air quality standards or the interim emission reductions specified in the AQMP.
2. Whether the project will exceed the assumptions in the AQMP or increments based on the year of project build out and phase.

Criterion 1: Increase in the Frequency or Severity of Violations?

Construction Impacts

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if localized significance thresholds (LSTs) or regional significance thresholds are exceeded. The project would not exceed the applicable LST thresholds or regional significance thresholds for construction activity. Therefore, project construction would not conflict with the AQMP according to this criterion.

Operational Impacts

Following the implementation of mitigation presented in Section 3.3(b), the project would not exceed the applicable LST thresholds or regional significance thresholds for operational activity. Therefore, with the incorporation of mitigation, project operations would not conflict with the AQMP according to this criterion.

On the basis of the preceding discussion, and with adherence to mitigation provided herein, the project is consistent with the first criterion.

Criterion 2: Exceedance of the assumptions in the AQMP?

Overview

The 2016 AQMP demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the SCAG, which develops regional growth forecasts, and are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in City of Rialto General Plan is considered to be consistent with the AQMP.

Construction Impacts

Peak day emissions generated by construction activities are largely independent of land use assignments, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities.

Operational Impacts

The project is located within both the Rialto Airport Specific Plan and the Renaissance Specific Plan. The northwestern portion of the project site that is located within the Rialto Airport Specific Plan is zoned as Planned Industrial Development (I-PID). The I-PID designation allows of light industrial and industrial/business park uses (City of Rialto 1997). The remaining portion of the proposed project is located within the Renaissance Specific Plan and is designated as "Employment (EMP)." This land use designation accommodates a mixture of professional office, light industrial, research and development, business park, light manufacturing, assembly, and related storage and support services uses. The southeastern corner of the project site is designated as EMP

with a Commercial Overlay. The Commercial Overlay allows for the development of general commercial land uses, which include convenience retail and service uses that would serve the local community (City of Rialto 2010b). The proposed project consists of the development of up to 255,173 square feet of industrial/warehouse use on an approximately 11.63-acre site. The project land uses are generally consistent with the land uses allowed under the City land use designations for the project site. As such, the project would be consistent with the growth projections, and no changes are proposed to these existing designations.

AQMP Consistency Conclusion

The project would not result in or cause NAAQS or CAAQS violations. The project's proposed land use designation for the subject site is permitted/conditionally permitted in the adopted City of Rialto General Plan. Therefore, the proposed project is consistent with the AQMP.

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

Less-Than-Significant Impact With Mitigation Incorporated. An air quality modeling analysis was conducted for the proposed project to calculate the potential air emissions associated with the construction and operation of the proposed project compared to SCAQMD standards (Appendix A).

Standards of Significance

The SCAQMD has developed regional and LSTs based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a particular project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in SCAB with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact (SCAQMD 2015). It should be noted that the SCAQMD provides a threshold for emissions of lead; however, for purposes of this analysis, no lead emissions are calculated as there are no substantive sources of lead emissions. Additionally, the air quality modeling program (discussed below) does not calculate any emissions of lead from typical construction or operational activities.

A regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds shown in Table 4.

Table 4
Maximum Daily Emissions Thresholds

Regional Thresholds		
Pollutant	*Construction (lbs/day)*	*Operations (lbs/day)*
NO_x	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_x	150	150
CO	550	550
Pb	3	3
Localized Thresholds		
Pollutant	*Construction (lbs/day)*	*Operations (lbs/day)*
NO_x	118 (demolition)	270
	220 (site preparation)	
	237 (grading)	
CO	667 (demolition)	1,746
	1,359 (site preparation)	
	1,488 (grading)	
PM_{10}	4 (demolition)	4
	11 (site preparation)	
	12 (grading)	
$PM_{2.5}$	3 (demolition)	2
	6 (site preparation)	
	7 (grading)	

Source: SCAQMD 2015.
Notes: lbs/day = pounds per day; NO_x = oxides of nitrogen; VOC = volatile organic compound; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; SO_x = sulfur oxides; CO = carbon monoxide; Pb = lead.

California Emissions Estimator Model Employed to Estimate Air Quality Emissions

On October 17, 2017, the SCAQMD, in conjunction with the California Air Pollution Control Officers Association and other California air districts, released the latest version of the California Emissions Estimator Model (CalEEMod), version 2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (oxides of nitrogen (NO_x), volatile organic compound (VOC), PM_{10}, $PM_{2.5}$, sulfur oxides (SO_x), and CO) and GHG emissions from direct and indirect sources and quantify applicable air quality and GHG reductions achieved from mitigation measures (ENVIRON 2016). Accordingly, the latest version of CalEEMod has been used for this proposed project to determine construction and operational air quality emissions. Output

from the model runs for both construction and operational activity are provided in the Air Quality Impact Analysis (Appendix A).

Construction Emissions

Construction activities associated with the proposed project would result in emissions of CO, VOCs, NO_x, SO_x, PM_{10}, and $PM_{2.5}$. Construction-related emissions are expected from the following construction activities:

- Demolition
- Site preparation
- Grading
- Building construction
- Paving
- Architectural coating

Construction is expected to commence in 2018 and will last through 2020. The construction schedule used in the analysis, shown in Table 1, represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[2] The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per the CEQA Guidelines. The site-specific construction fleet may vary due to specific project needs at the time of construction. The duration of construction activity was based on a 2020 opening year. A detailed summary of construction equipment, shown in Table 5, was based on CalEEMod defaults. Please refer to specific detailed modeling inputs/outputs contained in Appendix A.

Dust is typically a major concern during rough grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions." Fugitive dust emission rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). CalEEMod was used to calculate fugitive dust emissions

[2] As shown in the CalEEMod User's Guide, Version 2016.3.2 (ENVIRON 2016), Section 4.3, OFFROAD Equipment Emission Factors, as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer, less-polluting equipment and new regulatory requirements.

resulting from this phase of activity. It is anticipated the project site will require demolition of 22,599 square feet of existing structures. Additionally, according to information provided by the applicant, the project site is expected to require 11,229 cubic yards of soil import.

Construction emissions for construction worker vehicles traveling to and from the project site, as well as vendor trips (construction materials delivered to the project site), were estimated based on information from the applicant and CalEEMod.

Table 5
Construction Equipment Assumptions

Activity	Equipment	Number	Hours Per Day
Demolition	Concrete/industrial saws	1	8
	Excavators	3	8
	Rubber-tired dozers	2	8
Site preparation	Crawler tractors	4	8
	Rubber-tired dozers	3	8
Grading	Crawl tractors	2	8
	Excavators	2	8
	Graders	1	8
	Rubber-tired dozers	1	8
	Scrapers	2	8
Building construction	Cranes	1	8
	Crawler Tractors	3	8
	Forklifts	3	8
	Generator Sets	1	8
	Welders	1	8
Paving	Pavers	2	8
	Paving equipment	2	8
	Rollers	2	8
Architectural coating	Air compressors	1	8

Source: Appendix A.

Construction Emissions Summary

The SCAQMD rules that are currently applicable during construction activities for the proposed project include Rule 1113 (Architectural Coatings), Rule 431.2 (Low Sulfur Fuel), Rule 403 (Fugitive Dust), and Rule 1186/1186.1 (Street Sweepers). The SCAQMD rules include best available control measures to reduce construction-source air pollutant emissions. It should be noted that best available control measures are not mitigation as

they are standard regulatory requirements. As such, Table 6 has taken credit for Rule 1113 and Rule 403.

The estimated maximum daily construction emissions without mitigation are summarized in Table 6. Under the assumed scenarios, emissions resulting from proposed project construction would not exceed criteria pollutant thresholds established by the SCAQMD for emissions of any criteria pollutants.

Table 6
Maximum Daily Peak Construction Emissions Summary (Without Mitigation)

Year	Emissions (pounds per day)					
	VOC	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
2018	6.31	84.59	38.80	0.11	11.19	6.88
2019	5.94	78.31	36.79	0.11	8.04	4.35
2020	32.14	43.12	25.40	0.07	3.68	2.10
	32.14	**84.59**	**38.80**	**0.11**	**11.19**	**6.88**
Maximum Daily Emissions	6.31	84.59	38.80	0.11	11.19	6.88
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: Appendix A.
Notes: VOC = volatile organic compound; NO_x = nitrogen oxides; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; SCAQMD = South Coast Air Quality Management District.

Operational Emissions

Operational activities associated with the proposed project would result in emissions of VOC, NO_X, CO, SO_x, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from the following primary sources:

- Area source emissions
- Energy source emissions
- Mobile source emissions

Area Source Emissions

Architectural Coatings

Over time, the buildings that are part of the proposed project would be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes,

primers, and other surface coatings as part of proposed project maintenance. The emissions associated with architectural coatings were calculated using CalEEMod.

Consumer Products

Consumer products include, but are not limited to, detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds, which, when released in the atmosphere, can react to form O_3 and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on defaults provided in CalEEMod.

Landscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod.

Energy Source Emissions

Combustion Emissions Associated with Natural Gas and Electricity

Electricity and natural gas are used by almost every project. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the project site are located outside the region (state) or offset through the use of pollution credits (RECLAIM) for generation within SCAB, criteria pollutant emissions from off-site generation of electricity are generally excluded from the evaluation of significance, and only natural gas use is considered. The emissions associated with natural gas use were calculated using CalEEMod.

Mobile Source Emissions

Vehicles

Project-related operational air quality impacts derive predominantly from mobile sources. In this regard, approximately 90% (by weight) of all project operational-source emissions would be generated by mobile sources (vehicles). The project-related operational air quality impacts derive primarily from vehicle trips generated by the project. Trip

characteristics available from the Traffic Impact Analysis (TIA) prepared for the proposed project, and included as Appendix F, was utilized in this analysis.

Per the TIA (Appendix F), the proposed project is expected to generate a net total of approximately 910 trip-ends per day (actual vehicles). The net project trip generation includes 364 truck trip-ends per day from the proposed buildings within the project site, including 1.97% two-axle trucks, 28.02% three-axle trucks, and 70.01% four+-axle trucks.

Trip Length

A technical deficiency inherent in calculating the projected vehicle emissions associated with any project is the estimation of trip length and vehicle miles traveled (VMT). VMT for a given project is calculated by the total number of vehicle trips to/from the project times average trip length. This method of estimating VMT for use in calculating vehicle emissions likely results in the overestimation and double-counting of emissions because, for a distribution warehouse center such as the proposed project, the land use is likely to attract (divert) existing vehicle trips that are already on the circulation system as opposed to generating new trips. In this regard, the proposed project would, to a large extent, redistribute existing mobile-source emissions rather than generate additional emissions within SCAB. Therefore, the estimation of the proposed project's vehicular-source emissions is likely overstated in that no credit for, or reduction in, emissions is assumed based on diversion of existing trips.

Provided herein is a summary of the VMT recommendations of the SCAQMD and SCAG, followed by a description of the methodology used to calculate the VMT rates used in the Air Quality Impact Analysis (Appendix A).

SCAQMD Recommendation

In the last 5 years, SCAQMD has provided numerous comments on the trip length for warehouse/distribution and industrial land use projects. SCAQMD asserts that the model-default trip length in CalEEMod and the URBEMIS 2007 model (version 9.2.4) would underestimate emissions. The SCAQMD asserts that for warehouse, distribution center, and industrial land use projects, most of the heavy-duty trucks would be hauling consumer goods, often from the Ports of Long Beach and Los Angeles and/or to destinations outside of California. SCAQMD states that, for this reason, the CalEEMod and the URBEMIS model default trip length (approximately 12.6 miles) would not be representative of activities at like facilities. SCAQMD generally recommends the use of a 40-mile one-way trip length.

SCAG Heavy-Duty Truck Model

SCAG is composed of six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 190 cities in Southern California and is the organization charged with addressing and resolving short- and long-term regional policy issues. The SCAG region also consists of 14 subregional entities recognized by the Regional Council as partners in the regional policy planning process. The SCAG region has more than 19 million residents and encompasses more than 38,000 square miles, representing the largest and most diverse region in the country.

SCAG maintains a regional transportation model. In its most recent (2008) transportation validation for the regional model, SCAG indicates the average internal truck trip length for the SCAG region is 5.92 miles for light-duty trucks, 13.06 miles for medium-duty trucks, and 24.11 miles for heavy-duty trucks (SCAG 2012).

Approach for Analysis of the Project

The SCAQMD approach identified above is deemed to be the most applicable for the project. This same methodology is employed in analyses for similar projects in the City and is considered by the lead agency to be appropriate and accurate.

Two separate model runs were utilized in order to more accurately model emissions resulting from vehicle operations. The first run analyzed passenger car emissions, which incorporated a default trip length of 16.6 miles for passenger cars within San Bernardino County and a fleet mix of 100% light-duty auto vehicles. The second run analyzed truck emissions, which incorporated an average truck trip length of 40 miles and a fleet mix of 1.97% light-duty, 28.02% medium-duty, and 70.01% heavy-duty trucks for warehousing uses. The estimated emissions resulting from vehicle operations are shown in Table 7. Detailed emission calculations are provided in the Air Quality Impact Analysis (Appendix A).

Fugitive Dust Related to Vehicular Travel

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of tire wear particulates. The emissions estimates for travel on paved roads were calculated using the CalEEMod model.

Operational Emissions Summary

Impacts Without Mitigation

Operational-source emissions without implementation of mitigation measures are summarized in Table 7. As indicated in the table, without the incorporation of mitigation, the proposed project would exceed regional thresholds for significance established by SCAQMD for NO_x.

Table 7
Summary of Peak Operational Emissions (Without Mitigation)

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Area source	5.76	4.60E-04	0.05	0.00	1.80E-04	1.80E-04
Energy source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (passenger cars)	0.85	1.22	17.63	0.06	6.92	1.86
Mobile (trucks)	3.47	115.12	22.54	0.46	13.91	4.44
Total Maximum Daily Emissions	**10.09**	**116.48**	**40.34**	**0.52**	**20.84**	**6.31**
SCAQMD regional threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**
Operational Activities – Winter Scenario	**Emissions (pounds per day)**					
	VOC	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Area source	5.76	4.60E-04	0.05	0.00	1.80E-04	1.80E-04
Energy source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (passenger cars)	0.69	1.28	14.19	0.05	6.92	1.86
Mobile (trucks)	3.54	117.75	23.91	0.45	13.91	4.45
Total Maximum Daily Emissions	**10.01**	**119.17**	**38.27**	**0.51**	**20.84**	**6.32**
SCAQMD regional threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

Source: Appendix A
Notes: VOC = volatile organic compound; NO_x = nitrogen oxides; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; E = (x 10^); SCAQMD = South Coast Air Quality Management District.

Impacts With Mitigation

Operational-source emissions with the implementation of mitigation measures are summarized in Table 8 and Table 9. Either mitigation Option A or Option B are required to reduce NO_x impacts to less-than-significant levels. Upon implementation of either Option A or Option B of Mitigation Measure (MM-) MM-AQ-1, project operational-source emissions would not exceed the applicable SCAQMD thresholds for any criteria pollutant.

Table 8
Summary of Peak Operational Emissions (With Mitigation Option A)

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Area source	5.76	4.60E-04	0.05	0.00	1.80E-04	1.80E-04
Energy source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (passenger cars)	0.85	1.22	17.63	0.06	6.92	1.86
Mobile (trucks)	1.56	51.98	10.32	0.21	627	2.01
Total Maximum Daily Emissions	**8.19**	**53.34**	**28.12**	**0.27**	**13.21**	**3.88**
SCAQMD regional threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Operational Activities – Winter Scenario	**Emissions (pounds per day)**					
	VOC	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Area source	5.76	4.60E-04	0.05	0.00	1.80E-04	1.80E-04
Energy source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (passenger cars)	0.69	1.28	14.19	0.05	6.92	1.86
Mobile (trucks)	1.60	53.02	10.77	0.20	6.26	2.00
Total Maximum Daily Emissions	**8.06**	**54.44**	**25.12**	**0.26**	**13.20**	**3.87**
SCAQMD regional threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: Appendix A
Notes: VOC = volatile organic compound; NO_x = nitrogen oxides; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; E = (x 10^); SCAQMD = South Coast Air Quality Management District.

Table 9
Summary of Peak Operational Emissions (With Mitigation Option B)

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Area source	5.76	4.60E-03	0.05	0.00	1.80E-04	1.80E-04
Energy source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (passenger cars)	0.85	1.22	17.63	0.06	6.92	1.86
Mobile (trucks)	2.00	52.71	13.00	0.26	8.02	2.56
Total Maximum Daily Emissions	**8.62**	**54.07**	**30.80**	**0.33**	**14.96**	**4.43**
SCAQMD regional threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Table 9
Summary of Peak Operational Emissions (With Mitigation Option B)

Operational Activities – Winter Scenario	Emissions (pounds per day)					
	VOC	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Area source	5.76	4.60E-03	0.05	0.00	1.80E-04	1.80E-04
Energy source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (passenger cars)	0.69	1.28	14.19	0.05	6.92	1.86
Mobile (trucks)	2.04	53.42	13.79	0.26	8.02	2.56
Total Maximum Daily Emissions	**8.51**	**54.84**	**28.15**	**0.32**	**14.95**	**4.44**
SCAQMD regional threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: Appendix A
Notes: VOC = volatile organic compound; NO_x = nitrogen oxides; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; E = (x 10^); SCAQMD = South Coast Air Quality Management District.

As shown in Table 7, emissions result from the proposed project operations would exceed criteria pollutant thresholds established by the SCAQMD for emissions of NO_x without mitigation. With implementation of Option A or Option B of MM-AQ-1, as shown in Table 8 and Table 9, project operational-source emissions would not exceed the applicable SCAQMD thresholds for emissions of NO_x. Therefore, upon implementation of MM-AQ-1, impacts associated with violation of air quality standards would be less than significant.

MM-AQ-1 In order to reduce the operational impacts associated with oxides of nitrogen (NO_x) emissions, the proposed project shall implement one of the following mitigation options:

Mitigation Option A: The proposed project's tenant(s) shall limit the number of heavy-duty diesel-fueled trucks accessing the project site to 164 trucks per day if the truck fleet is wholly or partially older than the 2010 U.S. Environmental Protection Agency/California Air Resources Board (EPA/CARB) truck engine standards. The tenant shall keep a truck log tracking on-site trucking activities and shall make it available to the City of Rialto and/or their designee at the City's request.

or

Mitigation Option B: The proposed project's tenant(s) shall limit the number of heavy-duty diesel-fueled trucks accessing the project site to 210 trucks per day if the truck fleet is equal to or better than the 2010 U.S.

> Environmental Protection Agency/California Air Resources Board truck engine standards. The tenant shall keep a truck log tracking on-site trucking activities and make it available to the City of Rialto and/or their designee at the City's request.

Pursuant to a phase-in schedule established by EPA/CARB, all heavy- and heavier-duty diesel-fueled trucks must have a 2010 Model Year engine or newer by 2023. Thus, MM-AQ-1 shall be in effect on the project until 2023. It is recommended that Mitigation Options A and B in MM-AQ-1 be included as a condition of project approval, and that the tenant keep a truck log that would be available to the City or its designee upon request to verify compliance.

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)?

Less-Than-Significant Impact with Mitigation Incorporated. Related projects could contribute to an existing or projected air quality exceedance because SCAB is currently in nonattainment for PM_{10} and $PM_{2.5}$. SCAQMD published the *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* on how to address cumulative impacts from air pollution. In this document, the SCAQMD clearly states the following (SCAQMD 2003a, D-3):

> The AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.
>
> Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the

reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the SCAB is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable. As previously noted, the project will not exceed the applicable SCAQMD regional threshold for construction and operational-source emissions. Therefore, the proposed project would not result in a cumulatively significant impact for construction or operational activity.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-Than-Significant Impact With Mitigation Incorporated. The potential impact of project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, child-care centers, and athletic facilities can also be considered as sensitive receptors.

Localized Significance Thresholds

The analysis uses methodology in the SCAQMD *Final Localized Significance Threshold Methodology* (methodology) (SCAQMD 2008). SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as LSTs.

The significance of localized emissions impacts depends on whether ambient levels in the vicinity of any given project are above or below state standards. In the case of CO and NO_2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$, both of which are nonattainment pollutants.

SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4.[3] LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable CAAQS or NAAQS at the nearest residence or sensitive receptor. SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses.

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. The analysis makes use of methodology included in the SCAQMD methodology (SCAQMD 2008).

Applicability of LSTs for the Proposed Project

For the proposed project, the appropriate source receptor area for the LST analysis is the central San Bernardino Valley air monitoring station (Source Receptor Area 34). LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.

To determine the appropriate methodology for determining localized impacts that could occur as a result of project-related construction, the following process is undertaken:

- CalEEMod is used to determine the maximum daily on-site emissions that will occur during construction activity.
- SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (SCAQMD 2013) is used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod.
- If the total acreage disturbed is less than or equal to 5 acres per day, then SCAQMD's screening look-up tables are used to determine if a project has the potential to result in a significant impact. The look-up tables establish a maximum daily emissions threshold in pounds per day that can be compared to CalEEMod outputs.

[3] The purpose of SCAQMD's environmental justice program is to ensure that everyone has the right to equal protection from air pollution and fair access to the decision-making process that works to improve the quality of air within their communities. Further, the SCAQMD defines environmental justice as "equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution" (SCAQMD 2017b).

Emissions Considered

SCAQMD's methodology clearly states that "off-site mobile emissions from the project should NOT be included in the emissions compared to LSTs" (SCAQMD 2003b). Therefore, for the purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered.

Sensitive Receptors

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, individuals with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as "sensitive receptors"; they are also known to be locations where an individual can remain for 24 hours.

The nearest sensitive receptor is a single-family residence located north of the project site, approximately 51 feet from the project site. Sensitive receptors relative to the project study area include the existing residential homes, as described below, at locations R1 to R6.

R1: Located approximately 51 feet north of the project site, R1 represents an existing residential home west of Alder Avenue.

R2: Location R2 represents existing residential community located approximately 97 feet south of the project site, south of Baseline Road.

R3: Location R3 represents existing residential community located roughly 289 feet southeast of the project site, south of Baseline Road.

R4: Location R4 represents existing residential home located roughly 1,215 feet northeast of the project site, east of Alder Avenue.

R5: Location R5 represents existing residential community located roughly 1,736 feet west of the project site, west of Palmetto Avenue.

R6: Location R6 represents existing residential community located roughly 2,408 feet northwest of the project site, west of Palmetto Avenue.

Construction-Source Emissions LST Analysis

Table 10 is used to determine the maximum daily disturbed acreage during site grading for modeling localized emissions. As indicated in Table 10, the proposed project could actively disturb approximately 1.0 acre per day during the demolition phase, 3.5 acres during the site preparation phase, and approximately 4.0 acres per day during the grading phase of construction.

Table 10
Maximum Daily Disturbed Acreage

Construction Phase	Equipment Type	Equipment Quantity	Acres Graded per 8-Hour day	Operating Hours per Day	Acres Graded Per Day
Demolition	Crawler tractors	0	0.5	8	0
	Graders	0	0.5	8	0
	Rubber-tired dozers	2	0.5	8	1.0
	Scrapers	0	1.0	8	0
Total acres graded per day during demolition					**1.0**
Site preparation	Crawler tractors	4	0.5	8	2.0
	Graders	0	0.5	8	0
	Rubber-tired dozers	3	0.5	8	1.5
	Scrapers	0	1.0	8	0
Total acres graded per day during site preparation					**3.5**
Grading	Crawler tractors	2	0.5	8	1.0
	Graders	1	0.5	8	0.5
	Rubber-tired dozers	1	0.5	8	0.5
	Scrapers	2	1.0	8	2.0
Total acres graded per day during grading					**4.0**

Source: Appendix A.

Since the total acreage disturbed is less than 5 acres per day for the demolition phase, site preparation phase, and grading phase, SCAQMD's screening look-up tables were used in determining impacts. A 25-meter receptor distance is conservatively utilized as a screening threshold to determine the LSTs for emissions of CO, NO_2, PM_{10}, and $PM_{2.5}$.

Table 11 identified the localized impacts at the nearest receptor location in the vicinity of the proposed project. As shown, construction emissions would exceed SCAQMD's LSTs for $PM_{2.5}$ during site preparation activities.

Table 11
Localized Significance Summary Construction (Without Mitigation)

On-Site Demolition Emissions	Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**38.32**	**22.30**	**2.37**	**1.87**
SCAQMD Localized Threshold	118	667	4	3
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Site Preparation Emissions	**Emissions (pounds per day)**			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**71.60**	**23.73**	**10.99**	**6.83**
SCAQMD Localized Threshold	220	1,359	11	6
Threshold Exceeded?	**NO**	**NO**	**NO**	**YES**
On-Site Grading Emissions	**Emissions (pounds per day)**			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**71.22**	**35.72**	**6.72**	**4.12**
SCAQMD Localized Threshold	237	1,488	12	7
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Source: Appendix A.
Notes: NO_x = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; SCAQMD = South Coast Air Quality Management District.

Table 12 identifies the localized impacts at the nearest receptor location in the vicinity of the project with implementation of MM-AQ-1.

Table 12
Localized Significance Summary Construction (With Mitigation)

On-Site Demolition Emissions	Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**38.32**	**22.30**	**2.37**	**1.87**
SCAQMD Localized Threshold	118	667	4	3
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Site Preparation Emissions	**Emissions (pounds per day)**			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**50.45**	**26.64**	**9.99**	**5.94**
SCAQMD Localized Threshold	220	1,359	11	6
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Table 12
Localized Significance Summary Construction (With Mitigation)

On-Site Grading Emissions	Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**71.22**	**35.72**	**6.72**	**4.12**
SCAQMD Localized Threshold	237	1,488	12	7
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Source: Appendix A.
Notes: NO_x = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; SCAQMD = South Coast Air Quality Management District.

With implementation of MM-AQ-2, as shown in Table 12, construction emissions would not exceed the applicable SCAQMD LSTs for any criteria pollutant. Therefore, upon implementation of MM-AQ-2, impacts associated with LSTs would be less than significant.

MM-AQ-2 During the site preparation phase of project construction, when using construction equipment greater than 150 horsepower, the construction contractor shall use off-road diesel construction equipment that complies with U.S. Environmental Protection Agency (EPA)/California Air Resources Board (CARB) Tier 3 emissions standards and shall ensure that all construction equipment be tuned and maintained in accordance with the manufacturer's specifications.

Operational-Source Emissions LST Analysis

Generally, the maximum acreage would be the proposed project's building square footage, which is approximately 255,173 square feet or 5.86 acres. However, for the purposes of this analysis, the SCAQMD look-up tables of 5 acres were used to determine LSTs for operational activity.

Table 13 shows the calculated emissions for the proposed project's operational activities compared with the applicable LSTs. The LST analysis includes on-site sources only; however, CalEEMod outputs do not separate on-site and off-site emissions from mobile sources. In an effort to establish a maximum potential impact scenario for analytic purposes, the emissions shown in Table 13 represent all on-site project-related stationary (area) sources and 5% of the project-related mobile sources. Considering that the weighted trip length used in CalEEMod for the proposed project is approximately 40 miles, 5% of this total would represent an on-site travel distance for each car and truck of approximately 2 miles or 10,560 feet; thus, the 5% assumption is conservative and would tend to overstate the actual impact. Modeling based on these assumptions demonstrates

that even within broad encompassing parameters, operational-source emissions for the proposed project would not exceed applicable LSTs.

As previously noted, a 25-meter receptor distance is utilized to determine the LSTs for emissions of NO_x, CO, PM_{10}, and $PM_{2.5}$.

LSTs for Operational Activity

Applicable LSTs from the SCAQMD's mass-rate LST lookup tables for a 5-acre project site are as follows:

- NO_x: 270 pounds per day
- CO: 1,746 pounds per day
- PM_{10}: 4 pounds per day
- $PM_{2.5}$: 2 pounds per day

If emissions exceed the applicable LSTs for operational activity, then additional dispersion modeling needs to be conducted to determine if there is an actual exceedance of the ambient air quality standards.

Table 13
Localized Significance Summary Operations

Operational Activity	Emissions (pounds per day)			
	NO_x	*CO*	*PM_{10}*	*$PM_{2.5}$*
Maximum Daily Emissions	4.40	1.61	0.78	0.24
SCAQMD Localized Threshold	333	3,098	13	2
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Source: Appendix A.
Notes: NO_x = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; SCAQMD = South Coast Air Quality Management District.

As shown in Table 13, operational emissions would not exceed the applicable SCAQMD LST thresholds for any criteria pollutant. Therefore, impacts would be less than significant.

CO "Hotspot" Analysis

The proposed project would not result in potentially adverse CO concentrations or "hotspots." Further, detailed modeling of project-specific CO hotspots is not needed to reach this conclusion.

A hotspot would occur if an exceedance of the state 1-hour standard of 20 parts per million (ppm) or the 8-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, SCAB was designated nonattainment under the CAAQS and NAAQS for CO.

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in SCAB is now designated as attainment. Also, CO concentrations in the project vicinity have steadily declined.

To establish a more accurate record of baseline CO concentrations affecting SCAB, a CO hotspot analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon times. This hotspot analysis did not predict any violation of CO standards, as shown in Table 14.

Table 14
Carbon Monoxide Model Results

Intersection Location	Carbon Monoxide Concentrations (ppm)		
	Morning 1-Hour	*Afternoon 1-Hour*	*8-Hour*
Wilshire–Veteran	4.6	3.5	4.2
Sunset–Highland	4	4.5	3.9
La Cienega–Century	3.7	3.1	5.8
Long Beach–Imperial	3	3.1	9.3

Source: Appendix A.
Note: ppm = parts per million.

Based on the SCAQMD's 2003 AQMP (SCAQMD 2003b) and the 1992 Federal Attainment Plan for Carbon Monoxide (SCAQMD 1992), peak CO concentrations in SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 8.4 ppm 8-hour CO concentration was measured at the Long Beach

Boulevard and Imperial Highway intersection (highest CO-generating intersection within the hotspot analysis), and only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection. The remaining 7.7 ppm of the 8.4 ppm 8-hour CO concentration was a result of the unusual ambient air measurements taken at the time the 2003 AQMP was prepared. Therefore, even if the traffic volumes for the proposed project were double or triple of the traffic volumes generated at the Long Beach Boulevard and Imperial Highway intersection, coupled with the ongoing improvements in ambient air quality, the proposed project would not be capable of resulting in a CO hotspot at any study area intersections.

Similar considerations are also employed by other air districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2010).

Traffic volumes generating the CO concentrations for the hotspot analysis are shown in Table 15. The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vehicles per day. The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4 = 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).[4] At buildout of the proposed project, the highest daily traffic volumes generated at the roadways within the vicinity of the project are expected to generate less than the highest daily traffic volumes generated at the busiest intersection in the CO hotspot analysis. As such, the proposed project would not likely exceed the most stringent 1-hour CO standard. At buildout of the proposed project, the highest average daily trips on a segment of road would be 51,626 daily trips on south Alder Avenue and I-210 eastbound ramps, which is lower than the highest daily traffic volumes generated at the busiest intersection in the CO "hot spot" analysis (Appendix F).

[4] Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

Table 15
Traffic Volumes for Intersections Evaluated in the 2003 AQMP

Intersection Location	Peak Traffic Volumes (vph)				
	Eastbound (AM/PM)	*Westbound (AM/PM)*	*Southbound (AM/PM)*	*Northbound (AM/PM)*	*Total (AM/PM)*
Wilshire–Veteran	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset–Highland	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega–Century	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach–Imperial	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: Appendix A.
Notes: vph = vehicles per hour.

The proposed project considered herein would not produce the volume of traffic required to generate a CO hotspot either in the context of the 2003 Los Angeles hotspots study, or based on representative Bay Area Air Quality Management District CO threshold considerations, as shown in Table 16. As such, CO hotspots are not an environmental impact of concern for the proposed project. Therefore, localized air quality impacts related to mobile-source emissions would be less than significant.

Table 16
Project Peak Hour Traffic Volumes

Intersection Location	Peak Traffic Volumes (vph)				
	Northbound (AM/PM)	*Southbound (AM/PM)*	*Eastbound (AM/PM)*	*Westbound (AM/PM)*	*Total (AM/PM)*
Alder Av./I-210 EB Ramps	1,622/1,706	2,190/1,790	724/1,299	0/0	4,536/4,795
Alder Av./Renaissance Pkwy.	1,625/2,151	1,861/1,435	1,065/1,808	375/391	4,926/5,785
Alder Av./Baseline Rd.	2,969/1,188	844/1,169	1,267/1,225	923/758	6,003/4,340
Ayala Drive/Cedar Av./Baseline Rd.	1,031/1,202	1,237/1,416	677/1,086	1,190/1,160	4,135/4,864

Source: Appendix A.
Notes: vph = vehicles per hour.

Health Risk Assessment

The health risk assessment prepared for the proposed project (Appendix A) evaluated the potential mobile source health risk impacts to sensitive receptors (residents and schools) and adjacent workers associated with the development of the project. Specifically, the report analyzed health risk impacts as a result of exposure to diesel particulate matter (DPM) as a result of heavy-duty diesel trucks accessing the site. The results of the health risk assessment of lifetime cancer risk from project-generated DPM emissions are provided in Table 17.

Residential Exposure Scenario

The residential land use with the greatest potential exposure to project-related DPM source emissions is located approximately 51 feet north of the project site. At the maximally exposed individual receptor, the maximum incremental cancer risk attributable to project DPM source emissions is estimated at 5.29 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.002, which would not exceed the applicable threshold of 1.0. As such, the project will not cause a significant human health or cancer risk to adjacent residences.

Worker Exposure Scenario

The worker receptor land use with the greatest potential exposure to project-related DPM source emissions is located immediately adjacent to the west of the project site and is an existing industrial use. At the maximally exposed individual worker, the maximum incremental cancer risk impact at this location is 0.21 in 1 million, which is less than the threshold of 10 in 1 million. Maximum non-cancer risks at this same location were estimated to be 0.0006, which would not exceed the applicable threshold of 1.0. As such, the project will not cause a significant human health or cancer risk to adjacent workers.

School Child Exposure Scenario

There are no schools located within 0.25 mile of the project site. As such, there would be no significant impacts that would occur to any schools in the vicinity of the project.

Table 17
Summary of Cancer and Non-Cancer Risks

Cancer Risks				
Time Period	*Location*	*Maximum Lifetime Cancer Risk (Risk per Million)*	*Significance Threshold (Risk per Million)*	*Exceed Significance Threshold*
30-year exposure	Maximum exposed sensitive receptor	5.29	10	No
25-year exposure	Maximum exposed worker receptor	0.21	10	No
Non-Cancer Risks				
Time Period	*Location*	*Maximum Hazard Index*	*Significance Threshold*	*Exceed Significance Threshold*
30-year exposure	Maximum exposed sensitive receptor	0.002	1.0	No
25-year exposure	Maximum exposed worker receptor	0.0006	1.0	No

Source: Appendix A.

Summary

Results of the LST analysis indicate that the proposed project would not exceed the SCAQMD LSTs during construction. Thus, sensitive receptors would not be exposed to substantial pollutant concentrations during project construction.

Results of the LST analysis indicate that the proposed project would not exceed the SCAQMD LSTs during operational activity. Additionally, proposed project traffic would not create or result in a CO hotspot. Further, the proposed project would not result in significant human health or cancer risk to adjacent residences, workers, or schoolchildren. As such, sensitive receptors would not be exposed to substantial pollutant concentrations as the result of project operations.

Therefore, impacts associated with potential impacts to sensitive receptors would **be less than significant.**

e) Would the project create objectionable odors affecting a substantial number of people?

Construction-Source Emissions

Less-Than-Significant Impact. Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Therefore, potential construction-source odor impacts are considered **less than significant**.

Operational-Source Emissions

Less-Than-Significant Impact. Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills, or various heavy industrial uses. The proposed project does not include any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the proposed project would include disposal of miscellaneous commercial refuse. Consistent with City requirements, all project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations, thereby precluding substantial generation of odors due to temporary holding of refuse on site. Moreover, SCAQMD

Rule 402 acts to prevent occurrences of odor nuisances (SCAQMD 1976). Therefore, potential operational-source odor impacts are considered **less than significant**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.4 Biological Resources

The following analysis relies on a biological resources assessment conducted by Dudek biologist Ryan Henry in February 2018. This assessment included a pre-field review of the latest available relevant literature, published research, maps, soil data, data on biological baselines, special-status habitats, and species distributions to determine those resources that have the potential to occur within the project site and surrounding 100-foot buffer (the study area). The most recent versions of the California Natural Diversity Database (CNDDB) and special-status species lists (CDFW

2018a–2018e), the California Native Plant Society's (CNPS's) Inventory of Rare and Vascular Plants (CNPS 2018), and U.S. Fish and Wildlife (USFWS) occurrence data (USFWS 2018) were reviewed to identify special-status biological resources present or potentially present on the project site. The CNDDB and CNPS Inventory were queried based on the U.S. Geological Survey 7.5-minute quadrangle on which the project site is located (i.e., Devore) and the eight surrounding quadrangles (i.e., Cajon, Cucamonga Peak, Fontana, Guasti, San Bernardino North, San Bernardino South, Silverwood Lake, and Telegraph Peak). The remaining databases were queried using geographic information system (GIS) software based on a 10-mile buffer around the project site. Additionally, Dudek biologists reviewed the *Renaissance Specific Plan* (City of Rialto 2010b) and the *Final Recirculated Subsequent Environmental Impact Report for the Renaissance Specific Plan Amendment* (City of Rialto 2016a).

Following the pre-field literature review, Mr. Henry conducted a reconnaissance-level survey of the site on February 20, 2018, to identify existing biological resources and confirm potential biological constraints. The survey was conducted from 0810 to 0945; weather conditions were favorable with clear skies, wind speeds from 5 to 10 mph, and temperatures that ranged from 39°F to 48°F. During the field survey, vegetation communities and land covers were catalogued and confirmed based on existing site conditions. Vegetation communities were mapped according to the California Department of Fish and Wildlife's (CDFW's) List of Vegetation Alliances and Associations (or Natural Communities List), which is based on *A Manual of California Vegetation*, 2nd edition (Sawyer et. al. 2009). Land covers not included in the List of Vegetation Alliances and Associations followed the Orange County Habitat Classification System (County of Orange 1992). A general inventory of plant and wildlife species detected by sight, calls, tracks, scat, or other field indicators were compiled, and a determination was made concerning the potential for special-status species to occur within the study area. In addition, an investigation of the extent and distribution of jurisdictional waters of the United States regulated by the U.S. Army Corps of Engineers, jurisdictional waters of the state regulated by the Regional Water Quality Control Board (RWQCB), and jurisdictional streambed and associated riparian habitat regulated by CDFW was conducted.

The study area is characterized by non-natural land covers: urban (15.1) and cleared or graded (16.1) (County of Orange 1992). The urban land cover consists of residential buildings, pavement, roads, truck parking, storage areas, and ornamental plantings. This land cover type occurred in the south-central portion of the study area. Vegetation included several non-native and ornamental (planted) species including alkali mallow (*Malvella leprosa*), Bermuda grass (*Cynodon dactylon*), bougainvillea (*Bougainvillea glabra*), Canary Island date palm (*Phoenix canariensis*), common fiddleneck (*Amsinckia intermedia*), common Mediterranean grass (*Schismus barbatus*), compact brome (*Bromus madritensis* ssp. *madritensis*), curly doc (*Rumex*

crispus), jacaranda (*Jacaranda mimosifolia*), pine (*Pinus* sp.), queen palm (*Syagrus romanzoffiana*), redstem stork's bill (*Erodium cicutarium*), ripgut brome (*Bromus diandrus*), sugar gum (*Eucalyptus cladocalyx*), tree of heaven (*Ailanthus altissima*), Washington fan palm (*Washingtonia robusta*), and wild cucumber (*Marah macrocarpa*).

The cleared or graded land cover consisted of areas that either lack vegetation or are dominated by ruderal vegetation. This land cover type occurred throughout a majority of the study area and is associated with parcels that are frequently maintained. Vegetation remaining included non-native, invasive species such as annual bluegrass (*Poa annua*), Bermuda grass, compact brome, ripgut brome, and common Mediterranean grass.

A limited number of wildlife species was observed or detected during the general field survey of the study area, including a total of 11 bird species and 4 mammal species. Bird species detected within the study area included American crow (*Corvus brachyrhynchos*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), European starling (*Sturnus vulgaris*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), western kingbird (*Tyrannus verticalis*), and white-crowned sparrow (*Zonotrichia leucophrys*). Invertebrate species detected included the cabbage white (*Pieris rapae*). Mammal species included Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*), and domestic dog (*Canis lupus familiaris*). No invertebrate or reptile species were detected.

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. The study area includes the construction footprint of an approximate 255,173-square-foot warehouse on approximately 11.63 gross acres, plus a 100-foot buffer around the project site. Due to the condition of the study area, the potential for rare species is low.

Plant Species

The project site is entirely developed and disturbed areas. No plant species listed or proposed for listing as rare, threatened, or endangered by either CDFW or the USFWS were detected within the study area during the reconnaissance survey on February 20, 2018. Additionally, no plant species considered sensitive by the CNPS were detected.

Dudek performed a review of literature, existing documentation, and GIS data to evaluate the potential for special-status plant species to occur within the study area. Twenty-three special-status plant species were identified as previously occurring within the region. However, none of these species are expected to occur within the study area based on the CNDDB and CNPS records. The complete results of this potential to occur evaluation for special-status plants are included as Appendix B-1 of this document. No listed or special-status plant species have the potential to occur within the study area due to the lack of suitable habitat. Additionally, there is no USFWS-designated critical habitat for listed plant species within the study area. As a result, direct or indirect impacts to special-status plant species would be less than significant.

The survey was not conducted during the peak bloom period for most flowering plants; however, due to the amount of disturbance within the study area, rare plant species would not likely survive with the current amount of disturbance, non-native plant competition, and development already in place.

Wildlife Species

The project site is entirely restricted to developed and disturbed areas. No wildlife species listed or proposed for listing as rare, threatened, or endangered by either CDFW or USFWS were detected within the study area during the reconnaissance survey conducted on February 20, 2018.

Dudek performed a review of literature, existing documentation, and GIS data to evaluate the potential for special-status wildlife species to occur within the study area. Forty-two special-status wildlife species were identified as occurring within the region. However, none of these species is expected to occur, or they have a low potential to occur within the study area based on the CNDDB records. The complete results of this potential to occur evaluation for special-status wildlife are included as Appendix B-2 of this document.

Of the 42 special-status wildlife species listed in the CNDDB and USFWS databases as occurring in the vicinity of the study area, one was determined to have a low potential to occur within the project site, the burrowing owl (*Athene cunicularia*), a California Species of Special Concern (CSC). Portions of the cleared/graded land cover contain compacted rock and gravel fill material, and the site generally lacks suitable nesting habitat for the burrowing owl. Three other special-status wildlife species were determined to have a low potential of occurring on the project site, including the San Diego black-tailed jackrabbit (*Lepus californicus bennettii*; CDFW CSC), San Diego desert woodrat (*Neotoma lepida intermedia*; CDFW CSC), and southern grasshopper mouse (*Onychomys torridus ramona*; CDFW CSC).

The remaining species were determined to have no potential to occur on the project site based on the highly disturbed conditions, and lack of suitable habitat to support special-status wildlife species. Impacts to special-status wildlife species would be **less than significant**.

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 Impact. The project site is located entirely on disturbed/developed land. No natural vegetation communities are present within the impact footprint. As a result, there would be **no impact** to riparian or sensitive vegetation communities.

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?

No Impact. No federally defined waters of the United States or waters of the state occur within the study area. This includes the absence of federally defined wetlands and other waters (e.g., drainages), and state-defined waters (e.g., streams and riparian extent). **No direct or indirect impacts** to jurisdictional waters or wetlands would occur.

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?

Less-Than-Significant Impact. The proposed project is located on a vacant lot surrounded by industrial, commercial, and residential development. Due to the matrix of development surrounding the project site, the proposed project would not constrain natural wildlife movement in its vicinity. Therefore, **no direct or indirect impacts** to wildlife movement would occur.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The City of Rialto does not have any local policies or ordinances protecting biological resources, including a tree protection policy or ordinance. The proposed project would not conflict with any local policies or ordinances, and **no impact** would occur.

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 Impact. The proposed project is not within any habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. Therefore, it would not be in conflict with any such plans, and **no impact** would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 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 dedicated cemeteries?	☐	☐	☒	☐

3.5 Cultural Resources

The following analysis is based, in part, on the Cultural Resources Report prepared by Dudek in July 2018 and included as Appendix C.

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Less-Than-Significant Impact. As part of preparing the Cultural Resources Report (Appendix C) for the proposed project, a records search to identify previously documented historic resources was conducted. This search included a review of the National Register of Historic Places (NRHP), the California Register of Historical Places (CRHR), the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and the Archaeological Determinations of Eligibility. In addition, the search involved a review of the City of

Rialto Public Records Center, the San Bernardino County Tax Assessor's office, and historical aerials and maps.

A pedestrian survey of the project area was conducted on March 15, 2018, to assess historic age built-environment resources. During the survey, all buildings and structures constructed over 45 years ago were surveyed and recorded. The project site encompasses 12 parcels (APNs 0204-201-10, 0240-201-12, 0240-201-13, 0240-201-14, 0240-201-15, 0240-201-18, 0240-201-38, 0240-201-42, 0240-201-44, 0240-201-45, 0240-201-46, and 0240-201-47) at the northeast intersection of Baseline Road and Alder Avenue. Built-environment resources were found on Property 1 (APN 0240-201-18), Property 2 (APNs 0240-201-15 and 0240-201-44), and Property 3 (APN 0240-20-10). California Department of Parks and Recreation Series 523 Forms were prepared for all built-environment resources and are provided in Appendix C.

The property significance evaluation was prepared by Dudek architectural historian Sarah Corder, MFA, who meets the Secretary of the Interior's Professional Qualification Standards for architectural history. The evaluation considers both NRHP and CRHR significance criteria and integrity requirements.

As defined by the CEQA Guidelines (14 CCR 15000 et seq.), a "historical resource" is considered to be a resource that is listed in or eligible for listing in the NRHP or CRHR, has been identified as significant in a historical resource survey, or is listed on a local register of historical resources.

The criteria for listing resources in the CRHR were developed to be in accordance with previously established criteria developed for listing in the NRHP. Thus, the criteria listed below is expressed in accordance with the NRHP criteria. According to PRC 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 pattern of our history

(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

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" (PRC Section 21084.1; 14 CCR 15064.5(b)). If a site is listed or eligible for listing in the CRHR, or 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 the purposes of CEQA (PRC Section 21084.1; 14 CCR 15064.5(a)).

In compliance with CEQA, the properties containing built-environment resources were evaluated under the four CRHR criteria outlined above, as well as local landmark criteria. As detailed in Appendix C, the existing on-site residences do not meet the criteria for listing in the CRHR and do not qualify as historical resources under CEQA. Therefore, impacts associated with historical resources would be **less than significant**.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less-Than-Significant Impact with Mitigation Incorporated. On February 13, 2018, Dudek completed a search of the California Historical Resources Information System at the South Central Coastal Information Center, located on the campus of California State University, Fullerton. This search included mapped prehistoric, historical, and built-environment resources; Department of Parks and Recreation site records; technical reports; archival resources; and ethnographic references. Additional consulted sources included historical maps of the project site, the NRHP, the CRHR, the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and the Archaeological Determinations of Eligibility.

The South Central Coastal Information Center records indicate that 29 previous technical investigations for cultural resources have been conducted within 1 mile (1,608 meters) of the project area between 1977 and 2016. Of these, two previous studies overlap with the project area, while the remaining eight are within the records search buffer. The South Central Coastal Information Center records indicate that 16 resources have been recorded within 1 mile (1,608 meters) of the project area. Of the 16 resources, 6 are built-environment resources; 4 are historic refuse scatters; 2 are concrete foundations; and 4 are historic sites with refuse scatters and associated historic structural features. However, none are located within the project area.

Dudek archaeologists conducted an intensive pedestrian survey on March 15, 2018, using standard archaeological procedures and techniques. All field practices met the Secretary of

Interior's standards and guidelines for a cultural resources inventory. Pedestrian transects were spaced at 49-foot (15-meter) intervals. Ground disturbances, such as burrows, cut banks, and drainages were also visually inspected for exposed subsurface materials and to record locational information. No artifacts were collected during the surveys. In addition to the archaeology survey, a pedestrian survey was conducted of the project area on March 15, 2018, for historic age built-environment resources. During the survey, all buildings and structures constructed over 45 years ago were surveyed and recorded.

No archaeological or historic built-environment resources were identified during the intensive-level survey of the project area. Observed disturbances within the project area included modern trash scatter, grading disturbances, and construction. Additionally, no archaeological resources were identified within the project area, and no structures were determined to be historically significant.

Based on this information, and because of the disturbed nature of the project area, the archaeological sensitivity of the project site is considered to be low. However, it is always possible that intact archaeological deposits could be present at subsurface levels. For this reason, the project site should be treated as potentially sensitive for archaeological resources. Therefore, MM-CUL-1 and MM-CUL-2 are required to reduce potential impacts to unanticipated archaeological resources to less than significant.

MM-CUL-1 A qualified archaeological monitor meeting the Secretary of the Interior's Standards and Guidelines with documented experience in regional archaeology shall be present for subsurface, ground-disturbing construction activities within native soils that occur within the project site. These subsurface activities include, but are not limited to, grading, excavation, trenching, and drainage, irrigation and utility removal and installation. If simultaneously occurring ground disturbing activities are proposed, a sufficient number of archaeological monitors shall be present each work day to ensure that simultaneously occurring activities receive thorough levels of monitoring coverage.

Following the initial phases of subsurface, ground-disturbing construction activities and at the sole discretion of the archaeological monitor, if it is determined that subsurface construction activities would not occur within native alluvial soils, or if the monitor is able – in their own expert opinion – to determine that the project site is unlikely to garner any cultural resources of significance pursuant to the California Environmental Quality Act

(CEQA), the monitor shall have the authority to cease monitoring activities prior to completion of subsurface construction activities.

Prior to the start of subsurface, ground-disturbing constriction activities, a Monitoring and Treatment Plan shall be completed by the archaeologist and submitted to the City of Rialto for dissemination to the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI), and any other Native American Tribe that considers the project site to be within its traditional use area. Once all parties review and approve the plan, it shall be adopted and enforced by the City of Rialto prior to the start of subsurface construction activities. Any and all findings shall be subject to the protocol detailed within the Monitoring and Treatment Plan.

MM-CUL-2 If a pre-contact cultural resource is discovered during project implementation, ground disturbing activities shall be suspended 60 feet around the resource(s) and an Environmentally Sensitive Area physical demarcation/barrier constructed. Representatives from the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI), any other Native American Tribe that considers the project site to be within its traditional use area, the archaeological monitor, and the City of Rialto shall coordinate regarding treatment of the discovered resource, as detailed within the Monitoring and Treatment Plan. A research design shall be developed and shall include a plan to evaluate the resource for significance under California Environmental Quality Act (CEQA) criteria. The research design shall also acknowledge that, regardless of significance under CEQA, all finds are subject, if feasible, to avoidance/preservation in place as treatment.

Should any resource(s) not be a candidate for avoidance or preservation in place, and the removal of the resource(s) is necessary to mitigate impacts, the research design shall include a comprehensive discussion of sampling strategies, resource processing, analysis, and reporting protocols/obligations. Removal of any cultural resource(s) shall be conducted with the presence of a Tribal monitor representing the Tribe, unless otherwise decided by the consulting Tribe(s). All plans for analysis shall be reviewed and approved by the City or Rialto and the consulting Tribe(s) prior to implementation, and all removed material shall be temporarily curated on-site.

Removed cultural material shall be reburied as close to the original find location as possible. However, should reburial within/near the original find location during project implementation not be feasible, then a reburial location for future reburial shall be decided upon by the consulting Tribe(s), the landowner, and the City of Rialto, and all finds shall be reburied within this location. Additionally, in this case, reburial shall not occur until all ground-disturbing activities associated with the project have been completed, all monitoring has ceased, all cataloguing and basic recordation of cultural resources have been completed, and a final monitoring report has been issued to the City of Rialto, the local California Historical Resources Information System (CHRIS) Information Center, and the consulting Tribe(s). All reburials are subject to a reburial agreement that shall be developed between the landowner and the consulting Tribe(s) outlining the determined reburial process/location, and shall include measures and provisions to protect the reburial area from any future impacts (vis a vis project plans, conservation/preservation easements, etc.).

Should it be determined that avoidance, preservation in place, and on-site reburial are not an option for treatment, the landowner shall relinquish all ownership and rights to this material and confer with consulting Tribe(s) to identify an American Association of Museums-accredited facility within San Bernardino County that can accession the materials into their permanent collections and provide for the proper care of these objects in accordance with the 1993 California Curation Guidelines. A curation agreement with an appropriate qualified repository shall be developed between the landowner and museum that legally and physically transfers the collections and associated records to the facility. This agreement shall stipulate the payment of fees necessary for permanent curation of the collections and associated records and the obligation of the landowner/project applicant to pay for those fees.

All draft records/reports containing the significance and treatment findings and data recovery results shall be prepared by the archaeologist and submitted to the City of Rialto and the consulting Tribe(s) for their review and comment. After approval from all parties, the final reports and site/isolate records are to be submitted to the local CHRIS Information Center, the City of Rialto, and the consulting Tribe(s).

With the incorporation of MM-CUL-1 and MM-CUL-2, impacts associated with archaeological resources would be **less than significant**.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-Than-Significant Impact with Mitigation Incorporated. The project area is within an area dominated by younger alluvium derived from the San Gabriel Mountains and the Lytle Creek drainage. These deposits are relatively deep and not known to be associated with fossil specimens. Nonetheless, the erosion of the mountains and the excessive debris flows from the creek may carry fossil remains into the general area and, therefore, there is still a slight possibility for fossils to be present. The nearest fossils have been identified in the Jurupa Valley area, near Norco and Mira Loma, suggesting the potential in Rialto is very low. Excavations that exceed the relative depth of the younger alluvium and impact the older Quaternary alluvium may yield evidence of fossil specimens and thus, should be monitored. Within the project area, the older alluvium is considered to be deeply buried. Nonetheless, as is the case with most other development projects that involve earthwork activity, there is always a possibility that subsurface construction activity could unearth a potentially significant paleontological resource. As such, implementation of MM-CUL-3 would be required to ensure that subsurface construction activity complies with the standard procedures for treatment of unanticipated discoveries of paleontological resources.

MM-CUL-3 In the event that paleontological resources (fossil remains) are exposed during construction activities for the proposed project, 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's 2010 guidelines, can assess the nature and importance of the find. Depending on the significance of the find, the Qualified Paleontologist may record the find and allow work to continue, or may recommend salvage and recovery of the resource. All recommendations will be made in accordance with the Society of Vertebrate Paleontology's 2010 guidelines, and shall be subject to review and approval by the City of Rialto. Work in the area of the find may only resume upon approval of a Qualified Paleontologist.

With the incorporation of MM-CUL-3, impacts associated with paleontological resources would be **less than significant**.

d) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less-Than-Significant Impact. As discussed in response 3.5(b), there are no previously recorded cultural resources on the project site. Since the site has been previously disturbed, ground-disturbing activities associated with demolition of the proposed structures are unlikely to uncover previously unknown archaeological resources. However, if human skeletal remains are discovered during ground-disturbing activities, California Health and Safety Code Section 7050.5 states that the County Coroner must be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains can occur until the County Coroner has determined, within 2 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, he or she must notify the Native American Heritage Commission in Sacramento within 24 hours. In accordance with PRC Section 5097.98, the Native American Heritage Commission must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant must complete his or her 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 for the human remains. Therefore, based on compliance with existing state law, impacts associated with the discovery of human remains would be **less than significant**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VI. GEOLOGY AND SOILS – Would the project:				
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?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	☐	☐	☐	☒

3.6 Geology and Soils

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.

Less-Than-Significant Impact. The nearest active Alquist-Priolo Fault Zone to the project site is the San Jacinto fault, located approximately 2.75 miles east of the project site. According to the CDOC Fault Activity Map (CDOC 2010), the project site is not located in a designated earthquake fault zone. Additionally, according to the City of Rialto General Plan, although several earthquake faults exist within and in proximity to the City, no faults exist beneath the project site (City of Rialto 2010a). Therefore, impacts associated with fault rupture would be **less than significant**.

ii) Strong seismic ground shaking?

Less-Than-Significant Impact. Similar to other areas located in the seismically active Southern California region, the City of Rialto is susceptible to ground shaking caused by the several local fault systems. Historically, Rialto has experienced moderate to strong ground shaking. The San Jacinto, San Andreas, and Cucamonga faults have the potential

of generating earthquakes of maximum magnitudes ranging from 6.7 to 8.0 (City of Rialto 2010a). However, as previously addressed in Section 3.6(a)(i), the project site is not located within an active fault zone, and the site would not be affected by ground shaking more than any other area in this seismic region. Additionally, the proposed project would be designed in accordance with all applicable provisions established in the current California Building Code, which sets forth specific engineering requirements to ensure structural integrity during a seismic event. Compliance with these requirements would reduce the potential risk to both people and structures with respect to strong seismic ground shaking. Therefore, impacts associated with strong seismic ground shaking would be **less than significant**.

iii) Seismic-related ground failure, including liquefaction?

No Impact. Liquefaction occurs when partially saturated soil loses its effective stress and enters a liquid state, which can result in the soil's inability to support structures above. Liquefaction can be induced by ground-shaking events and is dependent on soil saturation conditions. According to the City's General Plan Seismic and Geologic Hazards chapter, the nearest location with moderate liquefaction susceptibility is located approximately 3 miles east of the proposed project (City of Rialto 2010a). The Geotechnical Report (Appendix D to this IS/MND) states that the project site is not located within a liquefaction hazard zone, and based on the County hazard maps, the potential for liquefaction ad the site is considered low (County of San Bernardino 2010). Therefore, **no impacts** associated with liquefaction would occur.

iv) Landslides?

No Impact. The project site is not located adjacent to or near any geographical feature that would be susceptible to landslides. The project site is relatively flat, exhibiting only a slight southerly gradient. No other significant surface features are identified within the project limits. As a result, the probability of a landslide on or near the project site is low. Therefore, **no impacts** associated with landslides would occur.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Short-Term Construction Impacts

Less-Than-Significant Impact. Because the project would result in 1 acre or more of ground disturbance, the project would be subject to the NPDES stormwater program, which includes obtaining coverage under the State Water Resources Control Board's General Permit for Discharges of Storm Water Associated with Construction Activity

(Construction General Permit; Order 2009-0009-DWQ). Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. The Construction General Permit requires development and implementation of a stormwater pollution prevention plan. Among the required items that must be included within a stormwater pollution prevention plan are project design features intended to protect against substantial soil erosion as a result of water and wind erosion, commonly known as best management practices (BMPs). Typical BMPs include maintaining or creating drainages to convey and direct surface runoff from bare areas and installing physical barriers such as berms, silt fencing, wattles, straw bales, and gabions. The implementation of a Construction General Permit, including preparation of a stormwater pollution prevention plan and implementation of BMPs, would reduce both stormwater runoff and soil erosion impacts to acceptable levels. Therefore, short-term construction impacts associated with soil erosion would be **less than significant**.

Long-Term Operational Impacts

Less-Than-Significant Impact. Once developed, the project site would include a warehouse building and paved surfaces, all of which would stabilize and help retain on-site soils. The project site would also contain a pervious landscape areas that would include a mix of trees, shrubs, plants, and groundcover, which would also help retain on-site soils while preventing wind and water erosion from occurring. Therefore, long-term operational impacts associated with soil erosion would be **less than significant**.

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?

Less-Than-Significant Impact. As previously discussed, the project site is not susceptible to landslide or liquefaction. Additionally, the proposed project would be designed in accordance with all applicable provisions established in the current California Building Code, which sets forth specific engineering requirements to ensure structural integrity, regardless of the specific characteristic of the underlying soils. Further, the Geotechnical Report (Appendix D) indicates that the geotechnical conditions of the project site are suitable for the proposed project. The Geotechnical Report also provides engineering recommendations based upon field and laboratory testing. Compliance with requirements of the California Building Code and recommendations of the Geotechnical Report would reduce the potential risk to both people and structures with respect to a variety of geotechnical constraints. Therefore, impacts associated with unstable geologic units/soils would be **less than significant**.

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?

Less-Than-Significant Impact. Expansive soils are characterized by their potential shrink/swell behavior. Shrink/swell is the change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the cycle of wetting and drying. The volume change is influenced by the amount of moisture and the amount of clay in the soil. The Geotechnical Report (Appendix D) identifies the subsurface conditions at the project site generally as dense sand with variable amounts of silt and gravel. Thus, the project site is not characterized by clay and the shrink/swell potential is considered low. Further, compliance with California Building Code requirements and recommendations of the Geotechnical Report would reduce the potential risk to people and structures due to unstable and expansive soils. Therefore, impacts associated with expansive soils would be **less than significant**.

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 Impact. The project would connect directly to the municipal sewer system and would not require septic tanks or any other alternative wastewater disposal system. Therefore, **no impacts** associated with the adequacy of soils and septic systems would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS – Would the project:				
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?	☐	☐	☒	☐

3.7 Greenhouse Gas Emissions

The following analysis is based on the Baseline/Alder Warehouse Project Greenhouse Gas Emissions Analysis prepared by Urban Crossroads, and included as Appendix A.

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-Than-Significant Impact. The proposed project has been evaluated to determine if it will result in significant GHG impacts. The significance of these potential impacts are described as follows.

Construction Impacts

The Air Quality Impact Analysis included in Appendix A provides additional details on specific construction-related outputs programmed in CalEEMod. For construction-phase project emissions, GHGs are quantified and amortized over the life of the proposed project. To amortize the emissions over the life of the project, SCAQMD recommends calculating the total GHG emissions for the construction activities, dividing it by a 30-year project life, and then adding that number to the annual operational-phase GHG emissions (SCAQMD 2008). As a result, construction emissions were amortized over a 30-year period and added to the annual operational-phase GHG emissions.

Operational Impacts

Operational activities associated with the proposed project would result in emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) from the following primary sources:

- Building energy use (combustion emissions associated with natural gas and electricity)
- Water supply, treatment, and distribution
- Solid waste
- Mobile source emissions

Area Source Emissions

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain project landscaping. Emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod.

Energy Source Emissions

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod default parameters were used for the project analysis.

Mobile Source Emissions

Vehicles

Project-related operational air quality impacts predominantly derive from mobile sources. In this regard, approximately 92% (by weight) of all project operational source emissions would be generated by mobile sources (vehicles). The project-related GHG impacts derive primarily from vehicle trips generated by the proposed project. Trip characteristics available from the TIA prepared for the proposed project (Appendix F) were utilized in this analysis. The TIA determined the proposed project is expected to generate a net total of approximately 910 trip-ends per day (actual vehicles). The net project trip generation includes 364 truck trip-ends per day from the proposed buildings within the project site, including 1.97% two-axle trucks, 28.02% three-axle trucks, and 70.01% four+-axle trucks.

Trip Length

A technical deficiency inherent in calculating the projected vehicle emissions associated with any project is related to the estimation of trip length and VMT. VMT for a given project is calculated by the total number of vehicle trips to/from the project times average trip length. This method of estimating VMT for use in calculating vehicle emissions likely results in the overestimation and double-counting of emissions because, for a distribution warehouse center such as the proposed project, the land use is likely to attract (divert) existing vehicle trips that are already on the circulation system as opposed to generating new trips. In this regard, the proposed project would, to a large extent, redistribute existing mobile-source emissions rather than generate additional emissions within SCAB. Therefore, the estimation of the project's vehicular-source emissions is likely overstated in that no credit for, or reduction in, emissions is assumed based on diversion of existing trips.

SCAQMD Recommendation

In the last 5 years, SCAQMD has provided numerous comments on the trip length for warehouse/distribution and industrial land use projects. SCAQMD asserts that the model-default trip length in CalEEMod and the URBEMIS 2007 model (version 9.2.4) would underestimate emissions. SCAQMD asserts that for warehouse, distribution center, and industrial land use projects, most of the heavy-duty trucks would be hauling consumer goods, often from the Ports of Long Beach and Los Angeles and/or to destinations outside of California. SCAQMD states that, for this reason, CalEEMod and the URBEMIS model default trip length (approximately 12.6 miles) would not be representative of activities at such facilities. The SCAQMD generally recommends the use of a 40-mile one-way trip length.

SCAG Heavy-Duty Truck Model

SCAG is composed of six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 190 cities in Southern California, and is the organization charged with addressing and resolving short- and long-term regional policy issues. The SCAG region also consists of 14 subregional entities recognized by the Regional Council as partners in the regional policy planning process. The SCAG region has more than 19 million residents and encompasses more than 38,000 square miles, representing the largest and most diverse region in the country.

SCAG maintains a regional transportation model. In its most recent (2008) transportation validation for the regional model, SCAG indicates the average internal truck trip length for the SCAG region is 5.92 miles for light-duty trucks, 13.06 miles for medium-duty trucks, and 24.11 miles for heavy-duty trucks (SCAG 2012).

Approach for Analysis of the Project

The SCAQMD approach identified above is deemed to be most applicable for the proposed project. This same methodology is employed in the analyses for similar projects in the City and is considered by the lead agency to be appropriate and accurate.

Two separate model runs were used to more accurately model emissions resulting from vehicle operations. The first run analyzed passenger-car emissions, which incorporated a default trip length of 16.6 miles for passenger cars within San Bernardino County and a fleet mix of 100% light-duty-auto vehicles. The second run analyzed truck emissions, which incorporated an average truck trip length of 40 miles and a fleet mix of 1.97% of light-heavy-duty vehicles, 28.02% of medium-heavy-duty vehicles, and 70.01% of heavy-heavy-duty

vehicles for warehousing uses. This proportional truck mix by axle type is based on information provided in the TIA prepared for the proposed project (Appendix F).

Solid Waste

Industrial land uses result in the generation and disposal of solid waste. A large percentage of this waste is diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted is disposed of at landfills. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste from the proposed project were calculated by CalEEMod using default parameters.

Water Supply, Treatment, and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat, and distribute water and wastewater. The amount of electricity required to convey, treat, and distribute water depends on the volume of water and the sources of the water. Unless otherwise noted, CalEEMod default parameters were used for the proposed project.

Summary

The City does not have an adopted threshold of significance for GHG emissions. For CEQA purposes, the City has discretion to select an appropriate significance criterion, based on substantial evidence. SCAQMD's adopted numerical threshold of 10,000 metric tons of carbon dioxide equivalent (MT CO_2e) per year for industrial stationary source emissions is selected as the significance criterion. The SCAQMD-adopted industrial threshold was selected by the City because the proposed project is analogous to an industrial use much more closely than any other land use, such as commercial or residential, in terms of its expected operating characteristics. The proposed project involves a single industrial/warehouse building, characteristic of an industrial operation. Further, analysis of the project's traffic generation in this IS/MND is based on the Institute of Transportation Engineers Trip Generation Manual for industrial and warehouse uses. Also, 10,000 MT CO_2e has been used as the significance threshold by many local government lead agencies for logistics projects throughout the SCAG region since the SCAQMD adopted this threshold for its own use. Further, to ensure that the threshold is conservative in its application, although the SCAQMD uses its adopted 10,000 MT CO_2e threshold to determine the significance of stationary source emissions for industrial projects, the 10,000 MT CO_2e threshold used in this IS/MND is

applied to all sources of project-related GHG emissions whether stationary source, mobile source, area source, or other.

Use of this threshold is also consistent with guidance provided in the CAPCOA *CEQA and Climate Change* handbook (CAPCOA 2008); as such, the City has opted to use a non-zero threshold approach based on Approach 2 of the handbook. Threshold 2.5 (Unit-Based Thresholds Based on Market Capture) establishes a numerical threshold based on capture of approximately 90% of emissions from future development. The latest threshold developed by SCAQMD using this method is 10,000 MT CO_2e per year for industrial projects. This threshold is based on review of 711 CEQA projects.

Table 18 summarizes the annual GHG emissions associated with the proposed project.

Table 18
Project Greenhouse Gas Emissions Summary (Annual)

Emission Source	Emissions (metric tons per year)			
	CO_2	*CH_4*	*N_2O*	*Total CO_2e*
Annual construction-related emissions amortized over 30 years	41.79	0.01	0.00	41.99
Area	0.01	3.00E-05	0.00	0.01
Energy	230.33	0.01	2.24E-03	231.22
Mobile (passenger cars)	907.85	0.02	0.00	908.32
Mobile (trucks)	7,949.81	0.28	0.00	7,956.73
Waste	48.78	2.88	0.00	120.86
Water usage	264.04	1.94	0.05	326.63
Total CO_2e (All Sources)	**9,585.76**			
Screening Threshold (CO_2e)	**10,000**			
Threshold Exceeded?	**NO**			

Source: Appendix A.
Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; E = (x 10^).

As shown in Table 18, the project has the potential to generate 9,585.76 MT CO_2e per year of emissions. As a result, the proposed project would not exceed the SCAQMD's numeric threshold of 10,000 MT CO_2e if it were applied. Thus, the proposed project would not have the potential to result in a cumulatively considerable impact with respect to GHG emissions, and impacts would be **less than significant**.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. The applicable plans, policies, or regulations adopted for the purpose of reducing the missions of GHGs that are relevant to the proposed project are the CARB Scoping Plan in support of Assembly Bill (AB) 32, and Senate Bill (SB) 32. The project's consistency with AB 32 and SB 32 are discussed below.

Scoping Plan

CARB's Scoping Plan (CARB 2008) identifies strategies to reduce California's GHG emissions in support of AB 32, which requires the State of California to reduce its GHG emissions to 1990 levels by 2020. Many of the strategies identified in the Scoping Plan are not applicable at the project level, such as long-term technology improvements to reduce emissions from vehicles, but some measures are applicable and supported by the project, such as energy efficiency. Although some measures are not directly applicable, the project would not conflict with their implementation. Reduction measures are grouped into 18 action categories, as follows (CARB 2008):

1. **California Cap-and-Trade Program Linked to Western Climate Initiative Partner Jurisdictions.** Implement a broad-based California cap-and-trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.
2. **California Light-Duty Vehicle GHG Standards.** Implement adopted Pavley standards and planned second phase of the program. Align zero-emissions vehicle, alternative, and renewable fuel and vehicle technology programs with long-term climate change goals.
3. **Energy Efficiency.** Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts, including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).
4. **Renewables Portfolio Standard.** Achieve 33% renewable energy mix statewide.
5. **Low Carbon Fuel Standard.** Develop and adopt the Low Carbon Fuel Standard.

6. **Regional Transportation-Related GHG Targets.** Develop regional GHG emissions-reduction targets for passenger vehicles.
7. **Vehicle-Efficiency Measures.** Implement light-duty vehicle efficiency measures.
8. **Goods Movement.** Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.
9. **Million Solar Roofs Program.** Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.
10. **Medium- and Heavy-Duty Vehicles.** Adopt medium- and heavy-duty vehicle efficiencies. Aerodynamic efficiency measures for heavy-duty trucks pulling trailers 53 feet or longer that include improvements in trailer aerodynamics and use of rolling resistance tires were adopted in 2008 and went into effect in 2010. Future, yet-to-be-determined improvements include hybridization of medium-duty and heavy-duty trucks.
11. **Industrial Emissions.** Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce GHG emissions and provide other pollution reduction co-benefits. Reduce GHG emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
12. **High-Speed Rail.** Support implementation of a high-speed rail system.
13. **Green Building Strategy.** Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
14. **High Global Warming Potential Gases.** Adopt measures to reduce high global warming potential gases.
15. **Recycling and Waste.** Reduce methane emissions at landfills. Increase waste diversion, composting, and other beneficial uses of organic materials, and mandate commercial recycling. Move toward zero-waste.
16. **Sustainable Forests.** Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The 2020 target for carbon sequestration is 5 million MT CO_2e per year.
17. **Water.** Continue efficiency programs and use cleaner energy sources to move and treat water.

18. **Agriculture.** In the near term, encourage investment in manure digesters and at the 5-year Scoping Plan update, determine if the program should be made mandatory by 2020.

Table 19 summarizes the proposed project's consistency with the Scoping Plan. As summarized, the proposed project would not conflict with any provisions of the Scoping Plan, and it supports seven of the action categories through energy efficiency, water conservation, recycling, and landscaping.

Table 19
Scoping Plan Consistency Summary

Action	Supporting Measures[1]	Consistency
Cap-and-Trade Program	--	Not Applicable. These programs involve capping emissions from electricity generation, industrial facilities, and broad scoped fuels. Caps do not directly affect manufacturing projects.
Light-Duty Vehicle Standards	T-1	Not Applicable. This is a statewide measure establishing vehicle emissions standards.
Energy Efficiency	E-1	Consistent. The project will include a variety of building, water, and solid waste efficiencies consistent with 2016 California Green Building Standards (CALGreen) requirements.
	E-2	
	CR-1	
	CR-2	
Renewables Portfolio Standard	E-3	Not Applicable. Establishes the minimum statewide renewable energy mix.
Low Carbon Fuel Standard	T-2	Not Applicable. Establishes reduced carbon intensity of transportation fuels.
Regional Transportation-Related Greenhouse Gas Targets	T-3	Not Applicable. This is a statewide measure and is not within the purview of this project.
Vehicle Efficiency Measures	T-4	Not Applicable. Identifies measures such as minimum tire-fuel efficiency, lower friction oil, and reduction in air conditioning use.
Goods Movement	T-5	Not applicable. Identifies measures to improve goods movement efficiencies such as advanced combustion strategies, friction reduction, waste heat recovery, and electrification of accessories. While these measures are yet to be implemented and will be voluntary, the proposed project would not interfere with their implementation.
	T-6	
Million Solar Roofs (MSR) Program	E-4	Consistent. The Million Solar Roofs program sets a goal for use of solar systems throughout the state as a whole. While the project currently does not include solar energy generation, the building roof structure will be designed to support solar panels in the future.
Medium- and Heavy-Duty Vehicles	T-7	Not applicable. Medium-duty and heavy-duty trucks and trailers working from the proposed warehouses will be subject to aerodynamic and hybridization requirements as established by CARB; no feature of the project would interfere with implementation of these requirements and programs.
	T-8	

Table 19
Scoping Plan Consistency Summary

Action	Supporting Measures[1]	Consistency
Industrial Emissions	I-1	Not Applicable. These measures are applicable to large industrial facilities (> 500,000 MT CO_2e/year) and other intensive uses such as refineries.
	I-2	
	I-3	
	I-4	
	I-5	
High-Speed Rail	T-9	Not Applicable. Supports increased mobility choice.
Green Building Strategy	GB-1	Consistent. The project will include a variety of building, water, and solid waste efficiencies consistent with 2016 CALGreen requirements.
High Global Warming Potential Gases	H-1	Not Applicable. The proposed warehouses are not substantial sources of high global warming potential emissions and will comply with any future changes in air conditioning, fire protection suppressant, and other requirements.
	H-2	
	H-3	
	H-4	
	H-5	
	H-6	
	H-7	
Recycling and Waste	RW-1	Consistent. The project will be required recycle a minimum of 50% from construction activities and warehouse operations per state and City requirements.
	RW-2	
	RW-3	
Sustainable Forests	F-1	Consistent. The project will increase carbon sequestration by increasing on-site trees per the project landscaping plan.
Water	W-1	Consistent. The project will include use of low-flow fixtures and efficient landscaping per state requirements.
	W-2	
	W-3	
	W-4	
	W-5	
	W-6	
Agriculture	A-1	Not Applicable. The project is not an agricultural use.

Note:
[1] These supporting measures can be found at http://www.arb.ca.gov/cc/scopingplan/2013_update/appendix_b.pdf.

Senate Bill 32

SB 32 requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order (EO) B-30-15. The legislation builds on the AB 32 goal of 1990 levels by 2020, and provides an intermediate goal to achieving EO S-3-05 targets, which sets a statewide GHG reduction target of 80% below 1990 levels by 2050 (California Legislative Information 2016).

According to research conducted by Lawrence Berkeley National Laboratory and supported by CARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. The research used a new, validated model known as the California GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance with existing and future GHG-reducing policies. The CALGAPS model showed that GHG emissions through 2020 could range from 317 MT CO_2e per year to 415 MT CO_2e per year, indicating that existing state policies will likely allow California to meet its target of 2020 levels under AB 32. CALGAPS also showed that, by 2030, emissions could range from 211 MT CO_2e per year to 428 MT CO_2e per year, indicating that even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40% below the 1990 level of SB 32. CALGAPS analyzed emissions through 2050, even though it did not generally account for policies that might be put in place after 2030. Although the research indicated that the emissions would not meet the state's 80% reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050 (Lawrence Berkeley National Laboratory 2015).

Unlike the 2020 and 2030 reduction targets of AB 32 and SB 32, respectively, the 2050 target of EO S-3-05 has not been codified. Accordingly, the 2050 reduction target has not been the subject of any analysis by CARB. For example, CARB has not prepared an update to the aforementioned Scoping Plan that provides guidance to local agencies as to how they may seek to contribute to the achievement of the 2050 reduction target.

In 2017, the California Supreme Court examined the need to use the EO S-3-05 2050 reduction target in *Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) 3 Cal.5th 497 (Cleveland National). The case arose from the San Diego Association of Governments' adoption of its 2050 Regional Transportation Plan, which included its Sustainable Communities Strategy, as required by SB 375. On review, the Supreme Court held that the San Diego Association of Governments did not violate CEQA by not considering the EO S-3-05 2050 reduction target. As previously discussed, the 2050 reduction target of EO S-3-05 has not been codified, unlike the 2020 and 2030 reduction targets of AB 32 and SB 32, respectively. Accordingly, the 2050 reduction target has not been subject to analysis by CARB. Further, the proposed project is much smaller in size and scope in comparison to the Regional Transportation Plan as examined in Cleveland National. In that case, the California Supreme Court held that the San Diego Association of Governments did not violate CEQA by not considering the EO S-3-05

2050 reduction target. Accordingly, there is no information presently available to assess the project's consistency with regard to the 2050 target of EO S-3-05.

The project would not interfere with the state's implementation of EO B-30-15 or SB 32 targets of reducing statewide GHG emissions to 40% below 1990 levels by 2030 because the project would not interfere with the state's implementation of GHG reduction plans described in the CARB's Scoping Plan.

Therefore, impacts associated with applicable GHG plans, policies, or regulations would be **less than significant**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

3.8 Hazards and Hazardous Materials

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Short-Term Construction Impacts

Less-Than-Significant Impact. A variety of hazardous substances and wastes would be transported to, stored, used, and generated on the project site during construction of the proposed project. These would include fuels for machinery and vehicles, new and used motor oils, cleaning solvents, paints, and storage containers and applicators containing such materials. Accidental spills, leaks, fires, explosions, or pressure releases involving hazardous materials represent a potential threat to human health and the environment if not properly treated. However, these materials would be transported, used, and disposed of in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. For example, hazardous materials would not be disposed of or released onto the ground or into the underlying groundwater or any surface water during construction or operation of the project, and completely enclosed containment would be required for all refuse generated on the project site. Additionally, all construction waste, including trash, litter, garbage, solid waste, petroleum products, and any other potentially hazardous materials, would be removed to a waste facility permitted to treat, store, or dispose of such materials. Use of these materials during construction for their intended purpose would not pose a significant risk to the public or the environment.

The transport and use of hazardous materials would be required to comply with the guidelines set forth by each product's manufacturer, as well as in accordance with all applicable federal, state, and local regulations. The U.S. Department of Transportation, the California Department of Health Services, Caltrans, and the California Highway Patrol all have interrelated programs designed to prevent disasters during the transportation of hazardous materials. Additionally, the EPA and the OSHA have

interrelated programs designed to prevent the misuse of hazardous materials in the work place. Therefore, short-term construction impacts associated with hazardous materials would be less than significant.

Long-Term Operational Impacts

Less-Than-Significant Impact. Potentially hazardous materials associated with project operations would include those materials used during typical cleaning and maintenance activities. Although these potential hazardous materials would vary, they would generally include household cleaning products, paints, fertilizers, and herbicides and pesticides. Many of these materials are considered household hazardous wastes, common wastes, and/or universal wastes by the EPA, which considers these types of wastes to be common to businesses and households and to pose a lower risk to people and the environment than other hazardous wastes when properly handled, transported, used, and disposed of (EPA 2017). Federal, state, and local regulations typically allow these types of wastes to be handled and disposed of with less-stringent standards than other hazardous wastes, and many of these wastes do not have to be managed as hazardous waste. Additionally, any potentially hazardous material handled on the project site would be limited in both quantity and concentrations, consistent with other similar industrial uses located in the City, and any handling, transport, use, and disposal would comply with applicable federal, state, and local agencies and regulations. Additionally, as mandated by OSHA (OSHA 2017), all hazardous materials stored on the project site would be accompanied by a Material Safety Data Sheet, which would inform employees and first responders as to the necessary remediation procedures in the case of accidental release.

Because of the age of the existing on-site residential structures, there is a possibility that potentially hazardous building materials, such as asbestos-containing material (ACM) or lead-based paint, could be encountered during demolition activities. As a result, the project would be required to comply with SCAQMD Rule 1403, Asbestos Emissions from Demolition/Renovation Activities, which addresses asbestos emissions from demolition and renovation activities, and requires the safe handling of known or suspected ACM. The purpose of SCAQMD Rule 1403 is to specify work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of ACM. The requirements for demolition and renovation activities include asbestos surveying; notification; ACM removal procedures and time schedules; ACM handling and clean-up procedures; and storage, disposal, and landfilling requirements for asbestos-containing waste materials. All operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings (SCAQMD 1994).

Additionally, prior to on-site demolition activities, lead-based paint testing would be required. This testing would be conducted in adherence with EPA guidelines set forth within 40 CFR Part 745 and the federal Residential Lead-Based Paint Hazard Reduction Act of 1992. Similar to all other potentially hazardous materials encountered during demolition of the existing on-site buildings, if lead-based paint is determined to occur on site, any affected demolition debris would be removed from the project site by a licensed contractor, and all handling, transport, and disposal of lead-based paint would adhere to relevant federal, state, and local agencies and regulations. Therefore, long-term operational impacts associated with hazardous materials would be **less than significant**.

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?

Less-Than-Significant Impact. Refer to response 3.8(a).

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?

No Impact. The project site is located approximately 0.2 miles north of Alder Middle School (7555 Alder Avenue) and approximately 0.43 miles northwest of Locust Elementary School (7420 Locust Avenue). Further, as discussed in response 3.8(a), the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, nor would it create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials. Therefore, impacts associated with emitting or handling hazardous materials in the vicinity of a school would be **less than significant**.

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?

No Impact. The Hazardous Waste and Substances Sites (Cortese List) is a planning document providing information about the location of hazardous materials release sites. California Government Code Section 65962.5 requires the California EPA to develop, a least annually, an updated Cortese List. The Department of Toxic Substances Control is responsible for a portion of the information contained in the Cortese List. Other state and

local government agencies are required to provide additional hazardous materials release information for the Cortese List (DTSC 2018). The project site was not identified on the Cortese List or any other hazardous materials sites (SWRCB 2018). Therefore, **no impacts** associated with inclusion on the Cortese List would occur.

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 Impact. The project site is located approximately 11 miles northeast of Ontario International Airport and approximately 10 miles north of the Riverside Municipal Airport. The project site is not located within the Airport Influence Area of the Ontario International Airport nor the Riverside Municipal Airport (City of Ontario 2011; RCALUC 2005). Further, based on the relatively large distance between the project site and these public airports, the proposed project would not result in a safety hazard for people working in the project area. Therefore, **no impacts** associated with public airport hazards would occur.

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 Impact. No private airstrips or heliports are known to occur within 2 miles of the project site. Therefore, **no impacts** associated with private airstrip hazards would occur.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-Than-Significant Impact. Typically, roadway facilities designated by the City of Rialto General Plan Circulation chapter (City of Rialto 2010a) as major, modified, or secondary arterials, as well as other streets with regional access, are assumed to serve as evacuation routes in the event of a regional emergency. Vehicle access to the project site would be provided via West Baseline Road Avenue and Alder Avenue, which are identified by Figure 3-1 in the Renaissance Specific Plan (City of Rialto 2010b) as a commercial collector street and major arterial street, respectively. Baseline Road provides direct regional access to I-15 to the west and I-215 to the east. Additionally, Alder Avenue provides direct regional access to I-210, and thus, both streets could serve as an emergency evacuation routes for the project area.

As discussed further in Section 3.16, the proposed project would not result in any adverse effects to Alder Avenue, and as such, would not impede response or evacuation activities

in the event of an emergency. Therefore, impacts associated with emergency response and evacuation routes would be **less than significant**.

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 Impact. According to CAL FIRE's 2008 High Fire Hazard Severity Zones, the project site is not located in an area identified as being susceptible to wildland fire. Additionally, the City of Rialto General Plan Exhibit 5.3, Fire Hazards, does not identify the project site as being located in a fire hazards severity zone (City of Rialto 2010a). Further, the project site is located in a predominantly developed portion of the City, and no wildland–urban interfaces occur in the project area. Therefore, **no impacts** associated with wildland fire would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less–Than-Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY – Would the project:				
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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less–Than-Significant Impact	No Impact
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?	☐	☐	☐	☒

3.9 Hydrology and Water Quality

a) Would the project violate any water quality standards or waste discharge requirements?

Short-Term Construction Impact

Less-Than-Significant Impact. Construction of the proposed project would include earthwork activities that could potentially result in erosion and sedimentation, which could subsequently degrade downstream receiving waters and violate water quality standards. Stormwater runoff during the construction phase may contain silt and debris, resulting in a short-term increase in the sediment load of the municipal storm drain system. Substances such as oils, fuels, paints, and solvents may be inadvertently spilled on the project site and subsequently conveyed via stormwater to nearby drainages, watersheds, and groundwater.

The proposed project would be subject to the municipal NPDES permit, which requires measures to prohibit non-stormwater discharges into the storm sewer and control the discharge of stormwater to the maximum extent practical. These measures include BMPs, control techniques, and system design methods. The Santa Ana RWQCB issues the NPDES permits to construction activities of 1 acre or more. The City falls within the jurisdiction of San Bernardino County, and thus, is subject to the municipal stormwater permit issued by the Santa Ana RWQCB (RWQCB 2010).

The NPDES permit requires implementation of a stormwater quality management program, which specifies guidelines to control, reduce, and monitor discharges of waste to storm drains (RWQCB 2010). As such, through compliance with the water quality

standards set forth in the NPDES permit, the wastewater generated during construction of the proposed project would not adversely affect water quality. Therefore, short-term construction impacts associated with water quality would be **less than significant**.

Long-Term Operational Impacts

Less-Than-Significant Impact. The proposed project would be subject to the municipal stormwater permit, the Municipal Separate Storm Sewer System (MS4) Permit, issued to San Bernardino County and incorporated cities within the County by the Santa Ana RWQCB. The MS4 Permit requires implementation of LID BMPs to prevent pollutants from being discharged off site by mimicking pre-development site hydrology and feasible source control. The LID Ordinance is designed to reduce runoff from impervious surfaces through landscape design that promotes water retention, permeable surface design, natural drainage systems, and on-site retention where feasible (RWQCB 2010). These project-specific designs would reduce impacts to water quality associated with redevelopment.

Additionally, the project-specific water quality management plan ensures appropriate BMPs for post-construction and operations of the proposed project. The combination of LID BMPs, source control, and other treatment control BMPs addressed within the water quality management plan would address identified pollutants and hydrologic concerns from new development, which could result in impacts to water quality standards (RWQCB 2010). Therefore, long-term impacts associated with associated with water quality would be **less than significant**.

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)?

Groundwater Supplies

Less-Than-Significant Impact. The project site is located within the San Gabriel Valley Water Company, Fontana Water Company (FWC) Division service area. FWC currently utilizes water from the following sources: local groundwater basins (Chino Basin, Rialto-Colton Basin, Lytle Basin, and No Man's Land Basin); local surface water (Lytle Creek); and imported surface water (State Water Project water).

FWC receives groundwater supplies from three adjudicated basins, which includes the Chino Basin, Rialto-Colton Basin, and the Lytle Basin, and one un-adjudicated basin

known as the No Man's Land Basin. FWC's current available pumping capacity totals approximately 39,300 gallons per minute (gpm) with individual well production ranging from approximately 165 gpm to 2,700 gpm (San Gabriel Valley Water Company 2017).

The adopted groundwater management plans for the adjudicated Chino Basin, Rialto-Colton Basin, and Lytle Basin are contained within the Chino Basin Judgment, Rialto-Colton Basin Court Decree, and McKinley Decree, respectively. FWC has the legal right to pump groundwater from the Chino Basin pursuant to the 1978 Chino Basin Court Judgment. The Chino Basin Judgment established the Chino Basin Watermaster to account for and implement the management of groundwater in the Chino Basin. The Chino Basin Judgment states the Chino Basin Watermaster "shall levy and collect assessments in each year, pursuant to the respective pooling plans, in amounts sufficient to purchase replenishment water to replace production by any pool during the preceding year that exceeds that pool's allocated share of Safe Yield in the case of the overlying pools, or Operating Safe Yield in the case of the Appropriative Pool" (San Gabriel Valley Water Company 2017). The purpose of the judgment is to allow for the use of groundwater supplies to meet overlying water demands and provide a mechanism to fund purchases of untreated imported water to replenish the groundwater basin to supplement recharge with local storm water (San Gabriel Valley Water Company 2017).

Groundwater levels are routinely monitored by the Watermaster to prevent future overdraft of the groundwater basin. Legal, regulatory, and other mechanisms are currently in place to ensure that the amount of groundwater pumped in the broader project region does not exceed safe yields/operating safe yields. As such, although the proposed project would rely on water supplies that would be composed, at least in part, of groundwater, all extraction of groundwater for use by FWC is actively managed to prevent overdraft, ensure the long-term reliability of the groundwater basins, and avoid adverse effects to groundwater supplies. Therefore, impacts associated with groundwater supplies would be **less than significant**.

Groundwater Recharge

Less-Than-Significant Impact. While not fully developed, the project site is highly disturbed and does not contain a groundwater recharge basin or other facilities that promote groundwater recharge. Thus, under the existing condition, the project site is not considered an important location for groundwater recharge.

Following construction, the project site would contain landscape areas and other pervious surfaces that would allow for a similar percentage of water to percolate into the subsurface soils compared to the existing conditions. Additionally, the proposed project would include

a detention/infiltration basin on the property to capture and infiltrate stormwater runoff. Therefore, impacts associated with groundwater recharge would be **less than significant**.

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?

Less-Than-Significant Impact. Under the existing condition, the majority of the ground surface is covered with soil except for some asphalt pavements associated with existing residences. Thus, implementation of the proposed project would increase the amount of impervious areas on site and alter the existing drainage patterns. However, the project site does not currently have infiltration basins or capture systems in place to control stormwater runoff. The proposed project would be required to conform with all applicable federal, state, and local requirements, including the current MS4 Permit adopted by the Santa Ana RWQCB. Compliance with these requirements would ensure the new drainage system is designed to have adequate capacity to capture stormwater flow to prevent erosion or on-site or off-site flooding impacts.

As such, altering the on-site drainage pattern would be conducted in a manner consistent with all applicable standards related to the collection and treatment of stormwater. Therefore, impacts associated with altering the existing drainage pattern of the project site would be **less than significant**.

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?

Less-Than-Significant Impact. Refer to response 3.9(c).

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?

Less-Than-Significant Impact. Under the existing condition, the majority of the ground surface is covered with soil except for some asphalt pavements associated with existing residences. The project site does not currently have infiltration basins or capture systems in place to control stormwater runoff. Although the proposed project would increase the amount of impervious surfaces on the project site, the proposed drainage system would be designed to conform to all applicable federal, state, and local requirements, including

the current MS4 Permit adopted by the Santa Ana RWQCB. Compliance with these requirements would ensure the new drainage system is designed to have adequate capacity to capture stormwater flow to prevent the conveyance of sediment, debris, and other constituents potentially contained in on-site stormwater from leaving the site and impacting off-site and downstream receiving waters. Therefore, impacts associated with water quality standards and runoff waters would be **less than significant**.

f) Would the project otherwise substantially degrade water quality?

Less-Than-Significant Impact. Refer to responses 3.9(a), 3.9(c), and 3.9(e).

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 Impact. According to the Federal Emergency Management Agency Flood Insurance Rate Map No. 06071C7920H (FEMA 2008), the project site is located outside of both a 1% Annual Chance Flood Hazard Zone (100-year floodplain) and 0.2% Annual Chance Flood Hazard Zone (500-year floodplain). Additionally, per the *County of San Bernardino General Plan* Hazard Overlay map (County of San Bernardino 2010), the project site is located outside of a dam inundation area. Therefore, no impacts associated with flooding would occur.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. Refer to response 3.9(g).

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?

No Impact. Refer to response 3.9(g).

j) Inundation by seiche, tsunami, or mudflow?

No Impact. Because of the project's inland location, relatively flat topography, and lack of an adjacent perennial body of water, the project site would not be susceptible to tsunami, mudflow, or seiche. Therefore**, no impacts** associated with these natural phenomena would occur.

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
X.	**LAND USE AND PLANNING** – Would the project:				
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?	☐	☐	☐	☒

3.10 Land Use and Planning

a) Would the project physically divide an established community?

No Impact. The physical division of an established community is typically associated with the construction of a linear feature, such as a major highway or railroad tracks, or removal of a means of access, such as a local road or bridge, which would impair mobility within an existing community or between a community and an outlying area. The proposed project site is located within the Renaissance Specific Plan Area, which was planned to allow for residential, commercial, business center, employment, utility, and park uses.

The project site is located on undeveloped land and is surrounded by a mix of largely industrial land uses, and although scattered residential land use occurs in the project vicinity, established residential neighborhoods are not found adjacent to the project site, and thus, the site is not used as a connection between two established communities.

Instead, connectivity in the surrounding project area is facilitated via local roadways and pedestrian facilities. The proposed project would not impede movement between these residences within the project area, within an established community, or from one established community to another. Additionally, the project would include improvements such as new sidewalks that would improve pedestrian connectivity and safety along the project frontage. Therefore, **no impacts** associated with division of an existing community would occur.

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 Impact. The City of Rialto General Plan Existing Land Use Map designates the project site as Specific Plan (Figure 3). The City's Zoning Map designates the project site as Renaissance Specific Plan—14 Employment, 16 Employment, and 17 Employment (with Commercial Overlay) (Figures 4 and 5).

The Renaissance Specific Plan contains development standards that act as a customized set of zoning standards for the project site. This approach allows the City a greater degree of control over the location and design of development within the Specific Plan area, ensuring compliance with the Specific Plan's goals and objectives.

The purpose of the Renaissance Specific Plan—Employment zone is to accommodate a mixture of professional office, light industrial, research and development, business park, light manufacturing, assembly, and related storage and support services uses (City of Rialto 2010b). In addition, the Commercial Overlay allows the underlying district to develop to the uses and standards of the General Commercial land use district (City of Rialto 2010b). The City has determined that the proposed project is consistent with the City's Zoning Ordinance, and thus, is a permitted use within the Specific Plan. As such, it follows that the proposed project's land use, activities, and development intensity were already assumed and evaluated in the Renaissance Specific Plan and Renaissance Specific Plan EIR (City of Rialto 2010b), respectively, and the project would then be consistent with the local plans, policies, and regulations governing land use decisions. Therefore, **no impacts** associated with applicable land use plans, policies, and regulations would occur.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The proposed project is not within any habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. Therefore, **no impacts** associated with conservation plans would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XI. MINERAL RESOURCES – Would the project:				
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?	☐	☐	☐	☒

3.11 Mineral Resources

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 Impact. The City of Rialto contains aggregate mineral resources. According to the City of Rialto General Plan (City of Rialto 2010a), the project site is designated by the State Mining and Geology Board as containing regional significant Portland Cement Concrete (PCC-grade) aggregated resources. The southern portion of the project site along Baseline Road is also designated as area lost to land uses incompatible with mining since 1987.

The project site is located in an urbanized, industrial portion of the City and is bound by existing and future development in all directions. Mineral resource mining is not a compatible use with these land uses. The project site is not large enough to effectively extract mineral resources. Considering the existing surrounding land uses and the incompatibility of mineral resource extraction activities in the project area, potential significant mineral resources within the project area are considered unavailable for extraction. Therefore, **no impacts** associated with mineral resources would occur.

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 Impact. Refer to response 3.11(a).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XII. NOISE – Would the project result in:				
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?	☐	☐	☐	☒

3.12 Noise

The following analysis is based, in part, on the Noise Assessment prepared by Dudek in June 2018 and included as Appendix E to this IS/MND

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?

Short-Term Construction Impacts

Less-Than-Significant Impact With Mitigation Incorporated. Construction of the proposed project would generate noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction, distance between the noise source and receiver, and intervening structures.

The following discussion addresses the noise levels calculated to result from construction of the project at nearby sensitive receptors (i.e., residences).

Construction – Equipment Inventory

The California Air Resources Board's CalEEMod was used to identify the construction equipment anticipated for development of a warehouse project of the proposed size. Based upon a warehouse with a total floor area of 255,173 square feet, sited on a parcel of approximately 11.63 acres, CalEEMod (version CalEEMod.2016.3.1; ENVIRON 2017) identified the anticipated equipment for each phase of project construction listed in Table 20.

Table 20
Construction Equipment Per Phase

Construction Activity	Demolition
Equipment Needed	1 concrete/industrial saw 2 dozers 3 excavators 1 water truck
Construction Activity	**Site Preparation**
Equipment Needed	3 dozers 1 water truck 4 backhoes/loaders
Construction Activity	**Grading**
Equipment Needed	1 dozer 1 excavator 1 trencher (Tractor) 1 grader 3 front-end loaders 1 water truck
Construction Activity	**Building Construction**
Equipment Needed	1 crane 1 generator 3 front-end loaders 1 welder 3 forklifts/manlifts
Construction Activity	**Paving**
Equipment Needed	2 pavers 2 rollers 2 graders

Source: ENVIRON 2017

Construction Noise- Assessment

With the construction equipment noise sources identified in Table 20, a noise analysis was performed using a model developed by the Federal Highway Administration called the Roadway Construction Noise Model (RCNM) (FHWA 2008). Input variables for RCNM consist of the receiver/land use types, the equipment type (backhoe, crane, truck, etc.), the number of equipment pieces, the duty cycle for each piece of equipment (i.e., percentage of time the equipment is operating during a given period), and the distance from the noise source to a selected sensitive receiver.

Noise-sensitive land uses in the vicinity of the project include a residence to the west (approximately 450 feet from the construction boundary), an individual residence to the north (roughly 80 feet from the construction boundary), and several residences to the south along the south side of Baseline Road (approximately 100 feet from the construction boundary). The construction noise assessment is focused on noise levels that would occur at the distance of the closest residence (i.e., at roughly 80 feet), while construction noise levels at greater distances from the project site would be less.

However, the above distance separation assumption would not be representative of more typical construction noise, because in general the construction activities would not take place either at the nearest or at the farthest portions of the project site, but somewhere in between. Thus, in order to provide information on typical construction noise levels, the distance from the nearest receiver to the project's "acoustic center" was also analyzed. The acoustic center represents the idealized point from which the energy sum of all construction activity noise, near and far, would be centered. The acoustic center is derived by taking the square root of the product of the nearest and the farthest distances. For this project, the acoustic center was found to be approximately 302 feet from the nearest noise sensitive receiver located to the north. Given the overall size of the project site, and the relatively equal distribution of proposed development across the property, noise levels derived from the acoustic center of construction activity would provide a better representation of average noise level exposure across the entire construction process for a given off-site receiver than using the minimum-distance, worst-case method.

Using the provided construction information, the RCNM construction noise model was used to predict noise from on-site construction activities. Table 21 presents the summary results of the construction noise analysis.

Table 21
Construction Noise Summary of Results

Receiver Location/ Description	Land Use	Construction Noise Level by Construction Phase (dBA L_{eq})				
		Phase 1: Demolition	*Phase 2: Site Preparation*	*Phase 3: Grading*	*Phase 4: Building Construction*	*Phase 5: Paving*
Nearest Receiver / Construction at Nearest Property Boundary	Residential	73	71	72	68	71
Nearest Receivers / Construction at Acoustic Center	Residential	69	67	68	64	64

Note: dBA L_{eq} = A-weighted decibels energy equivalent level

The highest noise levels from construction are predicted to range from approximately 77 dBA L_{eq} (during Phase 4) to 82 dBA L_{eq} (during Phase 1) at the nearest receiver (Appendix E). This maximum noise level is considered to be a peak exposure, applicable to not more than 10% to 15% of the total construction period, only while the construction activity is taking place along the northern property boundary (i.e., closest to the nearest off-site receiver). The average construction noise levels (for construction taking place at a range of locations on site and modeled at the acoustical center for analysis purposes) range from approximately 67 dBA L_{eq} (during Phase 4) to approximately 71 dBA L_{eq} (during Phase 1) (Appendix E). The average noise levels (based upon the acoustic center) are considered a better representation of the overall noise exposure experience for adjacent receivers over the duration of each construction phase.

Table 22 below shows the construction noise analysis results in terms of the Community Noise Equivalent Level (CNEL), the 24-hour weighted average noise level. It was assumed for the purposes of this calculation that construction would occur over a typical 8-hour workday.

Table 22
Construction Noise Summary of Results (dBA CNEL)

Receiver Location/ Description	Land Use	Construction Noise Level by Construction Phase				
		Phase 1: Demolition	*Phase 2: Site Preparation*	*Phase 3: Grading*	*Phase 4: Building Construction*	*Phase 5: Paving*
Nearest Receiver / Construction at Nearest Property Boundary (325 feet)	Residential	69	67	68	64	67

Table 22
Construction Noise Summary of Results (dBA CNEL)

Receiver Location/ Description	Land Use	Construction Noise Level by Construction Phase				
		Phase 1: Demolition	*Phase 2: Site Preparation*	*Phase 3: Grading*	*Phase 4: Building Construction*	*Phase 5: Paving*
Nearest Receivers / Construction at Acoustic Center (395 feet)	Residential	65	63	64	60	60

In terms of CNEL, the worst-case noise levels based upon the minimum separation distance from construction activities to off-site receivers are predicted to range from approximately 73 dBA CNEL (during Phase 4) to 78 dBA CNEL (during Phase 1) at the nearest residential receiver. The average construction-related noise levels (for construction taking place at a range of locations on-site and modeled at the acoustical center for analysis purposes) range from approximately 63 dBA CNEL (during Phase 4) to approximately 67 dBA CNEL (during Phase 1).

The proposed project would be required to comply with the Rialto noise ordinance (City Municipal Code Section 9.50.070 – Disturbances from Construction Activity) by adhering to the following construction schedule:

> Construction activity for site preparation and for future development shall be consistent with City Noise Ordinance requirements, which limits construction activities to the hours between 7:00 AM and 5:30 PM, Monday through Friday and between 8:00 AM and 5:00 PM Saturday (Oct. 1 through April 30); to the hours between 6:00 AM and 7:00 PM, Monday through Friday and between 8:00 AM and 5:00 PM Saturday (May 1 through Sept. 30); and prohibiting construction during Sundays and State Holidays.

Average noise levels from construction activities may be mildly annoying at times, but restricting construction activities to the daytime period will avoid disruption of evening time relaxation and overnight sleep periods. The Safety and Noise Chapter of the City General Plan does not identify sound level limits for construction activity. As such, the requirements contained in the City Noise Ordinance (Chapter 9.50 of the Rialto Municipal Code) are the only applicable restrictions that regulate construction activity. City Municipal Code Section 9.50.070 specifies time-of-day constraints on construction activity; however, the City Municipal Code does not contain noise level limits pertaining

to construction activity. Therefore, for the purposes of this analysis, project construction activities that are in compliance with City Municipal Code Section 9.50.070 would result in a **less-than-significant** construction noise impact.

Even though construction noise impacts were found to be insignificant, construction noise mitigation measures are still recommended in order to further minimize the potential for annoyance from construction noise for area residents. The recommended mitigation measures are as follows.

MM-NOI-1 During all project site excavation and grading on site, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.

MM-NOI-2 The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors to the east and southwest of the site.

MM-NOI-3 During all project site construction, the construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and nearby noise-sensitive receptors.

MM-NOI-4 During all project site construction, the construction contractor shall limit all construction-related activities that would result in high noise levels to between the hours of 7:00 a.m. and 5:30 p.m. Monday through Friday, and between 8:00 a.m. and 5:00 p.m. Saturday. No construction shall be allowed on Sundays and public holidays.

Long-Term Operational Impacts

Traffic Noise Analysis

Less-than-Significant Impact. The primary noise-related effect that most commercial projects produce is a potential for off-site increases in traffic, which is the main source of noise in most urban areas. Acoustical calculations (using standard noise modeling equations adapted from the Federal Highway Administration noise prediction model) were performed for the following traffic scenarios: existing, opening year, opening year plus project, cumulative, and cumulative plus project.

Roadway traffic data for use in the traffic noise calculations was obtained from the traffic study prepared by Dudek for the proposed warehouse (Appendix F). The acoustical modeling calculations take into account the posted vehicle speed, average daily traffic (ADT) volume, and the estimated vehicle mix. Table 23 presents the noise level results for each scenario. Refer to Appendix F for Federal Highway Administration traffic model worksheets.

Noise levels are indicated at 100 feet from the centerline of Baseline Road, and 75 feet from the centerline of Walnut Avenue and Alder Avenue, the approximate distance to existing structures along these roadways. Noise levels at distances greater than 10 feet from the centerline of Baseline Road and 75 feet from the centerline of Walnut Avenue and Alder Avenue 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 A-weighted decibels (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 for Baseline Road, Walnut Avenue, and Alder Avenue are conservative.

Table 23
Noise Levels for Vicinity Roadways Under Each Traffic Scenario (dBA CNEL)

	Roadway Segment						
Traffic Scenario	*Walnut*	*Baseline west of Alder*	*Baseline east of Alder*	*Alder Baseline to Walnut*	*Alder Walnut to Renaissance*	*Alder Renaissance to I-210 EB*	*Alder I-210 E/B to WB Ramps*
Existing	64.7	66.2	66.1	67.1	69.1	70.2	69.4
Opening Year	64.8	66.4	66.2	67.3	69.2	70.3	69.6
Opening Year + Project	65.5	66.6	66.3	67.5	69.5	70.5	69.7
Difference in Noise Level (Project-Added Noise)	+ 0.7	+ 0.2	+ 0.1	+ 0.2	+ 0.3	+ 0.2	+ 0.1
Cumulative	68.2	68.1	69.1	71.1	72.5	73.4	72.4
Cumulative + Project	68.5	68.3	69.1	71.2	72.6	73.5	72.5
Difference in Noise Level (Project-Added Noise)	+ 0.3	+ 0.2	0	+ 0.1	+ 0.1	+ 0.1	0

Notes: EB = eastbound; WB = westbound

The proposed project would result in the addition of vehicle trips that would increase traffic noise. A potentially significant project impact would occur where project traffic would increase noise levels from below 65 dB CNEL to above 65 dB CNEL (where residences exist adjacent to the identified roadway segment). In addition, an increase of 3 dBA CNEL would be significant (Caltrans 2013).

With respect to the traffic noise analysis results presented in Table 23, there are no residential uses located along Walnut Avenue, between Tamarind Avenue and Alder Avenue. Under the "opening" traffic scenario, the project would increase noise levels by approximately 0.7 dBA CNEL, compared to the significance threshold of 3 dBA CNEL. In the cumulative scenario for Walnut Avenue, the project would increase traffic noise levels by 0.3 dBA CNEL, compared to a significance threshold of 3.0 dBA CNEL. Consequently, project traffic noise impacts along Walnut Avenue would be less than significant.

There are existing residences located along Baseline Road to the east and west of Alder Avenue, and on Alder Avenue between Baseline Avenue and Walnut Avenue. However, existing traffic noise levels without the project are already slightly above 65 dBA CNEL. Under the "opening" traffic scenario, the project would increase noise levels by 0.3 dBA CNEL or less, compared to the significance threshold of 3.0 dBA. In the cumulative scenario for Baseline Road and Alder Avenue, the project would increase traffic noise levels by 0.2 dBA CNEL or less, compared to a significance threshold of 3.0 dBA CNEL. Project traffic noise contributions along all segments of Walnut Avenue, Baseline Road, and Alder Avenue would be well below 1 dBA, indicating that proposed project-added traffic would have an imperceptible increase to roadway traffic noise levels. Therefore, the proposed project would not create or contribute to a significant traffic-related noise impact, and no mitigation measures would be required with respect to project traffic noise impacts.

On-Site Operational Noise Analysis

Truck loading and unloading, along with slow-moving trucks and forklifts, would result in sound levels of approximately 75 dBA maximum sound level (L_{max}) to 80 dBA L_{max} at 50 feet (LSA Associates 2016). For the existing residence to the north (which is approximately 273 feet from the loading docks on the north façade of the warehouse), maximum noise levels from truck loading/unloading and maneuvering would be attenuated to 65 dBA L_{max}, while average noise levels associated with these operations would be anticipated to be approximately 10 dBA lower (55 dBA L_{eq}). This range of noise levels is lower than traffic noise levels documented at the residence and would not exceed the 65 dBA L_{max} exterior noise standard during the night (10:00 p.m.–7:00 a.m.). Therefore, noise associated with loading/unloading and slow-moving trucks and forklifts activities in the parking areas would not result in noise levels exceeding the daytime noise standards at the nearest residence to the north. It should also be noted this residence to the north is located on land designated for industrial/warehouse uses and would likely be displaced in the near future by such proposed uses.

For residences to the west, at a distance of approximately 450 feet, the noise distance attenuation would be 19 dBA. Noise associated with loading/unloading and slow-moving trucks and forklifts in the loading docks would be reduced to 56 dBA L_{max} to 61 dBA L_{max} at the closest residence to the west. The average noise level would be anticipated to be 10 dBA lower (46 to 51 dBA L_{eq}). This range of average noise levels is approximately equivalent to the traffic noise documented at these residences. Therefore, noise associated with loading/unloading and slow-moving trucks and forklift activities in the truck parking areas would not result in noise levels exceeding the daytime noise standards at the nearest residences approximately 450 feet to the west.

For residences to the south, the proposed warehouse structure would be situated between the truck loading docks and the residences south of Baseline Road. Therefore, noise associated with on-site slow-moving trucks and forklift activities in the truck parking areas would not be expected to be audible to the residences along the south side of Baseline Road, opposite the project site.

Consequently, long-term operational noise levels of the proposed warehouse facility would be **less than significant** upon the proximate existing residential land uses in the project vicinity, and no mitigation measures would be required with respect to on-site operational noise impacts.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less-Than-Significant Impact. For typical construction activity, the equipment with highest vibration generation potential is the vibratory roller, which would generate 0.21 inches/second at 25 feet or 0.071 inches/second at 50 feet (Caltrans 2013). With the vibration attenuation through distance divergence, the vibration from project construction would be reduced to 0.032 inches/second or lower at the residential building to the north. Vibration levels from construction would be no greater than 0.026 inches/second at the residences in the neighborhood to the south of East Baseline Road opposite the project site. This range of vibration levels from construction equipment or activity would be well below the Federal Transit Administration 0.2 inches per second peak particle velocity threshold. Therefore, impacts associated with groundborne vibration would be **less than significant**.

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. Refer to response under Long-Term Operational Impacts in 3.12(a).

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 Mitigation Incorporated. Refer to the response under Short-Term Construction Impacts in 3.12(a).

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 Impact. The project site is located approximately 11 miles northeast of Ontario International Airport and approximately 10 miles north of the Riverside Municipal Airport. The project site is not located within the Airport Influence Area of the Ontario International Airport nor the Riverside Municipal Airport (City of Ontario 2011; RCALUC 2005). Based on these relatively large distances between the project site and these public airports, the proposed project would not expose people working in the project area to noise generated by either of these airports. Therefore, **no impacts** associated with public airport noise would occur.

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 Impact. No private airstrips or heliports are known to occur within 2 miles of the project site. Therefore, **no impact** associated with private airstrip noise would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIII. POPULATION AND HOUSING – Would the project:				
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)?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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?	☐	☐	☒	☐

3.13 Population and Housing

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)?

Less-Than-Significant Impact. The proposed project would require a temporary construction workforce and a permanent operational workforce, both of which could potentially induce population growth in the project area. The temporary workforce would be needed to construct the proposed warehouse building and associated improvements. The number of construction workers needed during any given period would largely depend on the specific stage of construction, but will likely average a few dozen workers at any given time throughout the workday. These short-term positions are anticipated to be filled primarily by workers who reside in the project area vicinity; therefore, construction of the proposed project would not generate a permanent increase in population within the project area.

Because the future tenant is not yet known, the number of jobs that the project would generate cannot be precisely determined. Thus, for purposes of analysis, employment estimates are calculated using average employment density factors reported by SCAG in their publication "Employment Density Study." This publication reports that for every 2,111 square feet of warehouse space in San Bernardino County, the median number of jobs created is 1 employee (SCAG 2001). The proposed warehouse would be approximately 255,173 square feet, and as such, the estimated number of employees required for operation would be approximately 121 employees.

Additionally, current data provided by the California Employment Development Department found that the unemployment rate for San Bernardino County was approximately 5.6% (EDD 2017). As such, the project's temporary and permanent employment requirements could likely be met by the local existing labor force without people needing to relocate into the project region. The project would not stimulate population growth or population concentration above what is assumed in local and regional land use plans. Therefore, impacts associated with population growth would be **less than significant**.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

Less-Than-Significant Impact. The project site currently contains existing residential structures. The property owners have entered into a voluntary purchase agreement with the applicant and would no longer occupy the project site. Although it speculative where the current on-site residents would relocate, assuming that they relocate in the project area, it is expected that they will find available housing opportunities in the vicinity, given that the City has approximately 1,399 vacant housing units (U.S. Census Bureau 2016). Therefore, impacts associated with displacement of housing would be **less than significant**.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

Less-than-Significant Impact. Refer to response 3.13(b).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIV. 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 service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.14 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 service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Less-Than-Significant Impact. Fire protection and emergency response services in the project area are provided by the Rialto Fire Department (RFD). The RFD deploys from four fire stations staffed 24 hours per day by career firefighters and administration. The RFD staffs one battalion chief, three engine companies, one truck company, and four paramedic ambulances each day. On-duty personnel also provide staffing for a HAZMAT unit and an Urban Search and Rescue unit (City of Rialto 2016b).

The closest fire station to the proposed project area is Fire Station 203 (1550 North Ayala Drive). A suppression unit and an ambulance are staffed at this fire station. Considering the proximity of the project site to the existing RFD facilities, and given the fact that the project site is already located within RFD's service area, the project could be adequately served by the RFD without adversely effecting personnel-to-resident ratios, response times, or other performance objectives.

Additionally, as previously discussed, the project would not directly or indirectly induce population growth in the City. Although the project could potentially result in a slight, incremental increase in calls for service to the project site in comparison to the existing conditions, this increase is expected to be nominal and would not result in the need for new RFD facilities. Therefore, impacts associated with RFD facilities and response times would be **less than significant**.

Police protection?

Less-Than-Significant Impact. The Rialto Police Department (RPD) is headquartered at 128 North Willow Avenue, approximately 3 miles north from the project site. The station has approximately 157 employees, including roughly 106 sworn officers (RPD 2014a). The RPD serves 28.5 square miles with a population of over 100,000 people and offers a variety of services and assignments including patrol, K-9, School Resource Officer, Street Crime Attack Team, Investigations, Narcotics, Training/Backgrounds, Community Services, and the Re-Entry Support Team (RPD 2014b).

The project would not directly or indirectly induce population growth in the City. While the project would potentially result in a slight, incremental increase in calls for service to the project site in comparison to the existing conditions, this increase is expected to be nominal and would not result in the need for new RPD facilities. Additionally, the project site is already located within RPD's service area and would not require an expansion of the service area, which could otherwise result in longer response time. Overall, it is anticipated that the project would be adequately served by existing RPD facilities, equipment, and personnel. Therefore, impacts associated with PRD facilities and response times would be **less than significant**.

Schools?

No Impact. The City is served by three school districts: the Rialto Unified School District, Fontana Unified School District, and Colton Joint Unified School District (City of Rialto 2010a). The project site is within the Fontana Unified School District serves over 37,000 students over 45 campuses with 30 elementary schools, 7 middle schools, 5 comprehensive high schools, 3 alternative high school, an adult education program, and an after-school program (FUSD 2017).

Neither the construction nor the operation of the project would generate new permanent residents that would increase student populations. As such, the project would not directly or indirectly induce population growth in the City. Therefore, the project would have no effect on the Fontana Unified School District service abilities. Therefore, **no impacts** associated with Fontana Unified School District facilities and student-teacher ratios would occur.

Parks?

No Impact. The project would not directly or indirectly induce population growth in the City. Thus, the project would not generate new permanent residents that would increase the use of existing parks such that substantial physical deterioration of facilities would occur or be accelerated. Therefore, **no impacts** associated with park facilities would occur.

Other public facilities?

No Impact. Given the lack of population growth as a result of the project, it is unlikely that the project would increase the use of libraries and other public facilities. Therefore, **no impacts** associated with libraries and other public facilities would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XV. 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.15 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?

No Impact. The project would not directly or indirectly induce substantial population growth in the City. Neither construction nor operation of the project would generate new residents to the extent that use of existing parks and recreational facilities would increase and result in the physical deterioration of these facilities. Therefore, **no impacts** associated with the increased use of existing recreational facilities would occur.

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?

No Impact. Refer to response 3.15(a).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC – Would the project:				
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 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?	☐	☐	☐	☒

3.16 Transportation and Traffic

The following analysis is based on the Traffic Impact Analysis prepared by Dudek in July 2018 and included as Appendix F to this IS/MND.

Existing Traffic Conditions

Existing Street System

Local access is provided by various roadways in the vicinity of the project site. The east–west arterial expected to provide local access is Baseline Road. The north–south arterial expected to provide local access is Alder Avenue. Additionally, Walnut Avenue, an east–west roadway, would be utilized by outbound project traffic to access Alder Avenue. Tamarind Avenue, a north–

south roadway, would be utilized by outbound project traffic to access Walnut Avenue. Regional access is provided via SR-210. The existing traffic controls and geometrics at the study area intersections are shown in Figure 6.

The study area is comprised of the following eight intersections and seven roadway segments:

Intersections

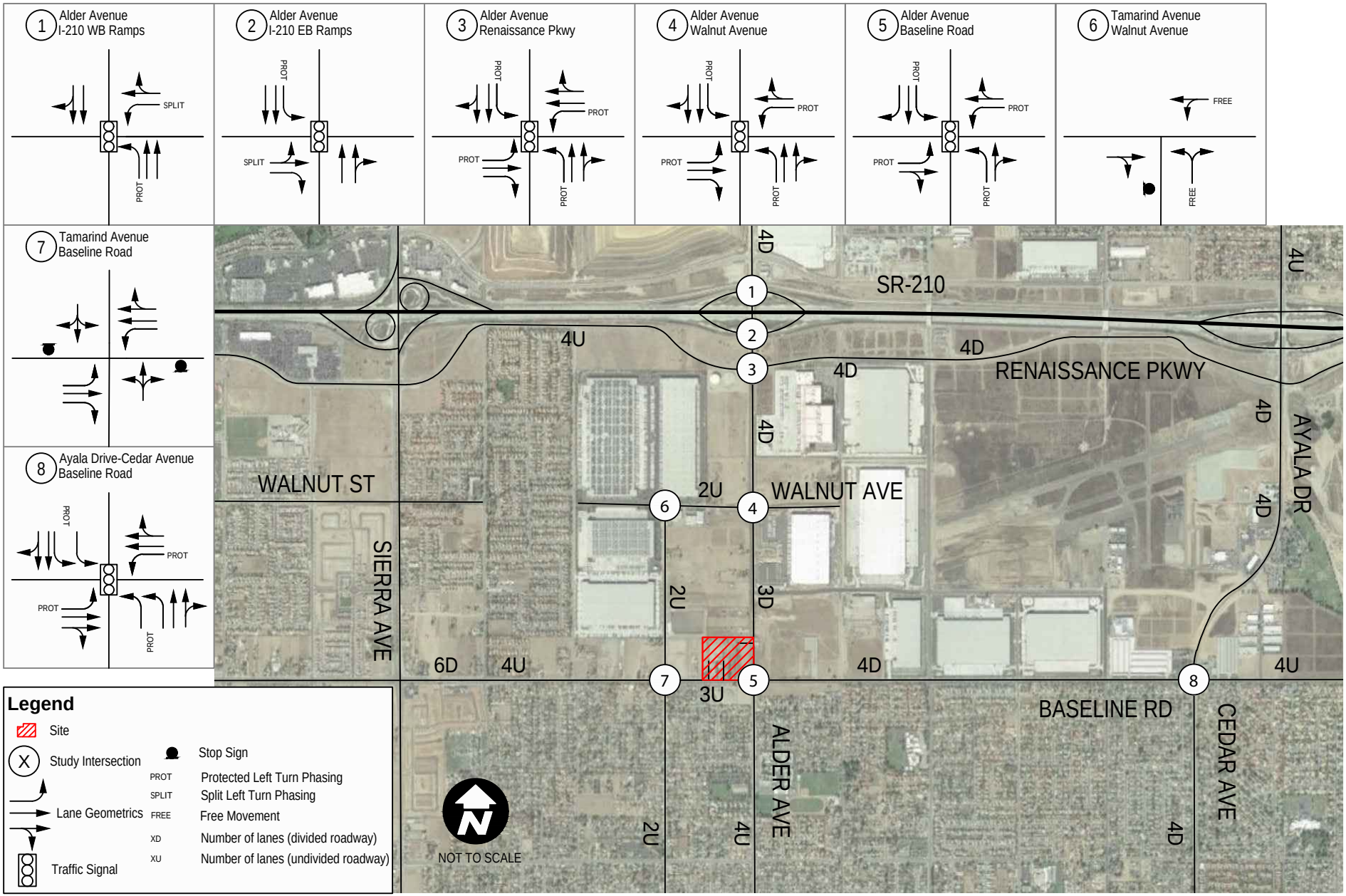
1. Alder Avenue/SR-210 westbound ramps
2. Alder Avenue/SR-210 eastbound ramps
3. Alder Avenue/Renaissance Parkway
4. Alder Avenue/Walnut Avenue
5. Alder Avenue/Baseline Road
6. Tamarind Avenue/Walnut Avenue
7. Tamarind Avenue/ Baseline Road
8. Ayala Drive–Cedar Avenue/Baseline Road

Roadway Segments

1. Alder Avenue, between SR-210 westbound ramps and eastbound ramps
2. Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway
3. Alder Avenue, between Renaissance Parkway and Walnut Avenue
4. Alder Avenue, between Walnut Avenue and Baseline Road
5. Baseline Road, between Alder Avenue and Tamarind Avenue
6. Baseline Road, between Alder Avenue and Locust Avenue
7. Walnut Avenue, between Alder Avenue and Tamarind Avenue

Existing Traffic Volumes

Existing peak hour ADT counts at the study intersections and roadway segments, respectively, were conducted on Tuesday, March 6, 2018, during a typical non-holiday week. Raw traffic count worksheets are provided in Appendix F to this IS/MND. Existing weekday AM and PM peak hour and ADT volumes are summarized on Figure 7.



SOURCE: Google Earth 2016

FIGURE 6

Existing Traffic Controls and Geometrics

Baseline Alder Warehouse Project

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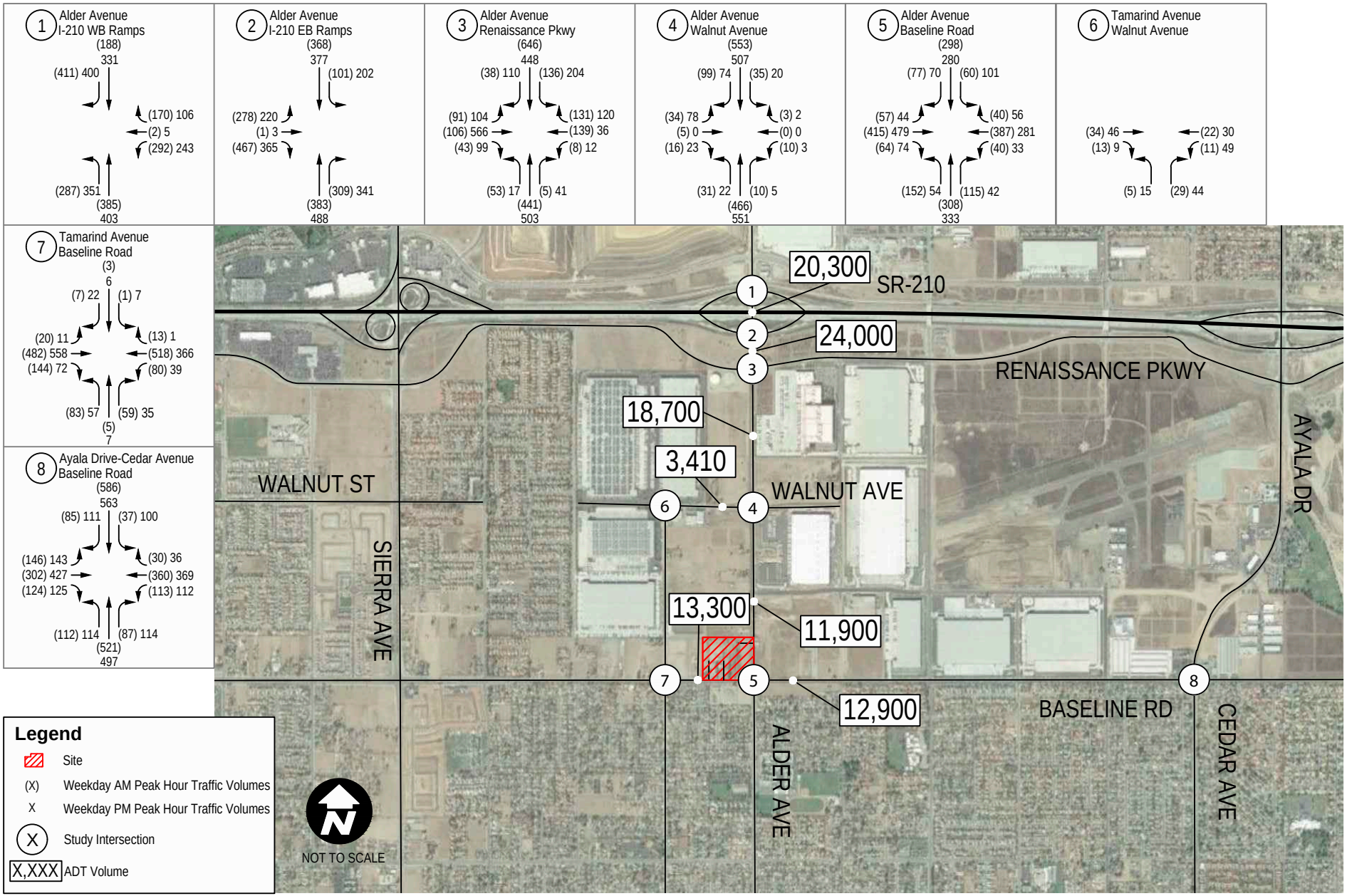

SOURCE: Google Earth 2016

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FIGURE 7

Existing Traffic Volumes

Baseline Alder Warehouse Project

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Existing Intersection Level of Service

An intersection level of service (LOS) analysis was prepared for the existing conditions using the Highway Capacity Manual (HCM) 2010 methodology through the Synchro (version 10) LOS software. The existing LOS for the intersections in the vicinity of the proposed project are shown in Table 24.

Table 24
Existing Weekday Peak Hour Intersection LOS

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]
1	Alder Avenue/SR-210 westbound ramps	signalized	24.7	C	25.0	C
2	Alder Avenue/SR-210 eastbound ramps	signalized	23.8	C	19.7	B
3	Alder Avenue/Renaissance Parkway	signalized	22.6	C	34.5	C
4	Alder Avenue/ Walnut Avenue	signalized	5.5	A	6.1	A
5	Alder Avenue/Baseline Road	signalized	46.2	D	37.4	D
6	Tamarind Avenue/Walnut Avenue	unsignalized	8.7	A	8.7	A
7	Tamarind Avenue/Baseline Road	unsignalized	**127.3**	**F**	28.0	D
8	Ayala Drive-Cedar Avenue/Baseline Road	signalized	28.0	C	29.5	C

Source: Appendix F
Notes:
1 Delay in seconds per vehicle calculated per HCM methodology
2 LOS = level of service

As shown in Table 24, all of the study area intersections, with the exception of Tamarind Avenue/Baseline Road, are currently operating at LOS D or better under existing conditions during both peak hours. The Tamarind Avenue/Baseline Road intersection currently operates at LOS F during the AM peak hour.

Per the City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road currently operates at LOS F with an average delay of 127.3 seconds during the AM peak hour for the most critical approach (northbound left turn). Based on a peak hour signal-warrant analysis, conducted per the California Manual of Uniform Traffic Control Devices (CA MUTCD), the existing traffic volumes at Tamarind Avenue/Baseline Road would not satisfy a peak hour signal warrant.

Existing Roadway Segment Conditions

A roadway segment LOS analysis was prepared for the existing conditions using the roadway segment LOS methodologies. Table 25 shows the results of the existing conditions LOS analysis for the study area roadway segments.

Table 25
Existing Daily Roadway Segment LOS

Roadway Segment	Classification	No. of Lanes	Capacity	ADT[1]	V/C[2]	LOS[3]
Alder Avenue						
SR-210 WB ramps to SR -210 EB ramps	Secondary Highway	4	24,600	20,300	0.83	D
SR-210 EB ramps to Renaissance Pkwy	Secondary Highway	4	24,600	24,000	**0.98**	**E**
Renaissance Pkwy to Walnut Ave	Major Arterial	4	36,400	18,700	0.51	A/B
Walnut Ave to Base Line Rd	Major Arterial	3	24,600	11,900	0.48	A/B
Baseline Road						
Alder Ave to Tamarind Ave	Major Arterial	2	19,800	13,300	0.67	A/B
Alder Ave to Locust Ave	Major Arterial	3	24,600	12,900	0.52	A/B
Walnut Avenue						
Alder Ave to Tamarind Ave	Commercial Collector	2	13,800	3,410	0.27	A/B

Source: Appendix F
Notes:
1 ADT = average daily traffic
2 V/C = volume to capacity ratio
3 LOS = level of service

As shown in Table 25, with the exception of Alder Avenue, between the SR-210 eastbound ramps and Renaissance Parkway, all of the roadway segments are currently operating at LOS D or better under existing conditions. The roadway segment of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway, currently operates at LOS E under existing conditions.

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?

and

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?

Less-than-Significant Impact With Mitigation Incorporated. For the purposes of analysis, the potential impacts to traffic and circulation were assessed for each of the following conditions:

- Project Completion 2020 Baseline
- Project Completion 2020 plus Project
- Cumulative 2020 Baseline Conditions
- Cumulative 2020 plus Project Conditions

Project Traffic

Trip Generation

Trip generation estimates for the proposed project are based on daily and AM and PM peak hour trip generation rates obtained from the Institute of Transportation Engineers *Trip Generation Manual, 9th Edition* (ITE 2012). Trip generation estimates for the project are based on the trip generation rates for the Institute of Transportation Engineers Land Use 150, Warehousing.

The methodology to calculate the passenger car and truck vehicle mix for a warehouse land use is provided in the City's TIA guidelines. The vehicle mix rates are based on the SCAQMD recommendations for traffic impact studies for warehousing projects. Trip generation rates and resulting trip generation estimates for the project are summarized in Table 26.

Table 26
Project Trip Generation

Land Use		Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Trip Rates[1]									
Warehousing (ITE Land Use 150)		per TSF	3.56	0.24	0.06	0.30	0.08	0.24	0.32
Trip Generation									
Vehicle Mix[2]	*Percent*								
Passenger Vehicles	69.0%		546	37	9	46	12	37	49
2-Axle Trucks	6.8%		7	1	0	1	0	1	1

Table 26
Project Trip Generation

Land Use		Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	*Out*	*Total*	*In*	*Out*	*Total*
3-Axle Trucks	5.5%		102	7	2	9	2	7	9
4+-Axle Trucks	18.7%		255	17	5	21	6	17	23
	100.0%	**255.655 TSF**	910	62	16	77	20	62	82
PCE Trip Generation	*PCE Factor3*								
Passenger Vehicles	1.0		546	37	9	46	12	37	49
2-Axle Trucks	1.5		11	2	0	2	0	2	2
3-Axle Trucks	2.0		204	14	4	18	4	14	18
4+-Axle Trucks	3.0		765	51	15	66	18	51	69
Trip Generation with PCE			**1,526**	**104**	**28**	**132**	**34**	**104**	**138**

Notes:
TSF = thousand square feet, PCE = passenger car equivalent
1 Trip rates from the Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012. Land Use Code 150 – Warehousing.
2 Vehicle Mix and Percent from the City of Rialto, Traffic Impact Analysis Report Guidelines and Requirements (City of Rialto 2013).
3 PCE factors from the County of San Bernardino Congestion Management Program, Appendix B - Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County (SANBAG 2016).

As shown Table 26, the project would generate 910 daily trips, 77 AM peak hour trips, and 82 PM peak hour trips. With the application of passenger-car equivalent (PCE) factors to truck trips, the proposed project would generate 1,526 PCE daily trips, 132 PCE trips during the AM peak hour (104 inbound and 28 outbound), and 138 PCE trips during the PM peak hour (34 inbound and 104 outbound).

Trip Distribution and Assignment

Project trips were distributed to the study area intersections and roadway segments using the regional location of the project, logical commute routes for employees, and available truck routes for project-related trucks. A majority of truck traffic will access the study area via SR-210 at its existing interchange with Alder Avenue. It was assumed that 50% of the employee (passenger car) traffic would access the project from north via Alder Avenue; 30% of employee traffic would access the project from south via the Alder Avenue/Baseline Road intersection. Approximately 10% of employee traffic would access the project from east along Baseline Road, and another 10% from the west, along Baseline Road.

Project trips were assigned to the study area intersections by applying the project trip generation estimates to the trip distribution percentages at each study area intersection and roadway segment. The inbound and outbound project trip distribution for passenger cars is shown in Figure 8, and Figure 9, respectively. Project trip distribution for trucks is

shown in Figure 10. The resulting project trip assignments for passenger cars and trucks are shown in Figures 11 and 12, respectively. The total project trip assignment (total volumes) is shown in Figure 13.

Project Completion 2020 Baseline

The project completion year is anticipated to be 2020. The existing roadway segment and intersection configurations, as shown in Figure 6, have been assumed under Project Completion 2020 Baseline (no project) conditions.

Traffic Volumes

Project completion year baseline traffic volumes were estimated by increasing the existing 2018 traffic counts by an ambient background growth rate of 2% per year per the Scoping Agreement with the City, for a period of two years (2018 – 2020). Figure 14 illustrates the Project Completion 2020 Baseline traffic volumes for the daily and peak hour conditions.

Intersection Level of Service

An intersection operations analysis was prepared for the study area to evaluate the Project Completion 2020 Baseline weekday AM and PM peak hour conditions. Intersection operations were calculated using the HCM 2010 methodology. Table 27 shows the results of the Project Completion 2020 Baseline LOS conditions, and the detailed LOS worksheets are included in Appendix F.

Table 27
Project Completion 2020 Baseline Intersection LOS Summary

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
1	Alder Avenue/SR-210 westbound ramps	signalized	25.7	C	26.2	C
2	Alder Avenue/SR-210 eastbound ramps	signalized	24.6	C	20.6	C
3	Alder Avenue/Renaissance Parkway	signalized	22.7	C	36.1	C
4	Alder Avenue/ Walnut Avenue	signalized	5.5	A	6.1	A
5	Alder Avenue/Baseline Road	signalized	48.6	D	39.1	D
6	Tamarind Avenue/Walnut Avenue	unsignalized	8.7	A	8.8	A
7	Tamarind Avenue/Baseline Road	unsignalized	**177.5**	**F**	31.1	C
8	Ayala Drive-Cedar Avenue/Baseline Road	signalized	28.6	D	29.9	C

Source: Appendix F
1 Delay in seconds per vehicle calculated per HCM methodology.
2 LOS = level of service

As shown Table 27, all of the study area intersections, with the exception of Tamarind Avenue/Baseline Road, are forecast to operate at LOS D or better under the Project Completion 2020 Baseline conditions during both peak hours. The Tamarind Avenue/Baseline Road intersection is forecast to continue to operate at LOS F during the AM peak hour.

Per City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road is forecast to continue to operate at LOS F with average delay of 177.5 seconds during the AM peak hour for the most critical approach (northbound left turn). Based on a CA MUTCD peak hour signal-warrant analysis, the Project Completion 2020 Baseline traffic volumes at Tamarind Avenue/Baseline Road would still not satisfy a peak hour signal warrant.

Roadway Segment Level of Service

A roadway segment LOS analysis was prepared for the Project Completion 2020 Baseline conditions using the roadway segment LOS methodology discussed in Appendix F. Table 28 shows the results of the Project Completion 2020 Baseline LOS conditions for the study roadway segments.

Table 28
Project Completion 2020 Baseline Roadway Segment LOS Summary

Roadway Segment	Classification	No. of Lanes	Capacity	ADT[1]	V/C[2]	LOS[3]
Alder Avenue						
SR-210 WB ramps to SR-210 EB ramps	Secondary Hwy	4	24,600	21,100	0.86	D
SR-210 EB ramps to Renaissance Pkwy	Secondary Hwy	4	24,600	25,000	**1.02**	**F**
Renaissance Pkwy to Walnut Ave	Major Arterial	4	36,400	19,400	0.53	A/B
Walnut Ave to Base Line Rd	Major Arterial	3	24,600	12,400	0.50	A/B
Baseline Road						
Alder Ave to Tamarind Ave	Major Arterial	2	19,800	13,800	0.70	A/B
Alder Ave to Locust Ave	Major Arterial	3	24,600	13,400	0.54	A/B
Walnut Avenue						
Alder Ave to Tamarind Ave	Commercial Collector	2	13,800	3,500	0.25	A/B

Source: Appendix F
Note: Classification and Capacity is based is on the City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements (City of Rialto 2013), Renaissance Specific Plan (City of Rialto 2010b) and Renaissance Specific Plan Amendment (City of 2016a).
1 ADT = average daily traffic
2 V/C = volume to capacity ratio
3 LOS = level of service

As shown Table 28, with the exception of Alder Avenue, between the SR-210 eastbound ramps and Renaissance Parkway, all of the roadway segments are forecast to operate at LOS D or better. The roadway segment of Alder Avenue, between the SR-210 eastbound ramps and Renaissance Parkway, is forecast to operate at LOS F from LOS E in the existing condition.

Project Completion 2020 plus Project

The Project Completion 2020 plus Project conditions includes analysis of traffic operations under Project Completion 2020 Baseline conditions with project-related traffic added to the AM and PM peak hour traffic volumes, and roadway segment daily traffic volumes. The traffic impacts specific to the project under this condition are the basis for determining the project's specific impacts, mitigation measures, and conditions of approval.

Traffic Volumes

Traffic generated by the proposed project was added to the Project Completion 2020 Baseline traffic volumes resulting in the Project Completion 2020 plus Project traffic volumes for the daily and peak hour conditions. The project trip assignment (in PCE) shown in Figure 13 for project traffic, was added to the Project Completion 2020 Baseline traffic volumes shown in Figure 14 to derive the Project Completion 2020 plus Project traffic volumes. Figure 15 illustrates the Project Completion 2020 plus Project traffic volumes.

Intersection Level of Service

An intersection operations analysis was prepared for the study area to evaluate the Project Completion 2020 plus Project weekday AM and PM peak hour conditions. Table 29 shows the results of the project conditions LOS analysis, and detailed LOS worksheets are included in Appendix F.

As shown in Table 29, all of the study area intersections, with the exception of Tamarind Avenue/Baseline Road, are forecast to continue to operate at LOS D under Project Completion 2020 plus Project conditions, during both peak hours. The Tamarind Avenue/Baseline Road intersection is forecast to continue to operate at LOS F during the AM peak hour (and LOS D during the PM peak hour) with addition of project traffic.

Per the City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road is forecast to continue to operate at LOS F

with average delay of 192.5 seconds during the AM peak hour for the most critical approach (northbound left turn) with addition of project traffic. Based on a CA MUTCD peak hour signal-warrant analysis, the Project Completion 2020 plus Project traffic volumes at Tamarind Avenue/Baseline Road would still not satisfy a peak hour signal warrant.

However, per the City's significance criteria, the project would create a potentially significant impact at Tamarind Avenue/Baseline Road since the delay increase of 15.0 seconds from the baseline condition of LOS F is one second or greater. Therefore, the proposed project would be required to mitigate this intersection.

Roadway Segment Level of Service

A roadway segment LOS analysis was prepared for the Project Completion 2020 plus Project conditions using the roadway segment LOS methodologies. Table 30 shows the results of the Project Completion 2020 plus Project conditions LOS analysis for the study roadway segments.

As shown in Table 30, with the exception of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway, all of the roadway segments are forecast to continue to operate at LOS D or better under Project Completion 2020 plus Project conditions. The roadway segment of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway, is forecast to continue to operate at LOS F under the Project Completion 2020 plus Project conditions.

Table 29
Project Completion 2020 plus Project Intersection LOS Summary

No.	Intersection	Traffic Control	Project Completion 2020 Baseline				Project Completion 2020 + Project				Change in Delay (in sec)		Potentially Significant Impact	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour					
			Delay [1]	LOS [2]	Delay [1]	LOS [2]	Delay [1]	LOS [2]	Delay [1]	LOS [2]	AM	PM	AM	PM
1	Alder Ave/SR-210 WB ramps	signalized	25.7	C	26.2	C	28.2	C	29.0	C	2.5	2.8	No	No
2	Alder Ave/SR-210 EB ramps	signalized	24.6	C	20.6	C	26.5	C	21.0	C	1.9	0.4	No	No
3	Alder Ave/Renaissance Pkwy	signalized	22.7	C	36.1	C	22.0	C	37.4	D	-0.7	1.3	No	No
4	Alder Ave/ Walnut Ave	signalized	5.5	A	6.1	A	6.2	A	8.2	A	0.7	2.1	No	No
5	Alder Ave/Baseline Rd	signalized	48.6	D	39.1	D	50.1	D	40.0	D	1.5	0.9	No	No
6	Tamarind Ave/Walnut Ave	unsignalized	8.7	A	8.8	A	8.7	A	8.8	A	0.0	0.0	No	No
7	Tamarind Ave/Baseline Rd	unsignalized	**177.5**	**F**	31.1	C	**192.5**	**F**	34.2	C	15.0	3.1	**Yes**	No
8	Ayala Dr-Cedar Ave/Baseline Rd	signalized	28.6	C	29.9	C	28.7	C	29.9	C	0.1	0.0	No	No

HCM = Highway Capacity Manual
[1] Delay in seconds per vehicle
[2] LOS = level of service

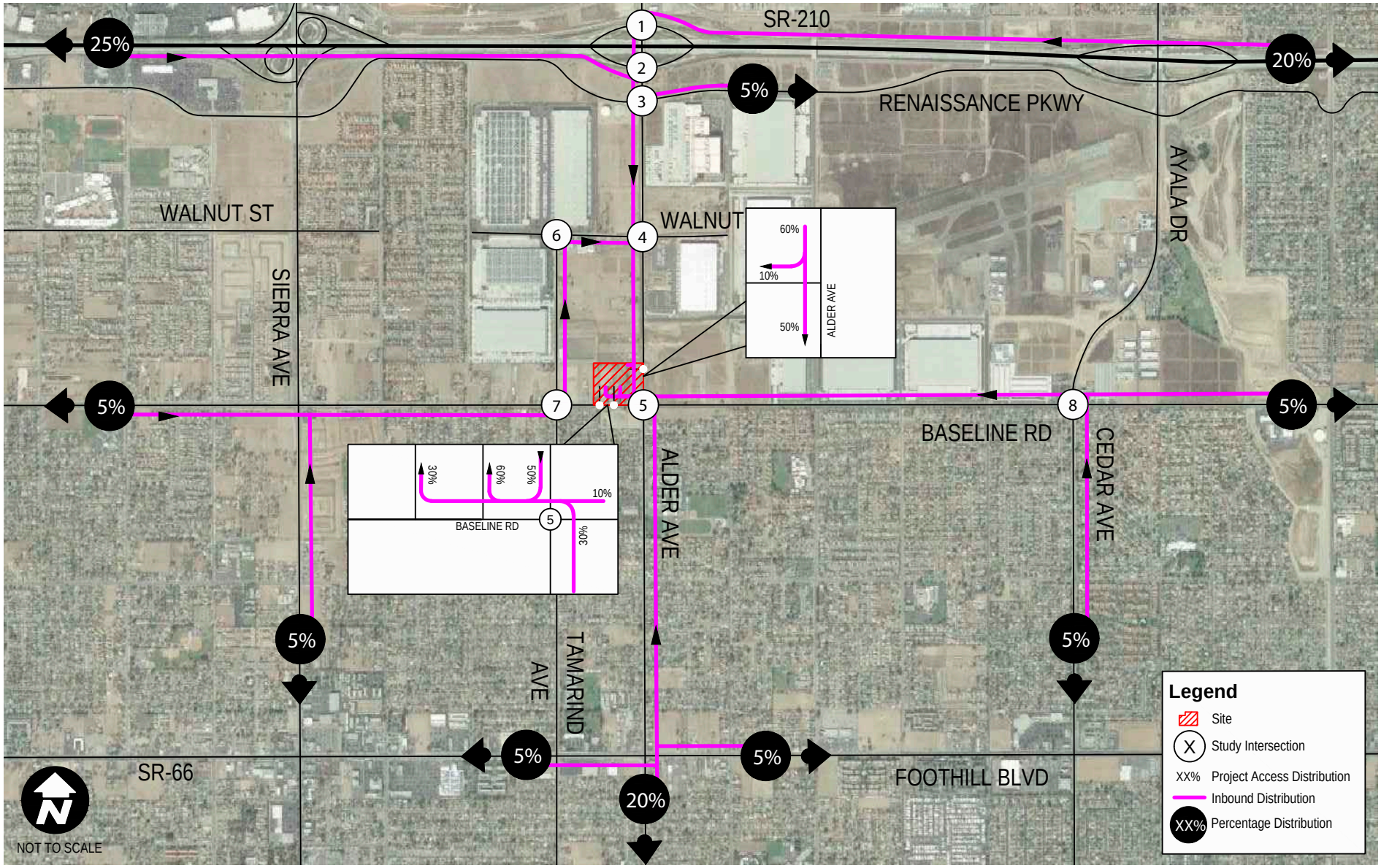
Table 30
Project Completion 2020 plus Project Roadway Segment LOS Summary

Roadway Segment	Classification	No. of Lanes	Capacity	Project Completion 2020 Baseline			Project Completion 2020 + Project				Potentially Significant Impact
				ADT [1]	V/C [2]	LOS [3]	Proj. Traffic	ADT [1]	V/C [2]	LOS [3]	
Alder Avenue											
- SR-210 WB ramps to SR-210 EB ramps	Secondary Hwy	4	24,600	21,100	0.86	D	613	21,713	0.88	D	No
- SR-210 EB ramps to Renaissance Pkwy	Secondary Hwy	4	24,600	25,000	**1.02**	**F**	1,226	**26,226**	**1.07**	**F**	**Yes**
- Renaissance Pkwy to Walnut Ave	Major Arterial	4	36,400	19,400	0.53	A/B	1,254	20,654	0.57	A/B	No

Table 30
Project Completion 2020 plus Project Roadway Segment LOS Summary

Roadway Segment	Classification	No. of Lanes	Capacity	Project Completion 2020 Baseline			Project Completion 2020 + Project				Potentially Significant Impact
				ADT [1]	*V/C* [2]	*LOS* [3]	*Proj. Traffic*	*ADT* [1]	*V/C* [2]	*LOS* [3]	
- Walnut Ave to Baseline Rd	Major Arterial	3	24,600	12,400	0.50	A/B	654	13,054	0.53	A/B	No
Baseline Road											
-Alder Ave to Tamarind Ave	Major Arterial	2	19,800	13,800	0.70	A/B	736	14,536	0.73	C	No
-Alder Ave to Locust Ave	Major Arterial	3	24,600	13,400	0.54	A/B	54	13,454	0.55	A/B	No
Walnut Avenue											
- Alder Ave to Tamarind Ave	Commercial Collector	2	13,800	3,500	0.25	A/B	654	4,154	0.30	A/B	No

Source: Dudek 2018
Note: Classification and Capacity is based is on City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements, December 2013, RSP 2010 and RSP Amendment 2016.
1 ADT = average daily traffic
2 V/C = volume to capacity ratio
3 LOS = level of service



SOURCE: Google Earth 2016

FIGURE 8

Inbound Project Trip Distribution - Passenger Cars

Baseline Alder Warehouse Project

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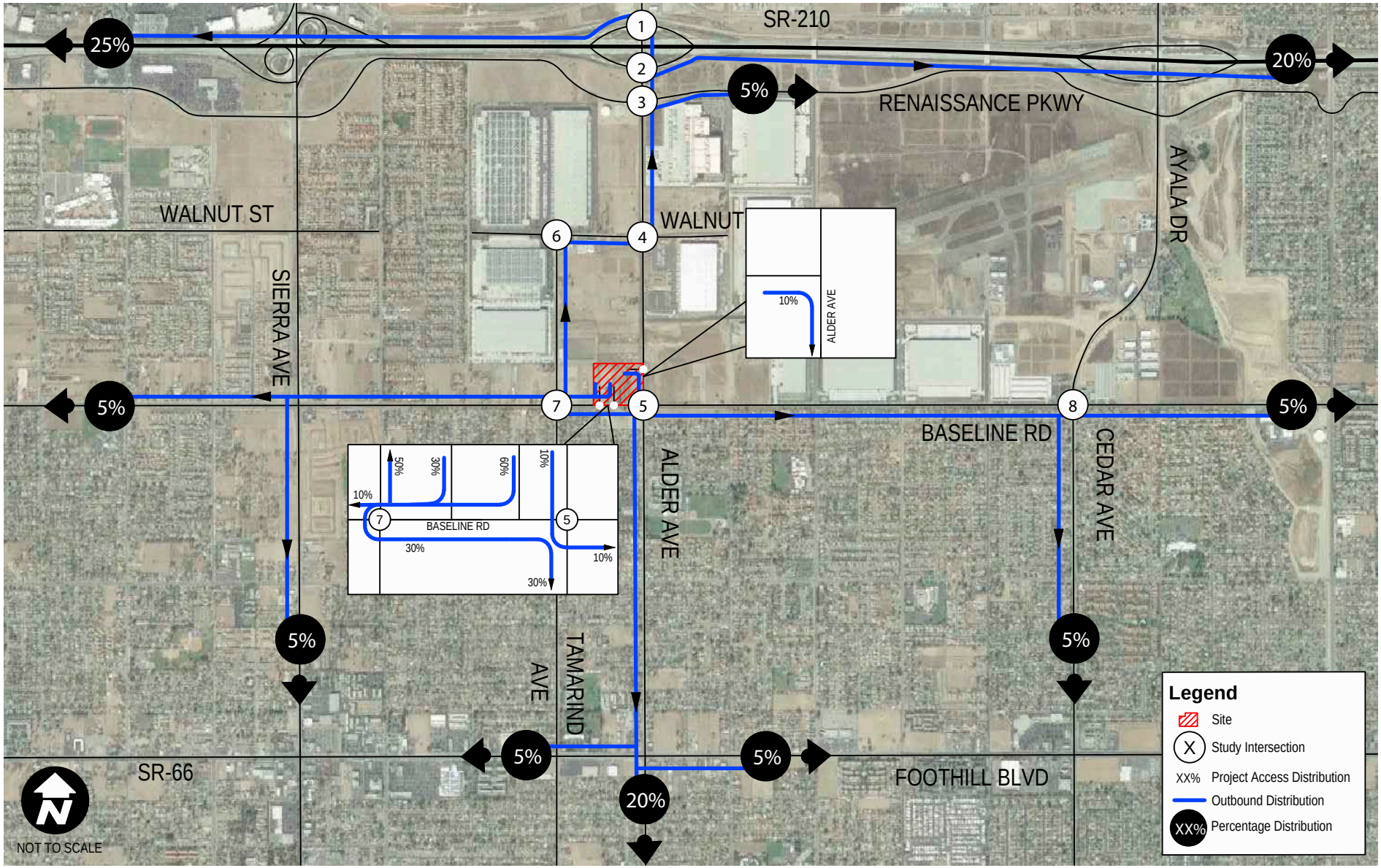

SOURCE: Google Earth 2016

FIGURE 9

Outbound Project Trip Distribution - Passenger Cars

Baseline Alder Warehouse Project

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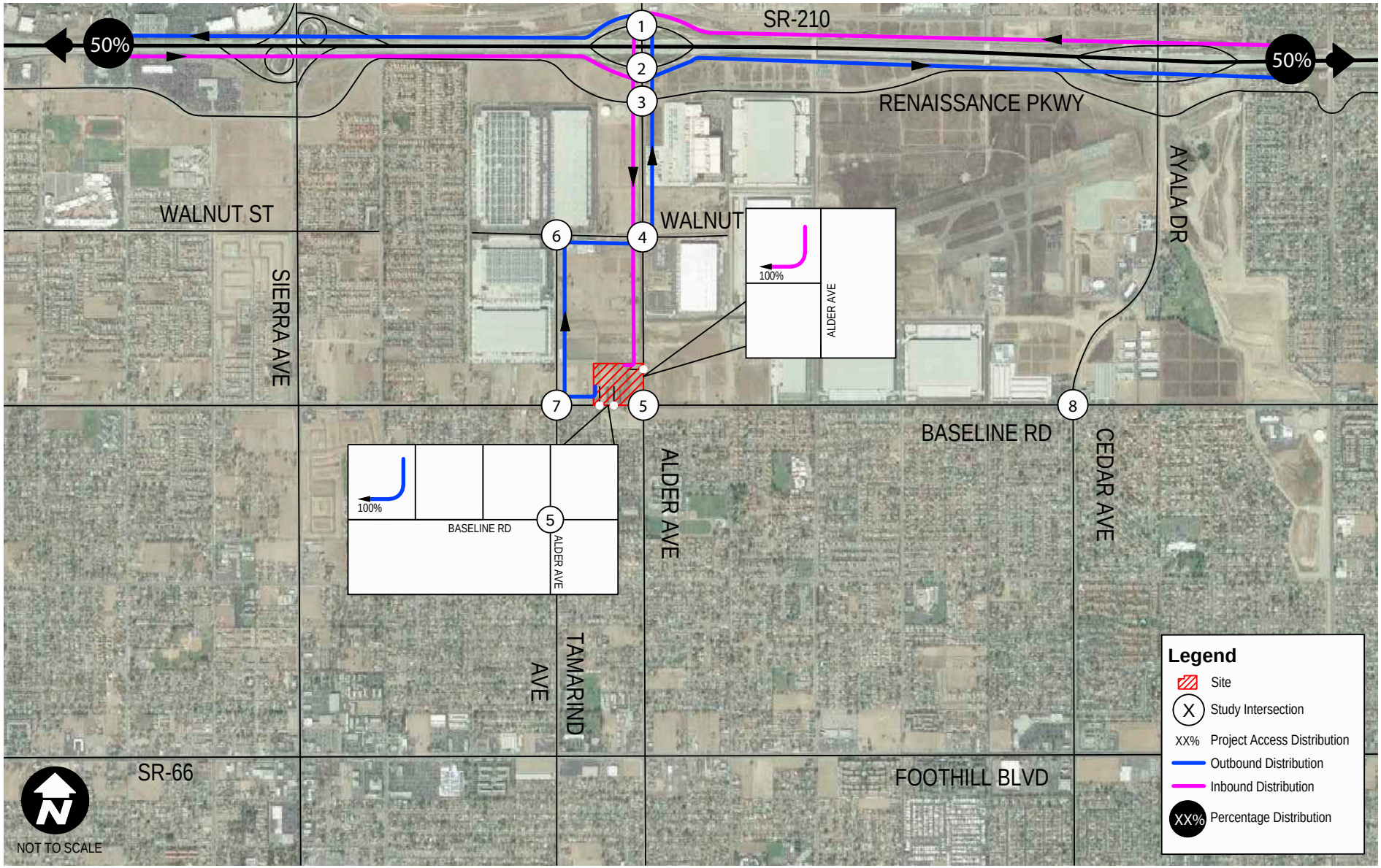

SOURCE: Google Earth 2016

FIGURE 10

Project Trip Distribution - Trucks

Baseline Alder Warehouse Project

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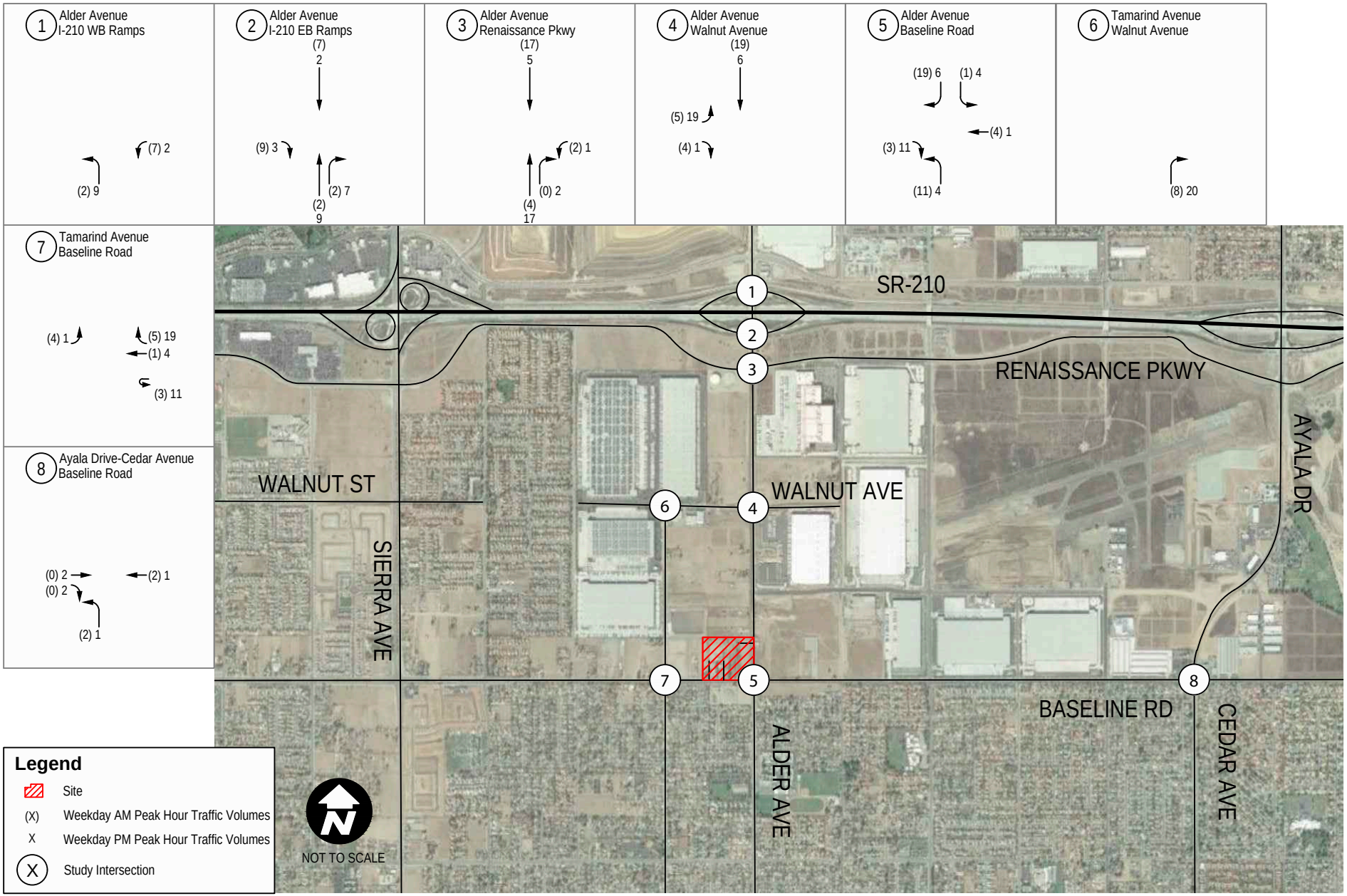

SOURCE: Google Earth 2016

FIGURE 11

Project Trip Assignment - Passenger Cars

Baseline Alder Warehouse Project

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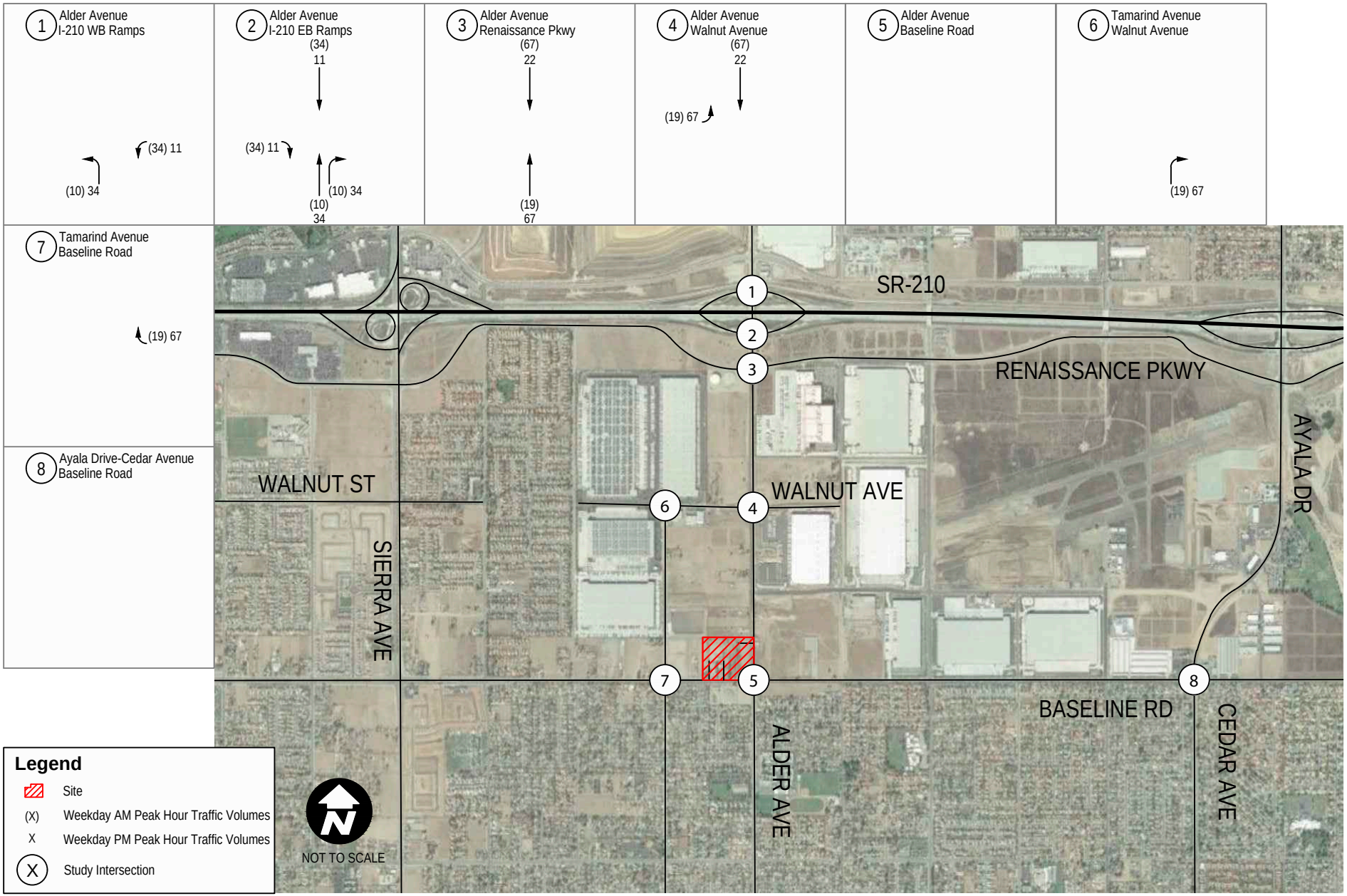

SOURCE: Google Earth 2016

FIGURE 12

Project Trip Assignment - Trucks (PCE-Adjusted)

Baseline Alder Warehouse Project

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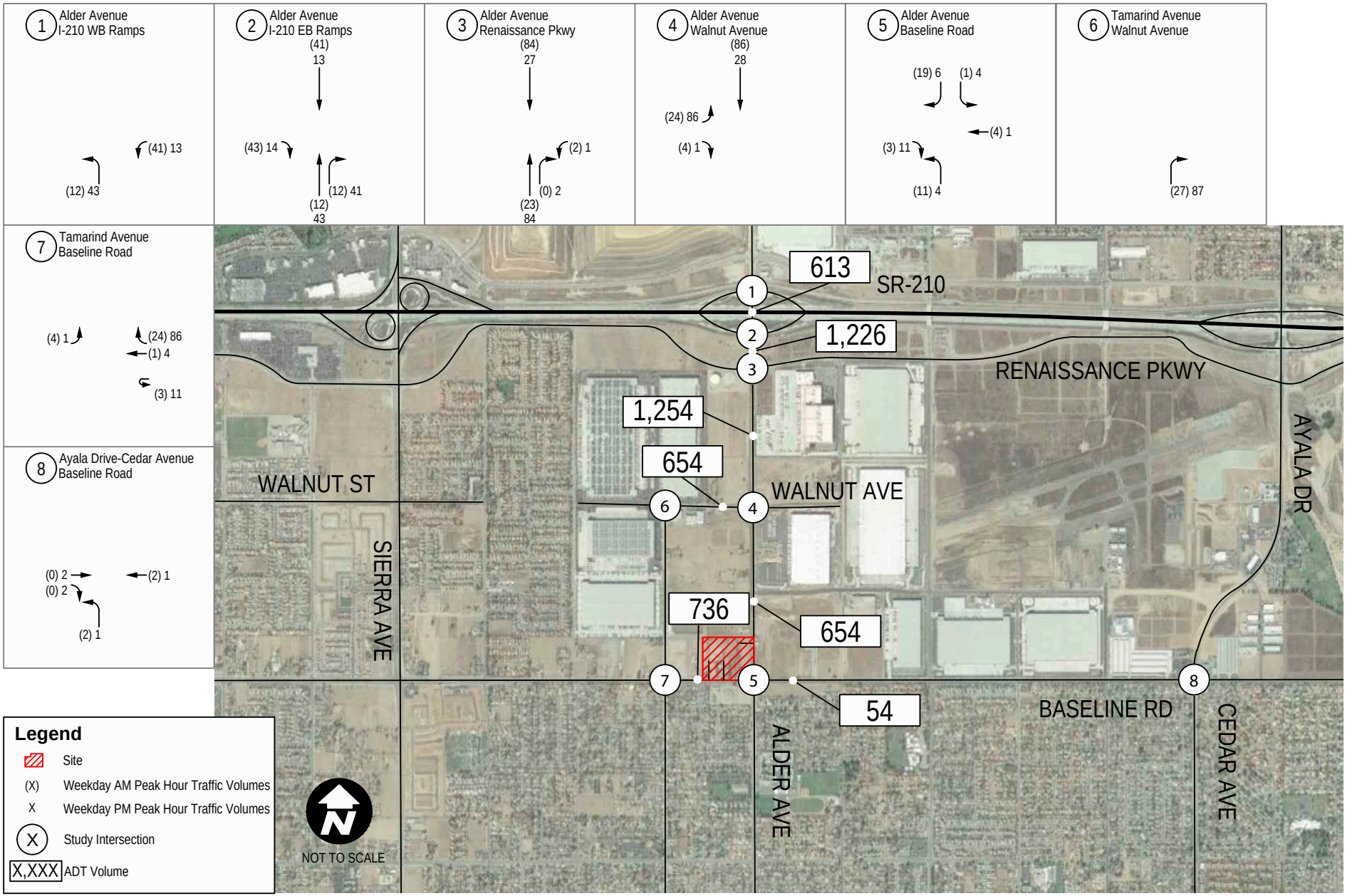

SOURCE: Google Earth 2016

FIGURE 13

Project Trip Assignment - Passenger Cars and Trucks (PCE-Adjusted)

Baseline Alder Warehouse Project

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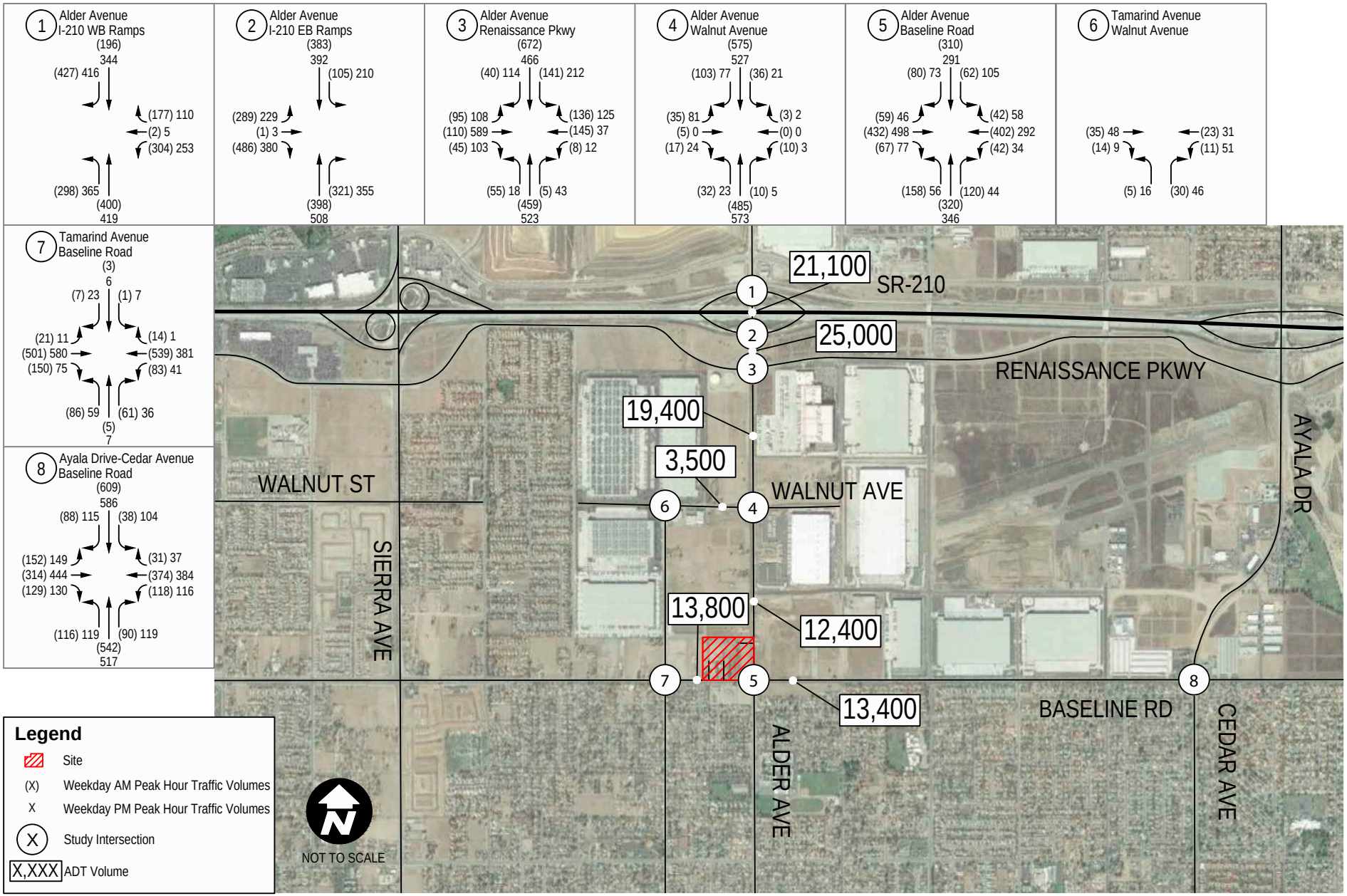

SOURCE: Google Earth 2016

FIGURE 14

Project Completion 2020 Baseline Traffic Volumes

Baseline Alder Warehouse Project

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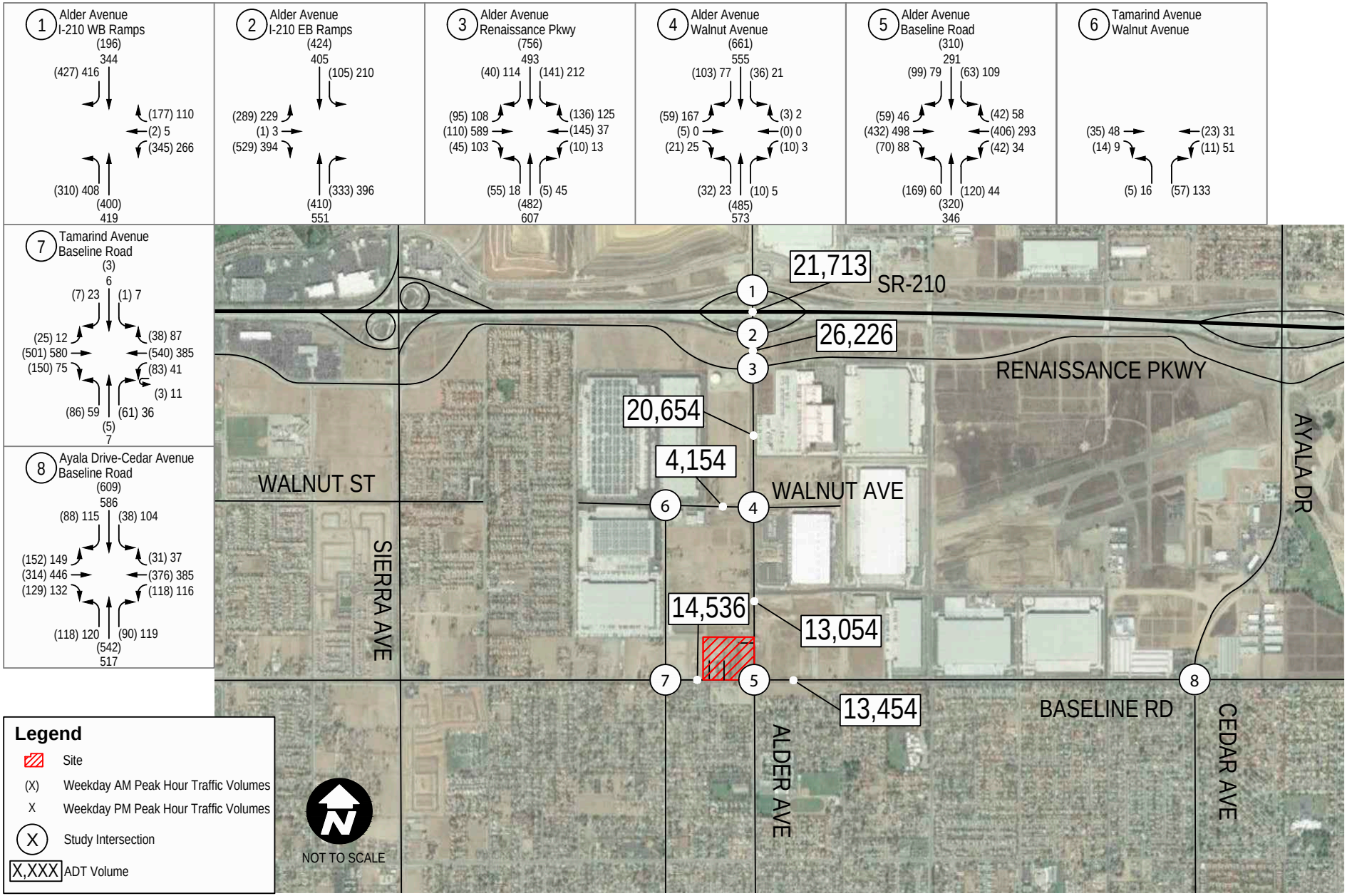

SOURCE: Google Earth 2016

FIGURE 15

Project Completion plus Project Traffic Volumes

Baseline Alder Warehouse Project

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Per the City's LOS standards for roadway segments, if a roadway segment exceeds 1,500 feet, and the volume-to-capacity (V/C) ratio exceeds 1.0, the segment must be mitigated. The project would not be required to mitigate this roadway segment; however, it would be required to pay its fair share towards improvements required for this segment to operate at an acceptable LOS.

Cumulative 2020 Baseline Conditions

Cumulative 2020 Baseline (no project) conditions includes traffic generated by other approved and pending projects in the study area, in addition to ambient growth. The traffic volume forecasts in the cumulative condition includes projects that are proposed, and are in the review process, but not yet fully approved. Cumulative projects that would add traffic to the study area intersections and roadway segments are generally within 1 mile of the study area and are included in the analysis for cumulative conditions. These projects have been provided by the City Traffic Engineer. Since Project Completion and Cumulative conditions are anticipated to be in the same year (i.e., 2020), roadway segment and intersection geometric configurations were assumed the same as the Existing condition (see Figure 6).

A list of cumulative projects was obtained from the City's Public Works Department and from the neighboring City of Fontana Community Development Department. Based on review of that data, approximately 33 cumulative projects were identified that would potentially add traffic in the study area under Cumulative conditions. Figure 16 shows the locations of the cumulative projects.

Cumulative Project Trip Generation

As directed by the City, project trip generation estimates for the cumulative projects were taken from traffic studies, to their extent possible, prepared for recent development projects in the City. Table 31 provides the summary of trip generation estimates for the cumulative projects. As shown in the table, the cumulative projects are forecast to generate approximately 119,104 daily trips, 8,463 AM peak hour trips, and 10,816 PM peak hour trips.

Table 31
Cumulative Projects Trip Generation Summary

No.	Land Use	Quantity	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
City of Rialto										
1	Golden Springs	630	TSF	3761	249	67	316	84	254	337
2	SR-210 Logistics III	742.514	TSF	4430	295	79	374	99	299	398
3	Caprock II - Locust/Bohnert	609	TSF	2782	189	49	238	64	190	254
4	Stater Bros									
	Hotel	100	RMS	817	31	22	53	31	29	60
	High-Turnover (Sit-Down) Restaurant	2000	TSF	254	12	11	23	13	9	22
	Pass-by Fast -Food Restaurant			-57	0	0	0	-2	-2	-4
	Fast-Food Restaurant w/D.T.	1000	TSF	716	26	18	44	13	13	26
	Pass-by Fast -Food Restaurant			-161	-6	-4	-10	-3	-3	-6
	Fast-Food Restaurant w/o D.T.	5440	TSF	2699	126	121	247	92	85	177
	Pass-by Fast -Food Restaurant			-638	-31	-30	-61	-20	-20	-40
	Gas Station w/ Conv Mkt & Car Wash	16	VFP	2445	97	93	190	113	109	222
	Pass-by Gasoline/Service Station			-572	-21	-21	-42	-26	-26	-52
	Site Internal Capture (10%)			-693	-29	-27	-56	-26	-25	-51
5	Shaw Development Warehouse	175.9	TSF	1050	70	16	88	23	70	93
6	Lytle Creek SP (10% of capacity)									
	Single-Family Detached Housing	504	DU	4823	95	284	379	321	188	509
	Condominium	336	DU	1952	25	123	148	117	58	175
7	Emmar Enterprise Homes	20	DU	191	4	11	15	13	7	20
8	B+B Plastics	150.27	TSF	963	64	17	81	22	64	86
9	Pupan Pipe Manufacturing	39	TSF	149	22	6	28	10	18	28

Table 31
Cumulative Projects Trip Generation Summary

No.	Land Use	Quantity	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
10	Rialto Walmart									
	Free Standing Discount Superstore	197.639	TSF	10501	185	145	330	446	465	911
	Shopping Center	13.712	TSF	589	8	5	13	25	26	51
	High-Turnover (Sit-Down) Restaurant	12.856	TSF	1635	77	71	148	85	59	144
	Gasoline/Service Station	16	VFP	2697	99	95	194	111	111	222
	Pass-by Gasoline/Service Station			-1019	-52	-50	-102	-42	-42	-84
	Fast-Food Restaurant w/D.T.	5.948	TSF	2951	138	132	270	101	93	194
	Pass-by Fast-Food Restaurant			-1328	-66	-63	-129	-48	-44	-92
	Site Internal Capture (10%)			-1837	-51	-45	-96	-77	-75	-152
11	Prologis (Locust at Stonehurst)	473.000	TSF	2824	187	50	237	64	191	255
12	Prologis (Tamarind at Walnut)	384.000	TSF	2292	152	39	191	52	154	206
13	Renaissance Market Place									
	North Side Area	65.756	TSF	4441	89	70	159	115	203	318
	South Side Area	523.567	TSF	13340	213	96	309	547	617	1164
14	I-210 Logistics IV	412.56	TSF	2462	105	28	133	35	106	141
15	SR-210 Logistics V	203.639	TSF	1197	79	22	101	27	81	108
16	Monster Energy	1094.9	TSF	6533	434	115	549	148	411	589
17	PA 108 Building 5	614.848	TSF	6353	571	73	644	458	584	1042
18	PA 108 Building 6	855	TSF	9841	168	946	1114	949	58	1007

Table 31
Cumulative Projects Trip Generation Summary

No.	Land Use	Quantity	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
19	Renaissance East									
	Hotel	108	RMS	882	34	23	57	33	32	65
	Hotel Internal Capture (8%)			-71	-3	-2	-5	-3	-3	-6
	Specialty Retail Center	9.1	TSF	403	-	-	-	11	14	25
	Passby Specialty Retail Center (10%)			40	0	0	0	1	1	2
	High-Turnover (Sit-Down) Restaurant	9.17	TSF	1166	55	51	106	60	42	102
	Fast-Food Restaurant w/D.T.	7.62	TSF	3780	177	170	347	129	119	248
	Pass-by Fast-Food Restaurant (10%)			-378	-18	-17	-35	-13	-12	25
20	PA 108 Building 4-B	411.33	TSF	2454	162	44	206	55	165	220
21	Ayres Hotel (SWC of Linden and Renaissance)	135	RMS	1204	52	38	90	47	48	95
22	Alder Distribution Facility (Alder/Miro)	123	TSF	736	48	12	60	17	48	65
23	Locust/Vineyard Warehouse	120.6	TSF	719	47	12	59	17	47	64
24	Renaissance Palmetto Warehouse	340.715	TSF	2033	138	35	173	47	138	185
25	Warehouse (Tamarind at Baseline)	155	TSF	926	60	16	76	18	66	84
26	Building 7,8 and 9 (Kimley Horn Project)	540.427	TSF	3224	216	57	273	73	218	291
27	Gasoline Service Station	8	VFS	1377	42	41	83	56	57	113
28	Gas Station (D&A Project)			3331	152	152	304	118	118	236
29	Casamalia Street Warehouses (Between Linden and Cedar)	138.9	TSF	827	71	73	144	71	73	144
30	Walnut/Alder Warehouse	**188.712**	TSF	1125	73	18	91	25	78	103

Table 31
Cumulative Projects Trip Generation Summary

No.	Land Use	Quantity	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
City of Fontana										
31	Highland Village (17040 South Highland Avenue)									
	Shopping Center	55.05	TSF	2351	33	20	53	98	106	204
	Pass by			-799	0	0	0	-33	-36	-69
	Specialty Retail	6.9	TSF	306	6	4	10	8	10	18
	Fast-Food Restaurant W/Drive-Thru	5.833	TSF	2894	135	130	265	90	91	190
	Pass by			-1433	-66	-64	-130	-50	-46	-96
	Car Wash	22	stalls	2376				62	60	122
	Tire Center	5.8		144	11	6	17	10	14	24
32	3,233 sq ft drive through fast food restaurant (16988 S Highland Ave)	3.233	TSF	1604	75	72	147	55	51	106
	Pass by			-786	-37	-35	-72	-27	-25	-52
33	30 Single Family Homes (17064 Baseline Ave)	30	DU	286	6	17	23	19	11	30
Total Trip Generation				**119,104**	**5,024**	**3,437**	**8,463**	**4,928**	**5,800**	**10,816**

Notes:
TSF = '000 square feet, RMS = Rooms, VFP = Vehicle Fueling Pumps, DU = Dwelling Unit

Cumulative Project Trip Generation and Assignment

Trip distributions and assignments for the cumulative projects were also taken from traffic studies to their extent possible, prepared for recent development projects, or assuming logical commute corridors and/or exiting truck routes when that information was not available. The trips generated by the cumulative projects were distributed through the study area network, primarily along Alder Avenue, Walnut Avenue and Baseline Road, and then added to the Project Completion 2020 Baseline traffic volumes. Worksheets (in Traffix format) showing the cumulative projects distributions and assignments are provided in Appendix F. Figure 17 illustrates the Cumulative Projects trip assignment for the daily and peak hour conditions.

Traffic Volumes

Cumulative 2020 Baseline traffic volumes were forecast by adding the cumulative projects' traffic volumes (Figure 16) to Project Completion 2020 Baseline traffic volumes (Figure 13). Figure 18 illustrates the Cumulative 2020 Baseline traffic volumes for the daily and peak hour conditions.

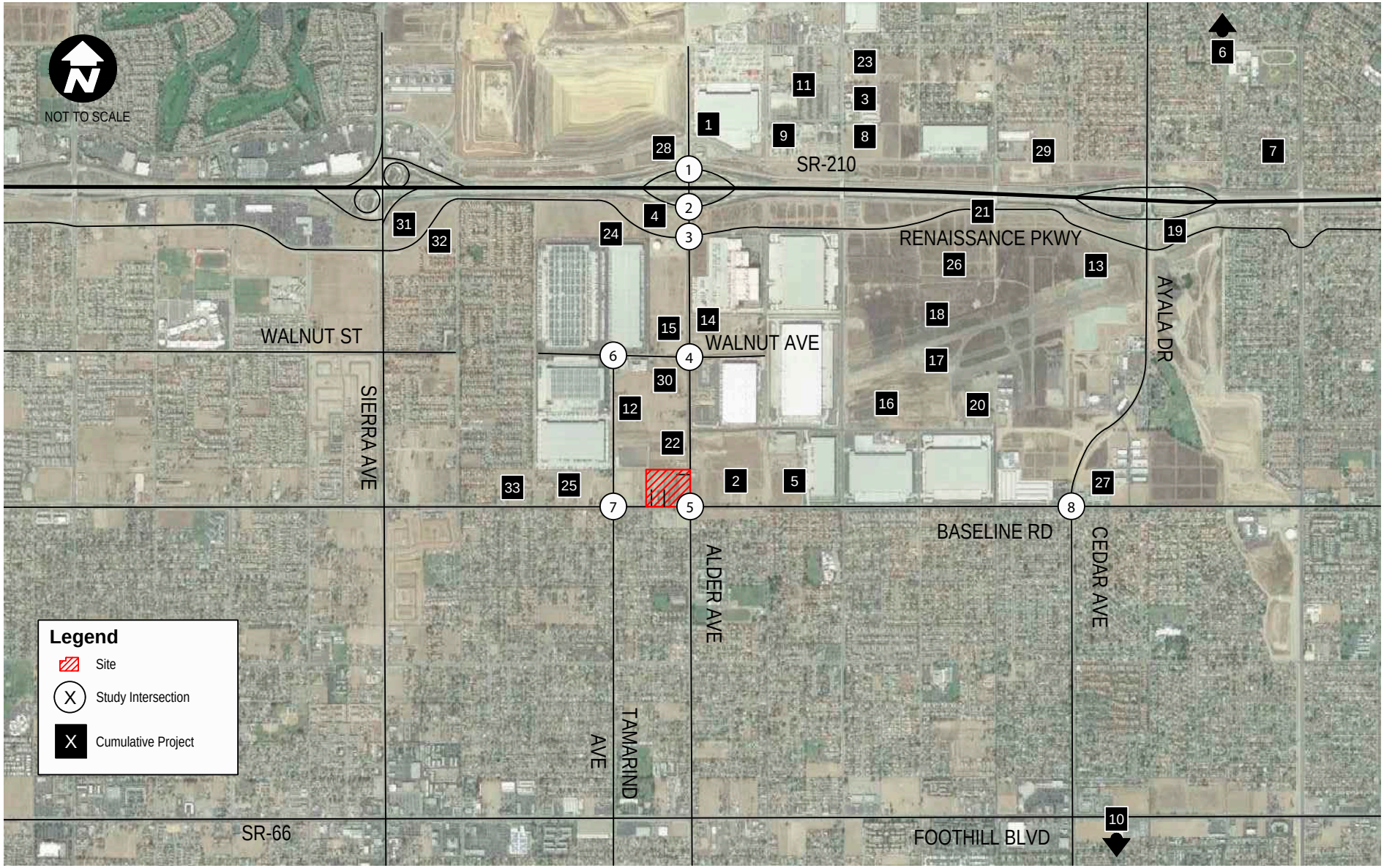
Intersection Level of Service

An intersection operations analysis was conducted for the study area to evaluate the Cumulative 2020 Baseline weekday AM and PM peak hour conditions. Intersection operations were calculated using the HCM 2010 methodology described in Appendix F. Table 32 shows the LOS results, while detailed LOS worksheets are included in Appendix F.

Table 32
Cumulative 2020 Baseline Intersection LOS Summary

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
1	Alder Avenue/SR-210 westbound ramps	signalized	**112.2**	**F**	**235.5**	**F**
2	Alder Avenue/SR-210 eastbound ramps	signalized	**171.3**	**F**	**227.7**	**F**
3	Alder Avenue/Renaissance Parkway	signalized	**120.1**	**F**	**283.9**	**F**
4	Alder Avenue/ Walnut Avenue	signalized	14.0	B	18.8	B
5	Alder Avenue/Baseline Road	signalized	**266.9**	**F**	**242.3**	**F**
6	Tamarind Avenue/Walnut Avenue	unsignalized	8.6	A	8.7	A
7	Tamarind Avenue/Baseline Road	unsignalized	**169.9**	**F**	**82.3**	**F**
8	Ayala Drive-Cedar Avenue/Baseline Road	signalized	43.6	D	**60.6**	**E**

Source: Appendix F
Notes:
1 Delay in seconds per vehicle calculated per HCM methodology
2 LOS = level of service



SOURCE: Google Earth 2016

FIGURE 16

Locations of Cumulative Projects

Baseline Alder Warehouse Project

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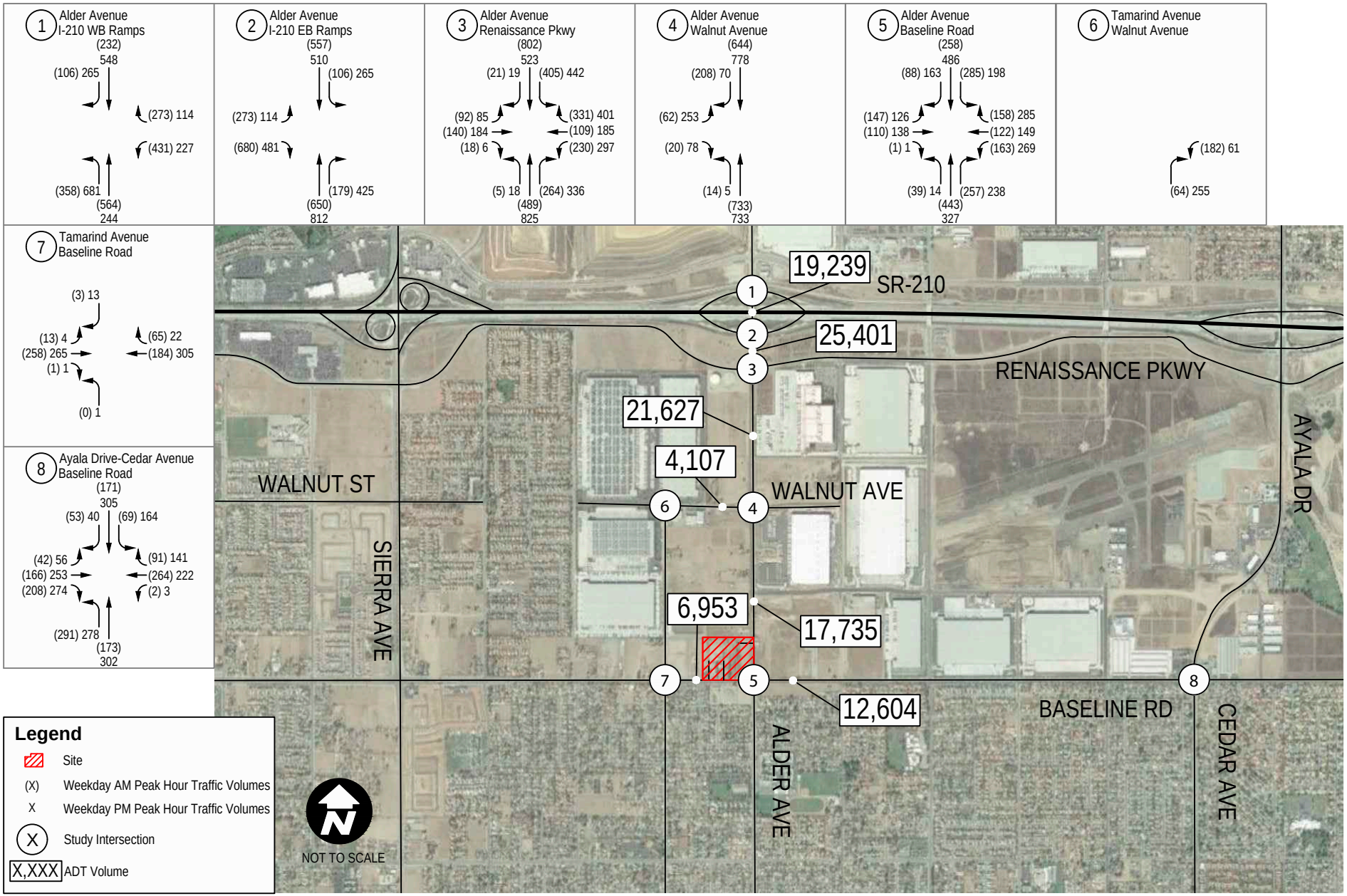

SOURCE: Google Earth 2016

FIGURE 17

Cumulative Projects Trip Assignments

Baseline Alder Warehouse Project

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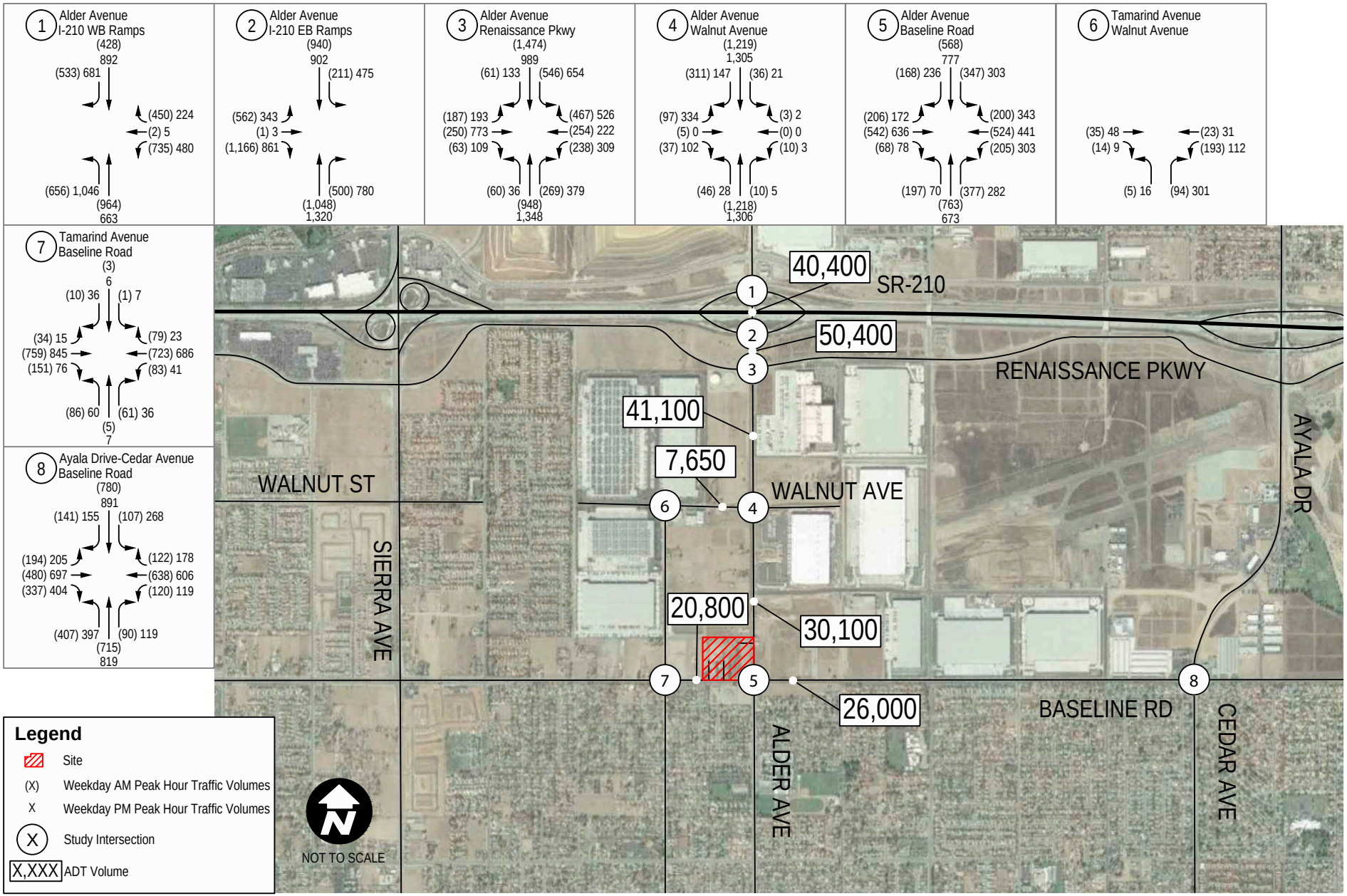

SOURCE: Google Earth 2016

FIGURE 18

Cumulative 2020 Baseline Traffic Volumes

Baseline Alder Warehouse Project

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As shown in Table 32, following intersections are forecast to operate with unsatisfactory LOS under Cumulative 2020 Baseline conditions during the peak hours.

- Alder Avenue/SR-210 westbound ramps (LOS F during both peak hours)
- Alder Avenue/SR-210 eastbound ramps (LOS F during both peak hours)
- Alder Avenue/Renaissance Parkway (LOS F during both peak hours)
- Alder Avenue/Baseline Road (LOS F during both peak hours)
- Tamarind Avenue/Baseline Road (LOS F during both peak hours)
- Ayala Drive-Cedar Avenue/Baseline Road (LOS E during the PM peak hour)

Per the City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road is forecast to operate at LOS F in both peak hours, with average delays of 169.9 seconds during the AM peak hour, and 82.3 seconds during the PM peak hour, for the most critical approach (northbound left turn). Based on a CA MUTCD peak hour signal-warrant analysis, the Cumulative 2020 Baseline traffic volumes at Tamarind Avenue/Baseline Road would satisfy a peak hour signal warrant.

Roadway Segment Level of Service

A roadway segment LOS analysis was conducted for the Cumulative 2020 Baseline conditions using the roadway segment LOS methodology discussed in Appendix F. Table 33 shows the results of the Cumulative 2020 Baseline LOS analysis for the study roadway segments.

Table 33
Cumulative 2020 Baseline Roadway Segment LOS Summary

Roadway Segment	Classification	No. of Lanes	Capacity	ADT[1]	V/C[2]	LOS[3]
Alder Avenue						
SR-210 WB ramps to SR-210 EB ramps	Secondary Hwy	4	24,600	40,400	**1.64**	**F**
SR-210 EB ramps to Renaissance Parkway	Secondary Hwy	4	24,600	50,400	**2.05**	**F**
Renaissance Parkway to Walnut Avenue	Major Arterial	4	36,400	41,100	**1.13**	**F**
Walnut Avenue to Base Line Road	Major Arterial	3	24,600	30,100	**1.22**	**F**
Baseline Road						
Alder Avenue to Tamarind Avenue	Major Arterial	2	19,800	20,800	**1.05**	**F**

Table 33
Cumulative 2020 Baseline Roadway Segment LOS Summary

Roadway Segment	Classification	No. of Lanes	Capacity	ADT[1]	V/C[2]	LOS[3]
Alder Avenue to Locust Avenue	Major Arterial	3	24,600	26,000	**1.06**	**F**
Walnut Avenue						
Alder Avenue to Tamarind Avenue	Commercial Collector	2	13,800	7,650	0.55	A/B

Source: Appendix F
Note: Classification and Capacity is based is on City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements (City of Rialto 2013), Renaissance Specific Plan (City of Rialto 2010b) and Renaissance Specific Plan Amendment (City of 2016a).
1 ADT = average daily traffic
2 V/C = volume to capacity ratio
3 LOS = level of service

As shown in Table 33, following roadway segments are forecast to operate with unsatisfactory LOS conditions:

- Alder Avenue, between SR-210 westbound ramps and SR-210 eastbound ramps (LOS F)
- Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway (LOS F)
- Alder Avenue, between Renaissance Parkway and Walnut Avenue (LOS F)
- Alder Avenue, between Walnut Avenue and Baseline Road (LOS F)
- Baseline Road, between Alder Avenue and Tamarind Avenue (LOS F)
- Baseline Road, Alder Avenue and Locust Avenue (LOS F)

Cumulative 2020 Plus Project Conditions

The Cumulative 2020 plus Project condition includes analysis of traffic operations under Cumulative 2020 Baseline conditions with project-related traffic added to the AM and PM peak hour traffic volumes, and roadway segment daily traffic volumes. The traffic impacts specific to the project under this condition are the basis for determining the project's cumulative impacts, mitigation measures, fair-share costs, and conditions of approval.

Traffic Volumes

Traffic generated by the proposed project was added to the Cumulative 2020 Baseline traffic volumes resulting in the Cumulative 2020 plus Project traffic volumes for the daily and peak hour conditions. The project trip assignment (in PCE) shown in Figure 13 for project traffic, was added to the Cumulative 2020 Baseline traffic volumes shown in

Figure 18 to derive the Cumulative 2020 plus Project traffic volumes. Figure 19 illustrates the Cumulative 2020 plus Project traffic volumes.

Intersection Level of Service

An intersection operations analysis was prepared for the study area to evaluate the Cumulative 2020 plus Project weekday AM and PM peak hour conditions. Intersection LOS operations were calculated using the HCM 2010 methodology described in Appendix F. Table 34 shows the results of the Cumulative 2020 plus Project LOS analysis, while detailed LOS worksheets are included in Appendix F.

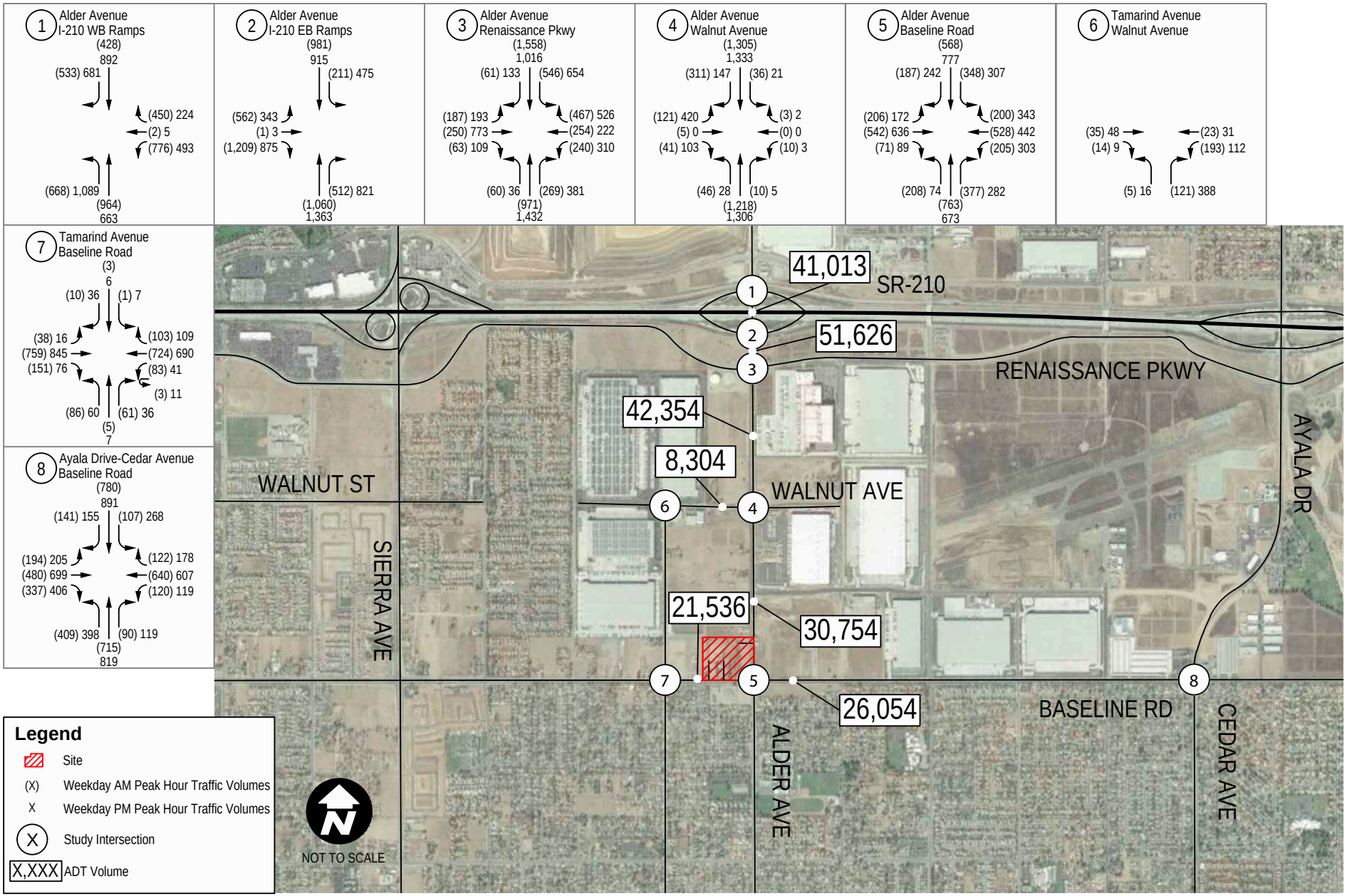
As shown in Table 34, the following intersections are forecast to operate with unsatisfactory LOS (LOS E or F) under Cumulative 2020 plus Project conditions, during one or both peak hours:

- Alder Avenue/SR-210 westbound ramps (LOS F during both peak hours)
- Alder Avenue/SR-210 eastbound ramps (LOS F during both peak hours)
- Alder Avenue/Renaissance Parkway (LOS F during both peak hours)
- Alder Avenue/Baseline Road (LOS F during both peak hours)
- Tamarind Avenue/Baseline Road (LOS F during both peak hours)
- Ayala Drive–Cedar Avenue/Baseline Road (LOS E in PM peak hour)

Table 34
Cumulative 2020 plus Project Intersection LOS Summary

No.	Intersection	Traffic Control	Cumulative 2020 Baseline				Cumulative 2020 + Project				Change in Delay (in sec)		Potentially Significant Impact	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour					
			Delay [1]	LOS [2]	Delay [1]	LOS [2]	Delay [1]	LOS [2]	Delay [1]	LOS [2]	AM	PM	AM	PM
1	Alder Ave/SR-210 WB Ramps	signalized	**112.2**	**F**	**235.5**	**F**	**119.8**	**F**	**247.8**	**F**	**7.6**	**12.3**	**Yes**	**Yes**
2	Alder Ave/SR-210 EB Ramps	signalized	**171.3**	**F**	**227.7**	**F**	**182.2**	**F**	**243.0**	**F**	**10.9**	**15.3**	**Yes**	**Yes**
3	Alder Ave/Renaissance Pkwy	signalized	**120.1**	**F**	**283.9**	**F**	**123.3**	**F**	**295.4**	**F**	**3.2**	**11.5**	**Yes**	**Yes**
4	Alder Ave/ Walnut Ave	signalized	14.0	B	18.8	B	19.8	B	29.5	C	5.8	**10.7**	No	**Yes**
5	Alder Ave/Baseline Rd	signalized	**266.9**	**F**	**242.3**	**F**	**267.5**	**F**	**245.4**	**F**	**0.6**	**3.1**	**Yes**	**Yes**
6	Tamarind Ave/Walnut Ave	unsignalized	8.6	A	8.7	A	8.6	A	8.7	A	0.0	0.0	No	No
7	Tamarind Ave/Baseline Rd	unsignalized	**169.9**	**F**	**82.3**	**F**	**183.0**	**F**	**95.8**	**F**	**13.1**	**13.5**	**Yes**	**Yes**
8	Ayala Dr-Cedar Ave/Baseline Rd	signalized	43.6	D	**60.6**	**E**	43.8	D	**61.1**	**E**	0.2	0.5	No	No

HCM = Highway Capacity Manual
[1] Delay in seconds per vehicle
[2] LOS = level of service
* Very high delay



SOURCE: Google Earth 2016

FIGURE 19

Cumulative 2020 plus Project Traffic Volumes

Baseline Alder Warehouse Project

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Per the City's significance criteria, the proposed project would have a potentially significant impact at the following intersections:

- Alder Avenue/SR-210 westbound ramps (LOS F and ≥1.0 second delay increase during both peak hours)
- Alder Avenue/SR-210 eastbound ramps (LOS F and ≥1.0 second delay increase during both peak hours)
- Alder Avenue/Renaissance Parkway (LOS F and ≥1.0 second delay increase during both peak hours)
- Alder Avenue/Walnut Avenue (LOS C and ≥8.0 second increase during the PM peak hour)
- Alder Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours)
- Tamarind Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours)

The proposed project will be required to provide mitigation measures for those potentially significantly impacted intersections.

The intersection of Tamarind Avenue/Baseline Road is forecast to continue to operate at LOS F in both peak hours, with average delays of 169.9 second during the AM peak hour, and 95.8 seconds during the PM peak hour, for the most critical approach (northbound left turn). Based on a CA MUTCD peak hour signal-warrant analysis, the Cumulative 2020 plus Project traffic volumes at Tamarind Avenue/Baseline Road would also satisfy a peak hour signal warrant.

Roadway Segment Level of Service

A roadway segment LOS analysis was prepared for the Cumulative 2020 plus Project conditions using the roadway segment LOS methodology discussed in Appendix F. Table 35 shows the results of the Cumulative 2020 plus Project LOS analysis for the study area roadway segments.

Table 35
Cumulative 2020 Roadway Segment Level of Service

Roadway Segment	Classification	No. of Lanes	Capacity	Cumulative 2020 Baseline			Cumulative 2020 + Project				Potentially Significant Impact
				ADT [1]	*V/C* [2]	*LOS* [3]	*Project Traffic*	*ADT* [1]	*V/C* [2]	*LOS* [3]	
Alder Avenue											
- SR-210 WB Ramps to SR - 210 EB Ramps	Secondary Hwy	4	24,600	40,400	**1.64**	**F**	613	41,013	**1.67**	**F**	**Yes**
- SR-210 EB Ramps to Renaissance Pkwy	Secondary Hwy	4	24,600	50,400	**2.05**	**F**	1,226	51,626	**2.10**	**F**	**Yes**
- Renaissance Pkwy to Walnut Ave	Modified Arterial	4	36,400	41,100	**1.13**	**F**	1,254	42,354	**1.16**	**F**	**Yes**
- Walnut Ave to Base Line Rd	Modified Arterial	3	24,600	30,100	**1.22**	**F**	654	30,754	**1.25**	**F**	**Yes**
Baseline Road											
-Alder Ave to Tamarind Ave	Arterial	2	19,800	20,800	**1.05**	**F**	736	21,536	**1.09**	**F**	**Yes**
-Alder Ave to Locust Ave	Secondary Highway	3	24,600	26,000	**1.06**	**F**	54	26,054	**1.06**	**F**	**Yes**
Walnut Avenue											
- Alder Ave to Tamarind Ave	Commercial Collector	2	13,800	7,650	0.55	A/B	654	8,304	0.60	A/B	No

Source: Dudek 2018
Note: Classification and Capacity is based is on City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements, December 2013, RSP 2010 and RSP Amendment 2016.
1 ADT = average daily traffic
2 V/C = volume to capacity ratio
3 LOS = level of service

As shown in Table 35, the proposed project would contribute daily traffic to the following roadway segments that are forecast to continue to operate at LOS F with addition of project traffic:

- Alder Avenue between SR-210 westbound ramps and SR-210 eastbound ramps
- Alder Avenue between SR-210 eastbound ramps and Renaissance Parkway
- Alder Avenue between Renaissance Parkway and Walnut Avenue
- Alder Avenue, between Walnut Avenue and Baseline Road
- Baseline Road, between Alder Avenue and Tamarind Avenue
- Baseline Road, Alder Avenue and Locust Avenue

Per the City's LOS standards for roadway segments, if the segment exceeds 1,500 feet and the V/C ratio exceeds 1.0, the segment must be mitigated. The project would have a potentially significant impact at the roadway segment of Alder Avenue, between the SR-210 westbound and eastbound ramps; between the SR-210 eastbound ramps and Renaissance Parkway; and between Renaissance Parkway and Alder Avenue. The project would also have a potentially significant impact at the roadway segment of Baseline Road between Alder Avenue and Tamarind Avenue and between Alder Avenue and Locust Avenue. The proposed project will be required to provide to mitigate their proportional share of impacts at these potentially significantly impacted roadway segments.

Summary of Impacts

Project Completion 2020 plus Project

Intersection Level of Service

The Tamarind Avenue/Baseline Road intersection is forecast to continue to operate at LOS F during the AM peak hour with the addition of project traffic. Per City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road is forecast to continue to operate at LOS F with average delay of 192.5 seconds during the AM peak hour for the most critical approach (northbound left turn) with addition of project traffic.

Based on a peak hour signal-warrant analysis, conducted per the CA MUTCD, the Project Completion 2020 plus Project traffic volumes at Tamarind Avenue/Baseline Road would not satisfy a peak hour signal warrant. However, since the intersection is currently

operating at LOS F (127.3 seconds of delay), and the proposed project would contribute 15.0 seconds of delay, the proposed project would be required to pay its fair share towards the signalization of the intersection when warranted. MM-TRA-1 and MM-TRA-2 would be required to mitigate this impact to a less-than-significant level.

MM-TRA-1 To ensure that all fair-share costs paid by the project applicant to the City of Rialto are set aside and put towards the specific improvements identified in the July 2018 Traffic Impact Analysis report, the project applicant shall coordinate with the City Engineer prior to issuance of a Certificate of Occupancy to ensure that appropriate and enforceable funding mechanisms are established for all mitigation measures identified in the July 2018 Traffic Impact Analysis report that are not already included in the San Bernardino Association of Governments Nexus Fee Program, Renaissance Fee Program, the City of Rialto's Capital Improvement Program, or similar program.

MM-TRA-2 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to signalize the intersection of Tamarind Avenue/Baseline Road, as deemed by the City Engineer. The project's fair share at this intersection is 13.39%, and the resulting fair-share cost for this improvement would be $53,543.31.

Once signalized, the intersection would operate with satisfactory level of service (LOS; LOS D or better), and the project's impact would be reduced to a level of less than significant.

Roadway Segment Level of Service

The roadway segment of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway, is forecast to continue to operate at LOS F under the Project Completion 2020 plus Project conditions. The project would not be required to mitigate this roadway segment; however, it would be required to pay its fair share towards improvements required for this segment to operate at an acceptable LOS. With implementation of MM-TRA-3, this impact would be considered less than significant.

MM-TRA-3 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between State Route (SR-) 210 eastbound ramps and Renaissance Parkway with the following improvements:

- Construct roadway segment to a six-lane Arterial

The project's fair share along this roadway segment is 4.4%; the resulting fair-share cost for this improvement would be included in the project's total cost towards SR-210/Alder Avenue Interchange improvement, estimated to be a total of $102,388.00.

Cumulative 2020 plus Project

Intersection Level of Service

The following intersections are forecast to operate with unsatisfactory LOS under Cumulative 2020 plus Project conditions, during one or both peak hours, and the proposed project would create a potentially significant impact at these locations per the City's Significance Criteria:

- Alder Avenue/SR-210 westbound ramps (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Alder Avenue/SR-210 eastbound ramps (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Alder Avenue/Renaissance Parkway (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Alder Avenue/Walnut Avenue (LOS C and ≥8.0 second increase during the PM peak hour)
- Alder Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Tamarind Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)

It should be noted that per City's criteria for peak hour delay increases, the project would have an impact at the Alder Avenue/Walnut Avenue intersection. However, since the intersection operates at LOS C in the Cumulative 2020 plus Project conditions, which is acceptable per City of Rialto 2010 General Plan LOS standards, no mitigation is

proposed for this intersection. For the remaining significantly impacted intersections, the proposed project will be required to provide the following mitigation measures for those potentially significantly impacted intersections.

MM-TRA-4 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the intersection of Alder Avenue/SR-210 westbound ramps with the following improvements:

- Add second westbound left-turn lane
- Add second northbound left-turn lane
- Add southbound right-turn lane

This intersection is part of the SR-210/Alder Avenue Interchange Improvement, and all of the above-mentioned improvements are included in the Feasibility Study Report (FSR). The project's fair share at this intersection is 2.5%, and the resulting fair-share cost for this improvement would be included in project's total cost towards SR-210/Alder Avenue Interchange, estimated to be a total of $102,388.00.

MM-TRA-5 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the intersection of Alder Avenue/SR-210 eastbound ramps with the following improvements:

- Add dedicated eastbound left-turn lane
- Restripe eastbound left-through lane to left-through-right lane
- Add dedicated northbound right-turn lane
- Signal modification

This intersection is part of the SR-210/Alder Avenue Interchange Improvement, and all of the above-mentioned improvements are included in the FSR. The project's fair share at this intersection is 4.1%, and the resulting fair-share cost for this improvement would be included in project's total cost towards SR-210/Alder Avenue Interchange, estimated to be a total of $102,388.00.

MM-TRA-6 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the intersection of Alder Avenue/Renaissance Parkway with the following improvements:

- Add dedicated westbound right-turn lane (included in FSR)
- Add second southbound left-turn lane (included in FSR)
- Restripe southbound right-turn lane to through-right (included in FSR)
- Signal modification (included in FSR)
  - Add second westbound left-turn lane
  - Add dedicated northbound right lane
- Add second eastbound through lane
- Re-stripe westbound right to westbound through lane

This intersection is part of the SR-210/Alder Avenue Interchange Improvement, and some of the above-mentioned improvements are included in the FSR. The project's fair share at this intersection is 3.5%, and the resulting fair-share cost for this improvement would be included in project's total cost towards SR-210/Alder Avenue Interchange, estimated to be a total of $102,388.00.

For the improvements not included in the FSR, the project's fair share at this intersection is 3.5%, and the resulting fair-share cost for this improvement would be $3,703.11.

MM-TRA-7 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the intersection of Alder Avenue/Baseline Road with the following improvements:

- Add eastbound through lane
- Add dedicated eastbound right-turn lane
- Add westbound through lane
- Add dedicated westbound right-turn lane
- Add northbound through lane

- Add dedicated northbound right-turn lane
- Add second southbound left-turn lane
- Add southbound through lane
- Signal modification

The project's fair share at this intersection is 1.7%, and the resulting fair share cost for this improvement would be $8,180.80.

MM-TRA-8 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the intersection of Tamarind Avenue/Baseline Road with the following improvements:

- Install new traffic signal

The project's fair share at this intersection is 13.4%, and the resulting fair share cost for this improvement would be $53,543.31.

Once the improvements above are constructed, most of the potentially significantly impacted intersections above would operate with satisfactory LOS (LOS D or better), and the project's impact would be reduced to a level of less than significant. The exception would be the intersection of Alder Avenue/Renaissance Parkway, where the PM peak hour is forecast to operate at LOS E (61.9 seconds of delay) with the mitigation measure implemented (from LOS F with 295.4 seconds of delay).

While this intersection is forecast to continue to operate with unsatisfactory conditions, with the proposed mitigation measures, at LOS E (from LOS F with mitigation), overall delay at the intersection would be significantly improved by 233.5 seconds. The payment of the project's fair-share cost to construct the mitigation measure would offset the project's 11.5-second delay increase at the intersection since the improvements would improve delay by 233.5 seconds. Therefore, project impacts at Alder Avenue/Renaissance Parkway would be reduced to a level of less than significant.

Roadway Segment Improvements

The proposed project would create a potentially significant impact by contributing daily traffic to the following roadway segments that are forecast to continue to operate at LOS F with the addition of project traffic:

- Alder Avenue between SR-210 westbound ramps and SR-210 eastbound ramps
- Alder Avenue between SR-210 eastbound ramps and Renaissance Parkway
- Alder Avenue between Renaissance Parkway and Walnut Avenue
- Alder Avenue between Walnut Avenue and Baseline Road
- Baseline Road, between Alder Avenue and Tamarind Avenue
- Baseline Road between Alder Avenue and Locust Avenue

The project would not be required to mitigate these roadway segments; however, it would be required to pay its fair share towards improvements required for them to operate at an acceptable LOS.

MM-TRA-3 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between State Route (SR-) 210 eastbound ramps and Renaissance Parkway with the following improvements:

- Construct roadway segment to a six-lane Arterial

The project's fair share along this roadway segment is 4.4%; the resulting fair-share cost for this improvement would be included in the project's total cost towards SR-210/Alder Avenue Interchange improvement, estimated to be a total of $102,388.00.

MM-TRA-9 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between SR-210 westbound and eastbound ramps with the following improvements:

- Construct roadway segment to a six-lane Arterial

The project's fair share along this roadway segment is 3.0%; the resulting fair-share cost for this improvement would be included in the

project's total cost towards SR-210/Alder Avenue Interchange improvement, estimated to be a total of $102,388.00.

MM-TRA-10 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between Renaissance Parkway and Walnut Avenue with the following improvements:

- Construct roadway segment to a six-lane Arterial

The project's fair share at this roadway segment is 5.3%, and the resulting fair-share cost for this improvement would be $15,283.60 as payment to the San Bernardino Associated Governments (SANBAG) Nexus Fee and Renaissance Specific Plan Fee would cover their fair-share cost.

MM-TRA-11 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between Walnut Avenue and Baseline Road with the following improvements:

- Construct roadway segment to a four-lane Arterial

The project's fair share at this roadway segment is 2.4%, and the resulting fair-share cost for this improvement would be $0.00 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair-share cost.

MM-TRA-12 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the roadway segment of Baseline Road, west of Alder Avenue between Alder Avenue and Tamarind Avenue with the following improvements:

- Construct roadway segment to a six-lane Arterial

The project's fair share at this roadway segment is 8.9%, and the resulting fair share cost for this improvement would be $126,531.95 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair-share cost.

MM-TRA-13 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees and contribute their fair-share cost to improve the roadway segment of Baseline Road, east of Alder Avenue between Alder Avenue and Locust Avenue with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share at this roadway segment is 0.4%, and the resulting fair share cost for this improvement would be $2,820.04 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair-share cost.

Figure 20 illustrates mitigation measures described above, while Table 36 provides an LOS summary with the implementation of the mitigation measures for the Cumulative 2020 plus Project condition.

Table 36
Cumulative 2020 Intersection LOS and Mitigation Measures Summary

No.	Intersection	AM Peak Hour				PM Peak Hour			
		w/o Mitigation		*w Mitigation*		*w/o Mitigation*		*w Mitigation*	
		Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
1.	Alder Avenue/SR-210 WB Ramps	**119.8**	**F**	31.9	C	**247.8**	**F**	45.5	D
	• Add 2nd WB left-turn lane								
	• Add 2nd NB left-turn lane								
	• Add SB right-turn lane								
2	Alder Avenue/SR-210 EB Ramps	**182.2**	**F**	39.2	D	**243.0**	**F**	42.4	D
	• Add dedicated EB left-turn lane								
	• Re-stripe EB left-through lane to EB- left-through –right lane								
	• Add dedicated NB right-turn lane								
3	Alder Avenue/Renaissance Parkway	**123.3**	**F**	45.6	D	**295.4**	**F**	61.9	**E**
	• Add 2nd WB left-turn lane								
	• Add dedicated WB right-turn lane								
	• Add dedicated NB right lane								
	• Add 2nd SB left-turn lane								
	• Re-stripe SB right-turn to SB through lane								
4	Alder Avenue/Baseline Road	**266.9**	**F**	40.3	D	**245.4**	**F**	39.1	D
	• Add EB through lane								
	• Add dedicated EB right-turn lane								
	• Add WB through lane								
	• Add dedicated WB right-turn lane								

Table 36
Cumulative 2020 Intersection LOS and Mitigation Measures Summary

No.	Intersection	AM Peak Hour				PM Peak Hour			
		w/o Mitigation		*w Mitigation*		*w/o Mitigation*		*w Mitigation*	
		Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
	• Add NB through lane								
	• Add dedicated NB right-turn lane								
	• Add 2nd SB left-turn lane								
	• Add SB through lane								
5	Tamarind Avenue/Baseline Road	**183.3**	**E**	24.5	C	**95.8**	**F**	27.1	C
	• Signalization								

Notes:
1 Delay in seconds per vehicle
2 LOS = level of service

Table 37 provides a summary of the fair-share costs for the study area intersections and roadway segments.

Table 37
Fair Share Cost for Traffic Impact Mitigation Measures

Intersection Improvements	Cost Estimate		SANBAG Nexus	Renaissance Fee Program	Net Cost Estimate	Project Fair-Share %	Project Cost
Alder Avenue/SR-210 WB Ramps							
• Add 2nd WB left-turn lane	Included in $2,327,000	1					
• Add 2nd NB left-turn lane		1					
• Add SB right-turn lane		1					
Subtotal						*2.5%*	
Alder Avenue/SR-210 EB Ramps							
• Add dedicated EB left-turn lane	Included in $2,327,000	1					
• Re-stripe EB left-through lane to EB- left-through – right lane		1					
• Add dedicated NB right-turn lane		1					
• Signal cost (modification)		1					
Subtotal						*4.1%*	
Alder Avenue/Renaissance Parkway							
• Add dedicated WB right-turn lane	Included in $2,327,000	1					

Table 37
Fair Share Cost for Traffic Impact Mitigation Measures

Intersection Improvements	Cost Estimate		SANBAG Nexus	Renaissance Fee Program	Net Cost Estimate	Project Fair-Share %	Project Cost
• Add 2nd SB left-turn lane		1					
• Re-stripe SB right-turn lane to SB through right		1					
• Signal cost (modification)		1					
Subtotal						*3.5%*	
Alder Avenue – SR-210 WB ramps to SR-210 EB ramps							
• Improve to six-lane Arterial	Included in $2,327,000	1				**3.0%**	
Alder Avenue – SR-210 EB Ramps to Renaissance Parkway							
• Improve to six-lane Arterial	Included in $2,327,000	1				**4.4%**	
Subtotal	*$2,327,000*					*4.4%*	*$102,388.00*
Alder Avenue/Renaissance Parkway							
• Add 2nd WB left-turn lane	$72,898	3					
• Add dedicated NB right lane	$72,898	3					
• Add 2nd EB through lane	$72,898	3					
• Re-stripe WB right to WB through lane	*nominal*	3					
Subtotal	*$218,694*			*$113,750*	*$104,944*	*3.5%*	*$3,703.11*
Alder Avenue/Baseline Road							
• Add EB through lane	$361,574	2					
• Add dedicated EB right-turn lane	$91,506	2					
• Add WB through lane	$361,574	2	$580,808				
• Add dedicated WB right-turn lane	$72,898	2	$116,162				
• Add NB through lane	$361,574	2					
• Add dedicated NB right-turn lane	$72,898	2					
• Add 2nd SB left-turn lane	$72,898	2	$116,162				
• Add SB through lane	$361,574	2	$580,808				
• Aignal cost (modification)	$109,347	2					
Subtotal	*$1,865,843*		*$1,393,940*		*$471,903*	*1.7%*	*$8,180.80*
Tamarind Avenue/Baseline Road							
• New signal	$400,000	2					
Subtotal	*$400,000*				*$400,000*	*13.4%*	*$53,543.31*

Table 37
Fair Share Cost for Traffic Impact Mitigation Measures

Intersection Improvements	Cost Estimate		SANBAG Nexus	Renaissance Fee Program	Net Cost Estimate	Project Fair-Share %	Project Cost
Alder Avenue – Renaissance Parkway to Walnut Avenue							
• Four-lane Arterial to six-lane Arterial	$ 2,332,736	[4]	$2,044,444		$288,290	5.3%	**$15,283.60**
Alder Avenue – Walnut Avenue to Baseline Road							
• Walnut Avenue to Miro Way – Three-lane Arterial to four-lane Arterial	$1,457,960	[4]	$2,555,556		—	2.4%	$0.00
• Miro Way to Baseline Road – two-lane Arterial to four-lane Arterial							
Baseline Road – Alder Avenue to Tamarind Avenue							
• Two-lane Arterial to six-lane Arterial	$2,915,920	[4]	$1,500,000		$1,415,920.00	8.9%	**$126,531.95**
Baseline Road – Alder Avenue to Locust Avenue							
• Three-lane secondary highway to six-lane Arterial	$2,186,940	[4]	$1,500,000		$686,940.00	0.4%	**$2,820.04**
						Total Project Share	**$297,167.19**

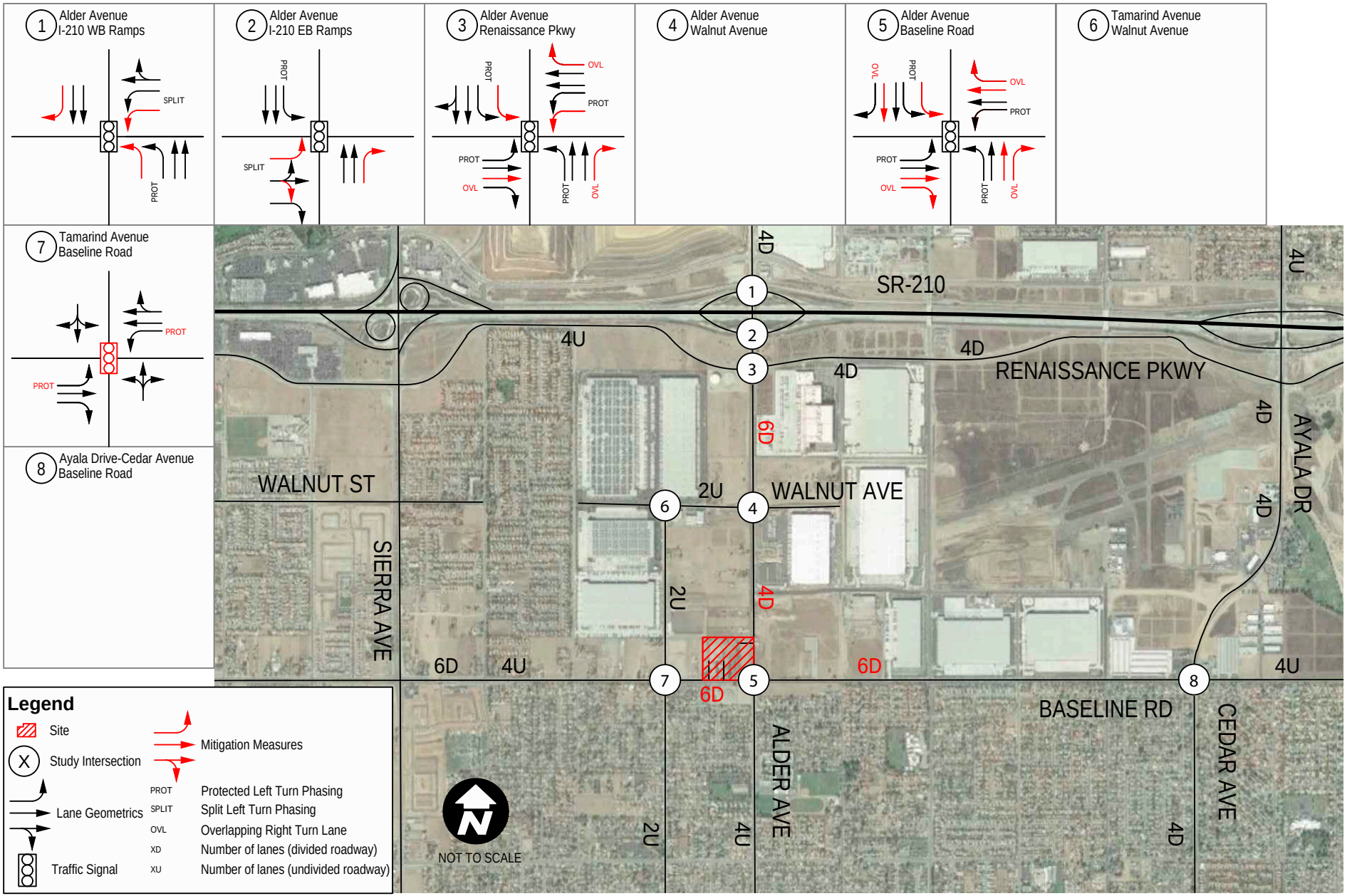
Notes:

[1] Mitigation and total cost included in the Feasibility Study Report on Alder Avenue/SR-210 Interchange in the City of Rialto.

[2] Traffic Impact Analysis for Renaissance Specific Plan Amendment (City of Rialto 2016a), Table 3-F-Year 2035 with RSPA Funding Mechanism and Fair Share Cost Estimates.

[3] Based on cost for turn lanes in Renaissance Specific Plan Amendment 2016.

[4] Traffic Impact Assessment for Renaissance Specific Plan Amendment (2016), Table 3-I-Year 2035 with Renaissance Specific Plan Amendment Roadway Segment Funding Mechanism and Fair-Share Cost Estimates.



SOURCE: Google Earth 2016

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FIGURE 20

Mitigation Measures

Baseline Alder Warehouse Project

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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 Impact. The project site is located approximately 11 miles northeast of Ontario International Airport and 10 miles north of Flabob Airport in City of Riverside. The project site is not located within the Airport Influence Area of the Ontario International Airport nor the Riverside Municipal Airport (City of Ontario 2011; RCALUC 2005). Further, based on these relatively large distances between the project site and these public airports, the proposed project would not interfere with overhead air traffic. Therefore, **no impacts** associated with air traffic interference would occur.

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)?

and

e) Would the project result in inadequate emergency access?

Less-Than-Significant Impact. The following analysis discussed the project characteristics and potential impacts in respect to on-site circulation, access, driveway queuing, and traffic signal warrants.

On-Site Circulation

Per the project site plan, internal drive aisles would be provided along the northern, southern, and western sides of the project site. The drive aisle along the northern side of the property would be 40 feet wide to accommodate trucks destined for the docking area and trailer parking spaces, and would provide direct access to passenger-car parking spaces on both sides of the drive aisle. The drive aisle leading to the trailer parking area would be 40 feet wide to accommodate trucks and would widen to 132 feet in the dock area to accommodate truck maneuvers. A 35-foot-wide access lane along the western side of the project site connects the northern and southern parking areas.

The drive aisle along the southern side would be approximately 26 feet wide and provide access to passenger-car parking spaces on both sides of the drive aisle. Passenger-car parking would be provided on both sides of the drive aisle in the southern section.

Gated entry locations are proposed on both sides of the truck parking and dock areas, on the northern drive aisles. To allow for efficient on-site circulation during the AM and PM peak hours, the proposed project will open both gates to the truck docking

area from 7:00 a.m. to 9:00 a.m., and 4:00 p.m. to 6:00 p.m., to allow project-related passenger cars (employees and visitors) and trucks to circulate around the project site. A reciprocal access easement will be provided by the tenants, should the building be divided between different tenants.

Due to the standard layout of the parking stalls, provision of three project driveways, and drive aisles along the perimeter of the site, the on-site circulation for passenger cars and trucks will be adequate.

Truck Turning Analysis

Since the project is an industrial warehouse, and 40% of the project traffic is anticipated to be medium and heavy vehicles, a truck-turning analysis using AutoTurn software was conducted to determine the adequacy of on-site circulation for trucks.

Trucks used in this analysis were based upon the length of the trailer stalls within the site (approximately 53 feet), which correspond to the American Association of State Highway Transportation Officials vehicle standards. Figure 21 details the inbound truck turning radii. Inbound truck traffic will proceed into the site from Alder Avenue, head westbound through a secured (sliding and swing) gate towards the loading dock area containing 28 docks and 39 trailer stalls, then back into a dock. The analysis shows there is sufficient driveway width at the Alder Avenue driveway and within the dock area for the trucks to complete inbound docking maneuvers. Figure 22 details the outbound truck turning radii. Outbound truck traffic will exit the loading dock area, proceed southbound, and finally exit onto Baseline Road. As with the inbound truck analysis, there is sufficient space for trucks to maneuver within the project site.

Project Access and Queuing

Access to the project site would be provided by three right-turn in/out only driveways:

- Northern corner of the project site, on Alder Avenue, for passenger cars and trucks
- Southeast part of the project site, on Baseline Road, for passenger cars only
- Southwest corner of the project site, on Baseline Road, for passenger cars and trucks

Based on the roadway geometrics for the proposed project access driveways and the Project Completion plus Project and Cumulative 2020 plus Project peak hour traffic volumes, the project access intersections were analyzed for peak hour LOS. Table 38 shows the results of the project driveway LOS.

Table 38
Project Access LOS Analysis

Project Access Intersection	Critical Movement	Project Completion 2020 + Project				Cumulative 2020 + Project			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
		Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
Alder Avenue/Project Access 1	EB	11.8	B	11.6	B	19.8	C	24.7	C
Baseline Road/Project Access 2	SB	13.5	B	11.3	B	16.0	C	14.3	B
Baseline Road/Project Access 3	SB	13.8	B	12.2	B	16.4	C	16.2	C

Notes:
1 Delay in seconds per vehicle
2 LOS = level of service

As shown in Table 38, all of the project access intersections are forecast to operate with satisfactory LOS at LOS C or better during the AM peak hour and the PM peak hour under Project Completion plus Project conditions and Cumulative 2020 plus Project conditions. The detailed LOS worksheets for project access intersections are included in Appendix F.

A queuing analysis was conducted at the three project driveways and the southbound approach of the adjacent intersection at Alder Avenue/Baseline Road to determine the AM and PM peak hour 95th percentile (design) queues for the Project Completion 2020 plus Project and Cumulative 2020 plus Project conditions. Table 39 provides a summary of the queuing analysis, and the detailed worksheets are included in Appendix F.

Table 39
Project Access Queuing Analysis

Project Access	Critical Movement	Existing Pocket Length (in feet)	95th Percentile Queue Length (in feet)			
			Project Completion 2020 + Project		*Cumulative 2020 + Project*	
			AM Peak Hour	*PM Peak Hour*	*AM Peak Hour*	*PM Peak Hour*
Alder Avenue/Project Access 1	EB	On site [1]	6	15	14	44
Baseline Road/Project Access 2	SB	On site [1]	21	44	20	41
Baseline Road/Project Access 3	SB	On site [1]	42	61	39	54
Alder Avenue/Baseline Road	SB Left	65	**101**	**107**	**92**	**97**
	SB Right	65	**112**	**91**	**82**	**100**

Note: Queue length expressed in feet.
1 Vehicular queues would occur on site.

As shown Table 39, peak queues on the southbound approach to Alder Avenue/Baseline Road exceed the length of existing pocket length during the peak hours in the Project Completion 2020 plus Project and Cumulative 2020 plus Project conditions. The project access on the northern corner of the site on Alder Avenue is located 625 feet from the Alder Avenue/Baseline Road intersection. The peak queues on the southbound approach are less than 625 feet in the Project Completion 2020 plus Project and Cumulative 2020 plus Project conditions. Therefore, vehicular queue on the southbound approach along Alder Avenue would not block the project's access on the northern corner of the site.

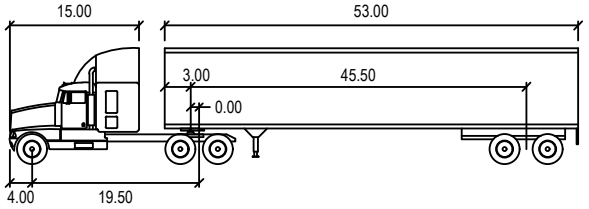
All of the project driveways would operate as right-in/right-out only, therefore project-related queuing would occur on site, as indicated in Table 39. The on-site outbound queues in both peak hours would be approximately two to three vehicles (a passenger car, assumed to be 22 feet, including spacing for front and rear of vehicle) or less in the Project Completion 2020 plus Project and the Cumulative 2020 plus Project conditions.

Parking

The project site would include 138 parking spaces, 28 loading docks, and 39 trailer parking spaces. All of the proposed parking spaces are on-grade and are 90-degree parking stalls. The proposed number of parking stalls provided, and their layout, are compliant with the City's Municipal Code standards.

Safety and Operational Improvements

The project access driveways and improvements would be required to be designed per City and industry standards so that adequate sight distance for drivers entering and exiting the site is maintained. The line of sight – a straight line between the driver's eye and oncoming vehicles on the adjacent roadway defines the Limited Use Area. The Limited Use Area for each driveway will be kept clear of visual obstructions, including project signs, building structures, and landscaping in order to maintain adequate sight distance.



WB-67

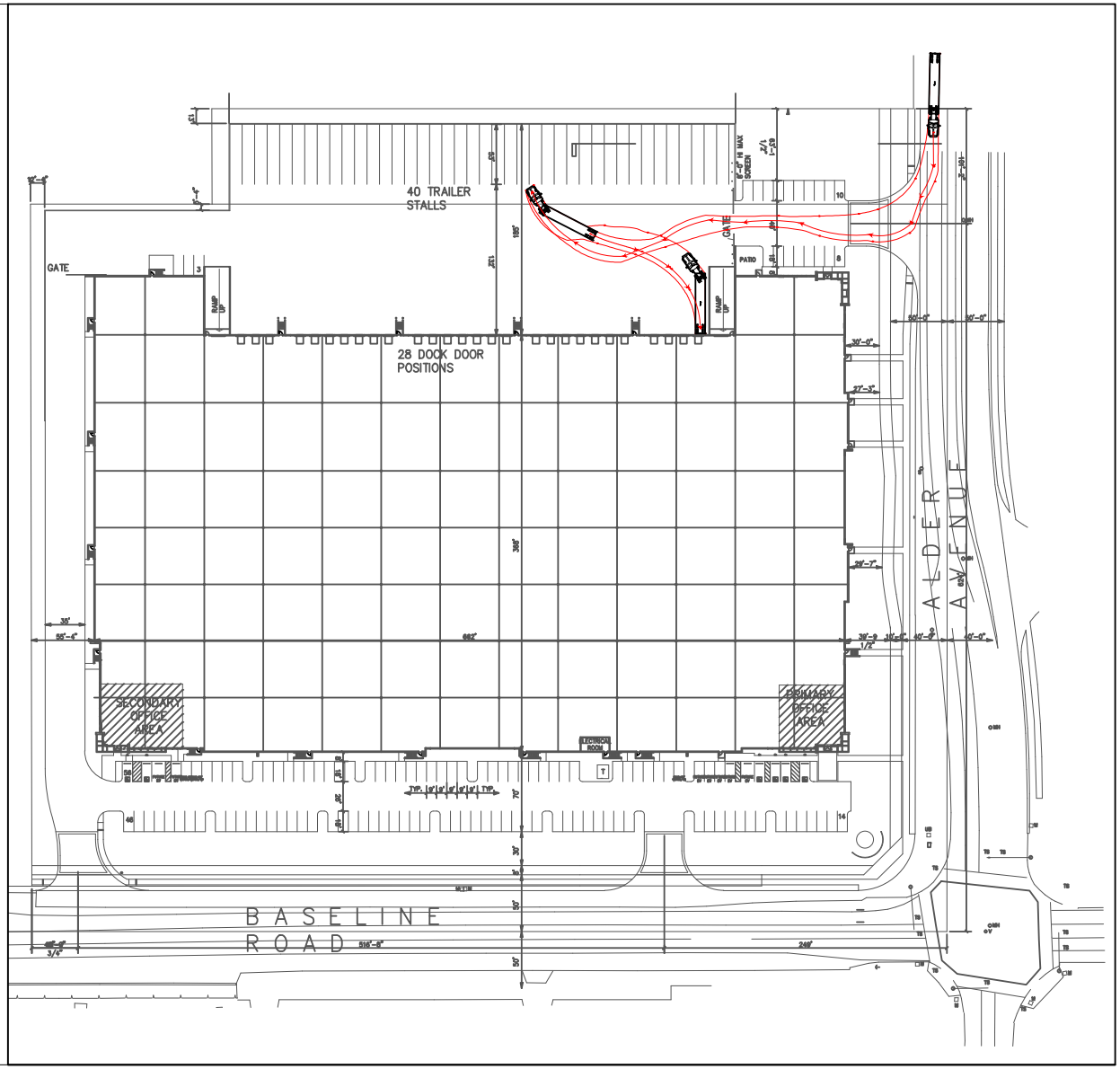
feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Legend

Inbound

NOT TO SCALE



SOURCE: Auto Turn 10.1

FIGURE 21

Inbound Truck Turning Radii at Project Access Driveway (Walnut Avenue)

Baseline Alder Warehouse Project

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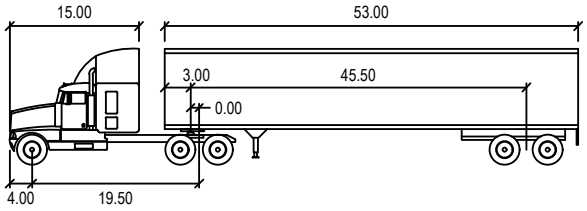


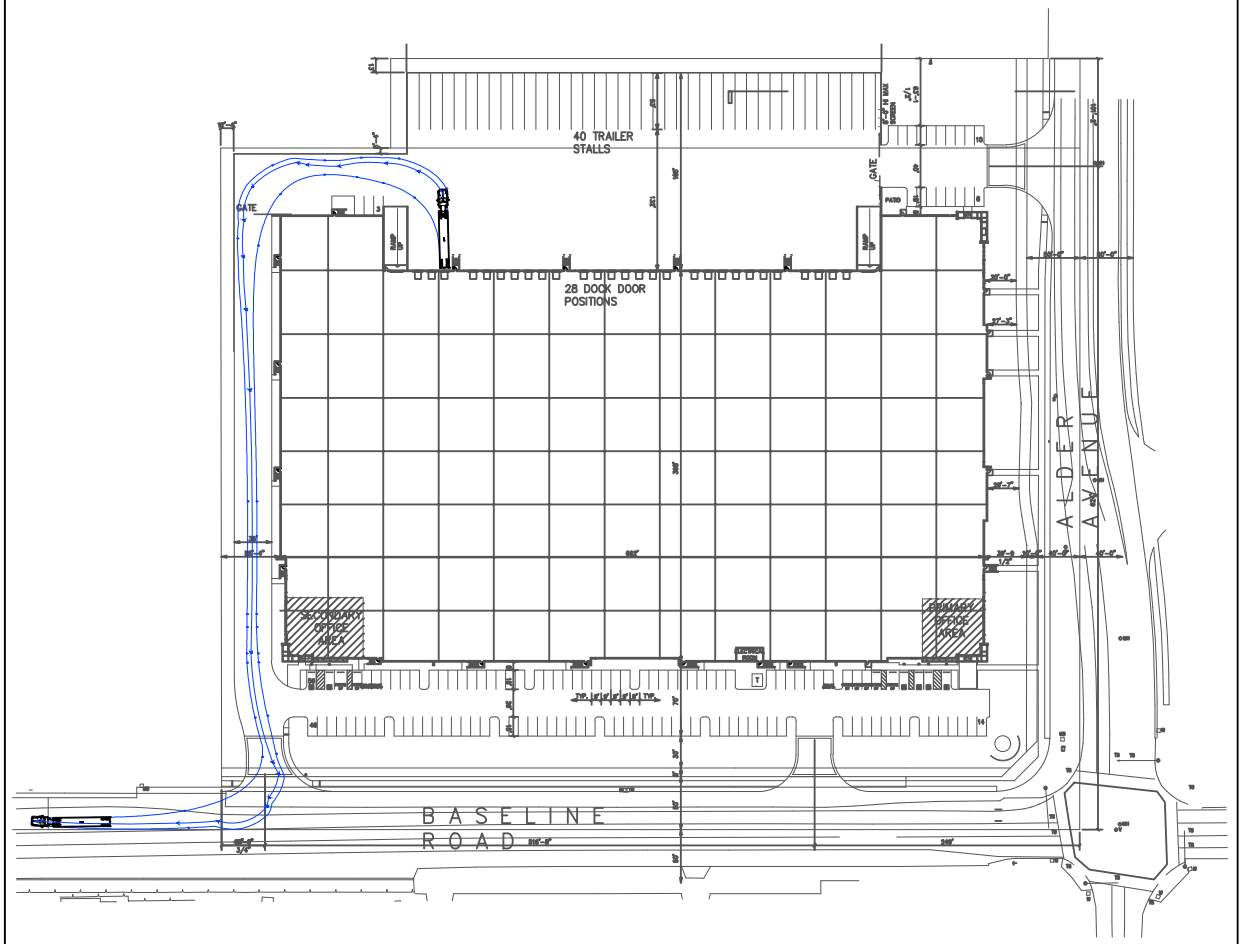
WB-67

	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Legend

Outbound

NOT TO SCALE



SOURCE: Auto Turn 10.1

FIGURE 22

Outbound and Inbound Truck Turning Radii at Project Access Driveways (Walnut Avenue and Alder Avenue)

Baseline Alder Warehouse Project

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Traffic Signal Warrant Analysis

On-site Intersections

All three-project driveways, including one right-in-right-out driveway along Alder Avenue and two right-in/right-out driveways along Baseline Road, are proposed to be unsignalized. Each project access was analyzed as an unsignalized intersection with project traffic under Project Completion 2020 plus Project, and Cumulative 2020 plus Project conditions. All the project access driveways are forecast operate with satisfactory LOS (LOS C or better).

Off-site Intersections

As previously discussed, the Tamarind Avenue/Baseline Road intersection would meet the CA MUTCD peak hour traffic signal warrant for peak hour conditions under the Cumulative 2020 Baseline and Cumulative 2020 plus Project conditions. Signal warrant calculations are provided in Appendix F.

Summary

For the reasons discussed above, the proposed project would not increase hazards due to design features or incompatible uses, nor would the project result in inadequate emergency access. Therefore, impacts would be **less than significant**.

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 Impact. The project does not include any improvements that would extend into adjacent roadways or otherwise impede public transit, bicycle, or pedestrian facilities.

Transit System

Omnitrans is the transit provider in the City, and within the Renaissance Specific Plan Area. Currently, two Omnitrans bus routes, Route 10 and Route 22, provide service to the Renaissance Specific Plan Area. Route 10 operates along Baseline Road and provides connections between downtown San Bernardino and the Metrolink station in Fontana. The nearest bus stop to the project site is the Route 10 stop located on its frontage along Baseline Avenue. Route 22 connects North Rialto to South Rialto and has a transfer point

with Route 10 at the intersection of Baseline Road and Riverside Avenue. The proposed project would not interfere with the existing transit routes.

Pedestrian and Bicycle Facilities

Certain segments of Alder Avenue are currently under construction due to new developments that are widening Alder Avenue to its ultimate width. As these segments of Alder Avenue are widened, pedestrian and bicycle facilities (i.e., sidewalks and bike lanes/routes), will be constructed per City/Renaissance Specific Plan specifications. On Baseline Avenue, along project frontage, there is no sidewalk or bike lane. Per the Renaissance Specific Plan, a bike lane is not proposed along Baseline Avenue. Per the Renaissance Specific Plan's Bicycle and Pedestrian Circulation Plan, on-street public bike lanes (Class II – striped) and sidewalks are proposed along Alder Avenue, and on-street (Class III – signed) public bike routes and sidewalks are proposed along Walnut Avenue and Tamarind Avenue. The proposed project would not impede on these improvements and includes the construction of a new sidewalk along the project frontage, which may be used by pedestrians and bicyclists. Therefore, **no impacts** associated with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVII. TRIBAL CULTURAL RESOURCES				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
b) 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 Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

3.17 Tribal Cultural Resources

The following analysis is based, in part, on the Cultural Resources Report prepared by Dudek in July 2018 and included as Appendix C.

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

Less-Than-Significant Impact. As previously discussed in Section 3.5(a), the project site does not contain any resources that are either listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k). Therefore, impacts associated with historical resources would be **less than significant**.

ii) 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 Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less-Than-Significant Impact with Mitigation Incorporated. As part of the government-to-government consultation efforts prescribed under AB 52, the City notified all Native American tribes on the City's AB 52 list for the project, inviting the tribes to consult on the project. To date, the City has received two responses to the notification letter. One response, dated October 26, 2018, from the Gabrieleno Band of Mission Indians-Kizh Nation requests consultation regarding the project. This consultation meeting was held October 24, 2018. At this meeting, representatives of the Gabrieleno Band of Mission Indians-Kizh Nation requested that tribal cultural resource monitoring occur during construction activities.

The second response was received from the San Manual Band of Mission Indians. This response included a request to review of the Cultural Resources Report (Appendix C).

Despite the disturbed nature of the project area and the fact that the archaeological sensitivity of the project site is considered to be low, the City is committed to preserving the integrity of cultural resources. Thus, in response to the requests for construction monitoring, MM-CUL-1 and MM-CUL-2 are required to ensure that a qualified archaeological monitor is able to observe subsurface construction activities and to ensure that if any potential tribal cultural resources are encountered, a qualified archaeologist and Tribal monitor shall be able to evaluate the find. With the incorporation of MM-CUL-1 and MM-CUL-2, impacts associated with any potential buried, currently unrecorded/unknown tribal cultural resources would be **less than significant**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVIII. UTILITIES AND SERVICE SYSTEMS – Would the project:				
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

3.18 Utilities and Service Systems

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less-Than-Significant Impact. The proposed project would discharge wastewater into the Inland Empire Utilities Agency's (IEUA) jurisdiction. The IEUA provides wastewater treatment service along the western border of the City of Rialto and the City of Fontana. The IEUA currently operates four regional wastewater treatment facilities, including Regional Plant (RP) No. 1 (RP-1), RP-4, RP-5, and Carbon Canyon Wastewater Reclamation Facility (IEUA 2016a).

The project site is located within the RP-1 service area. According to the IEUA's Urban Water Management Plan (UWMP; IEUA 2016b), RP-1 has a rated, permitted treatment capacity of 44 million gallons per day (MGD), and biosolids treatment capacity equivalent to a wastewater flow rate of 60 MGD. The facility is currently treating an average of 28 MGD, with a capacity of 44 MGD, meaning that it operates at only 65% of its capacity (IEUA 2016a). Once operational, the proposed project would generate wastewater at a rate of approximately 29,075 gallons of wastewater per day (gpd) based on wastewater generation rates previously approved by the IEUA (2,500 gpd/acre for industrial use). Based on this rate, the project would only represent 0.07% of RP-1's capacity, representing only a nominal increase in the amount of wastewater treated daily by the wastewater treatment plant. As such, the RP-1 facility would have the capacity to accept wastewater from the proposed project. No new wastewater treatment facilities or expansion of existing facilities would be required in result of the proposed project. Therefore, impacts associated with wastewater treatment requirements and capacity would be **less than significant**.

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?

Water Facilities

Less-Than-Significant Impact. The project site is located within the San Gabriel Valley Water Company, FWC Division service area. FWC currently utilizes water from the following sources: local groundwater basins (Chino Basin, Rialto-Colton Basin, Lytle Basin, and No Man's Land Basin); local surface water (Lytle Creek); and imported surface water (State Water Project water).

As discussed in FWC's 2015 UWMP, with a reduction in demand as a result of water conservation, FWC's Single and Multiple Dry Year supplies are adequate to meet projected Dry Year demands (FWC 2016). The UWMP is used to develop water supply assessments and other key water supply reliability documents in support of providing water service to existing customers and future development in accordance with adopted general plans and established Spheres of Influence. The methodology used in the UWMP was, in part, based on SCAG data based on the populations in each of these areas using land use information from approved City and County general plans. Thus, if a project is consistent with the general plan land use designation that was assumed in the UWMP, then the findings in the UWMP would apply. In this case, the proposed project is consistent with the project site's City of Rialto General Plan land use designation (Specific Plan) and would not require any type of General Plan Amendment or zone change. As such, the density/intensity assumed for the project site in the UWMP would be maintained following implementation of the proposed project, and the project would not adversely affect the City's ability to continue to supply water during normal and drought conditions. Therefore, impacts associated with water supplies and facilities would be **less than significant**.

Wastewater Treatment Facilities

Less-Than-Significant Impact. Refer to response 3.18(a).

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. Since the majority of the project site is undeveloped under the existing condition, implementation of the proposed project would involve construction of on-site stormwater systems. The stormwater system would be constructed as part of the proposed project, and any potential environmental impacts associated with construction or operation of these stormwater facilities have been accounted for in the discussion of overall proposed project impacts within this IS/MND. Therefore, impacts associated with stormwater drainage facilities would be **less than significant**.

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?

Less-Than-Significant Impact. Refer to response 3.18(b).

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?

Less-Than-Significant Impact. Refer to response 3.18(a).

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less-Than-Significant Impact. Solid waste generated in the City is collected and transported by the City's contract waste hauler, Burrtec Waste Industries (City of Rialto 2018). Once collected, solid waste is transported to sorting/disposal facilities permitted to accept residential and commercial solid waste, with each facility's operations routinely inspected by regional and state regulatory agencies for compliance with all applicable statutes and regulations. Burrtec operates three material recovery facilities in Southern California, which sort and process waste and recyclables (Burrtec Waste Industries 2017). Due to its proximity to the project site, the remaining waste that cannot be recycled would likely go to the Mid-Valley Landfill, located in the City.

The California Department of Resources Recycling and Recovery (Cal Recycle) publishes solid waste generation rates based on land use types. According Cal Recycle, manufacturing/warehouse uses generate 1.42 pounds per 100 square feet per day (Cal Recycle 2016). Based on these generation rates, construction of the proposed 255,173-square-foot warehouse building could generate solid waste at a rate of approximately 3,624 pounds of solid waste per day.[5]

The Mid-Valley Landfill currently has a maximum permitted throughput of 75,000 tons per day and a remaining capacity of 67,520,000 cubic yards (Cal Recycle 2010). As a result, solid waste generated by the project would represent a nominal percentage of the collective maximum daily throughput permitted for this landfill. The overall increase in solid waste being transferred from the project site to the land as a result of the project would be nominal. Therefore, impacts associated with permitted landfill capacity would be **less than significant**.

[5] This estimate does not account for diversion of recyclables from the solid waste stream and, thus, should be considered a conservative projection.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Less-Than-Significant Impact. All collection, transportation, and disposal of solid waste generated by the project would comply with all applicable federal, state, and local statutes and regulations. Under AB 939, the Integrated Waste Management Act of 1989, local jurisdictions are required to develop source reduction, reuse, recycling, and composting programs to reduce the amount of solid waste entering landfills. Local jurisdictions are mandated to divert at least 50% of their solid waste generation into recycling. The project would be required to submit plans to the Public Works Department for review and approval to ensure the plan would comply with AB 939.

Additionally, the state has set an ambitious goal of 75% recycling, composting, and source reduction of solid waste by 2020. To help reach this goal, the state has adopted AB 341 and AB 1826. AB 341 is a mandatory commercial recycling bill, and AB 1826 is mandatory organic recycling. Waste generated by the project would enter the City's waste stream but would not adversely affect the City's ability to meet AB 939, AB 341, or AB 1826, since the project's waste generation would represent a nominal percentage of the waste created within the City. Therefore, impacts associated with solid waste disposal regulations would be **less than significant**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE				
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)?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

3.19 Mandatory Findings of Significance

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?

Less-Than-Significant Impact with Mitigation Incorporated. As discussed in Section 3.4, Biological Resources, due to the highly disturbed nature of the project area, the proposed project would not result in significant impacts to biological resources.

Additionally, as because of the disturbed nature of the project area, the archaeological and paleontological sensitivity of the project site is considered to be low. However, it is always possible that intact archaeological deposits could be present at subsurface levels. For this reason, the project site should be treated as potentially sensitive for archaeological and paleontological resources. As such, MM-CUL-1, MM-CUL-2, and MM-CUL-3 are required to minimize potential impacts to unanticipated archaeological and paleontological resources. Based on compliance with these mitigation measures, impacts to buried, currently unrecorded/unknown archaeological, tribal, and paleontological resources would be less than significant.

Therefore, with mitigation incorporated, the project would not 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)?

Less-Than-Significant Impact with Mitigation Incorporated. When evaluating cumulative impacts, it is important to remain consistent with Section 15064(h) of the CEQA Guidelines, which states:

> (1) When assessing whether a cumulative effect requires an EIR, the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable. An EIR must be prepared if the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
>
> (2) A lead agency may determine in an initial study that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. When a project might contribute to a significant cumulative impact, but the contribution will be rendered less than cumulatively considerable through mitigation measures set forth in a mitigated negative declaration, the initial study shall briefly indicate and explain how the contribution has been rendered less than cumulatively considerable.
>
> (3) A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to, water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. When relying on a plan,

regulation or program, the lead agency should explain how implementing the particular requirements in the plan, regulation or program ensure that the project's incremental contribution to the cumulative effect is not cumulatively considerable. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding that the project complies with the specified plan or mitigation program addressing the cumulative problem, an EIR must be prepared for the project.

(4) The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the project's incremental effects are cumulatively considerable.

With this stated, the project would potentially result in project-related air quality, cultural resources, noise, transportation and traffic, and tribal cultural resources impacts that could be potentially significant without the incorporation of mitigation. Thus, when coupled with similar impacts related to the implementation of other projects located throughout the broader project area, the project could potentially result in cumulative-level impacts if these significant project-level impacts are left unmitigated.

However, with the incorporation of mitigation identified herein, the project's incremental impacts to air quality, cultural resources, noise, transportation and traffic, and tribal cultural resources would be reduced to less-than-significant levels and would not considerably contribute to cumulative impacts in the greater project region. Additionally, these other related projects would presumably be bound by their CEQA lead agency to (1) comply with the all applicable federal, state, and local regulatory requirements; and (2) incorporate all feasible mitigation measures, consistent with CEQA, to further ensure that their potentially cumulative impacts would be reduced to less-than-significant levels.

Although cumulate impacts are always possible, the project, by incorporating all mitigation measures outlined herein, would reduce its contribution to any such cumulative impacts to less than cumulatively considerable. Therefore, the project would result in individually limited, but not cumulatively considerable, impacts.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less-Than-Significant Impact with Mitigation Incorporated. As evaluated throughout this document, with the incorporation of mitigation, environmental impacts associated with the proposed project would be reduced to less-than-significant levels. Therefore,

with mitigation incorporated, the proposed project would not directly or indirectly cause substantial adverse effects on human beings.

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APPENDIX A

Air Quality, Greenhouse Gas Emissions, and Health Risk Assessment

Baseline/Alder Warehouse

AIR QUALITY IMPACT ANALYSIS

CITY OF RIALTO

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LIST OF ABBREVIATED TERMS

(1)	Reference
µg/m3	Microgram per Cubic Meter
AADT	Annual Average Daily Trips
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BACM	Best Available Control Measures
BMPs	Best Management Practices
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Envirnmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DPM	Diesel Particulate Matter
EPA	Environmental Protection Agency
LST	Localized Significance Threshold
SCAQMD	Mojave Desert Air Quality Management District
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
Pb	Lead
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million
Project	Baseline/Alder Warehouse
ROG	Reactive Organic Gases
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SIPs	State Implementation Plans
SRA	Source Receptor Area

TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
TOG	Total Organic Gases
VMT	Vehicle Miles Traveled

EXECUTIVE SUMMARY

The results of this Baseline/Alder Warehouse Air Quality Impact Analysis are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table 4-1 shows the findings of significance for each potential air quality impact under CEQA before and after any required mitigation measures described below.

CONSTRUCTION MITIGATION MEASURES

The Project has the potential to exceed the localized significance thresholds for emissions of $PM_{2.5}$. Mitigation measure MM AQ-1 is required to reduce emissions of $PM_{2.5}$ to less than significant levels. After implementation of MM AQ-1, Project construction-source emissions would not exceed the localized significance thresholds for any criteria pollutant and a less than significant impact would occur.

OPERATIONAL MITIGATION MEASURES

The Project has the potential to exceed the threshold of significance for emissions of NO_x. Mitigation measure MM AQ-2 (Option A or B) is required to reduce emissions of NO_x to less than significant levels. After implementation of either Option A or Option B of MM AQ-2, Project operational-source emissions would not exceed the applicable SCAQMD thresholds for any criteria pollutant and a less than significant impact would occur.

TABLE 4-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Construction Emissions	3.4	*Potentially Significant*	*Less Than Significant*
Operational Emissions	3.5	*Potentially Significant*	*Less Than Significant*
CO "Hot Spot" Analysis	3.8	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.9	*Less Than Significant*	*n/a*
Sensitive Receptors	3.10	*Less Than Significant*	*n/a*
Odors	3.11	*Less Than Significant*	*n/a*
Cumulative Impacts	3.12	*Potentially Significant*	*Less Than Significant*

1 INTRODUCTION

This report presents the results of the air quality impact analysis (AQIA) prepared by Urban Crossroads, Inc., for the proposed Baseline/Alder Warehouse ("Project").

The purpose of this AQIA is to evaluate the potential impacts to air quality associated with construction and operation of the proposed Project and recommend measures to mitigate impacts considered potentially significant in comparison to thresholds established by the Southern California Air Quality Management District (SCAQMD).

1.1 SITE LOCATION

The proposed Baseline/Alder Warehouse Project is located on the northwest corner of the intersection of Baseline Road and Alder Avenue in the City of Rialto.

1.2 PROJECT DESCRIPTION

It is our understanding that the Project is proposed to consist of up to 255,655 square feet (sf), one-story industrial/warehouse building on an approximately 11.48-acre site, as shown on Exhibit 1-A. For the purposes of this analysis, the Project is anticipated to be developed in a single phase with an Opening Year of 2020.

1.3 MONITORING OF AND COMPLIANCE WITH STANDARD REGULATORY REQUIREMENTS/BEST AVAILABLE CONTROL MEASURES (BACMS)

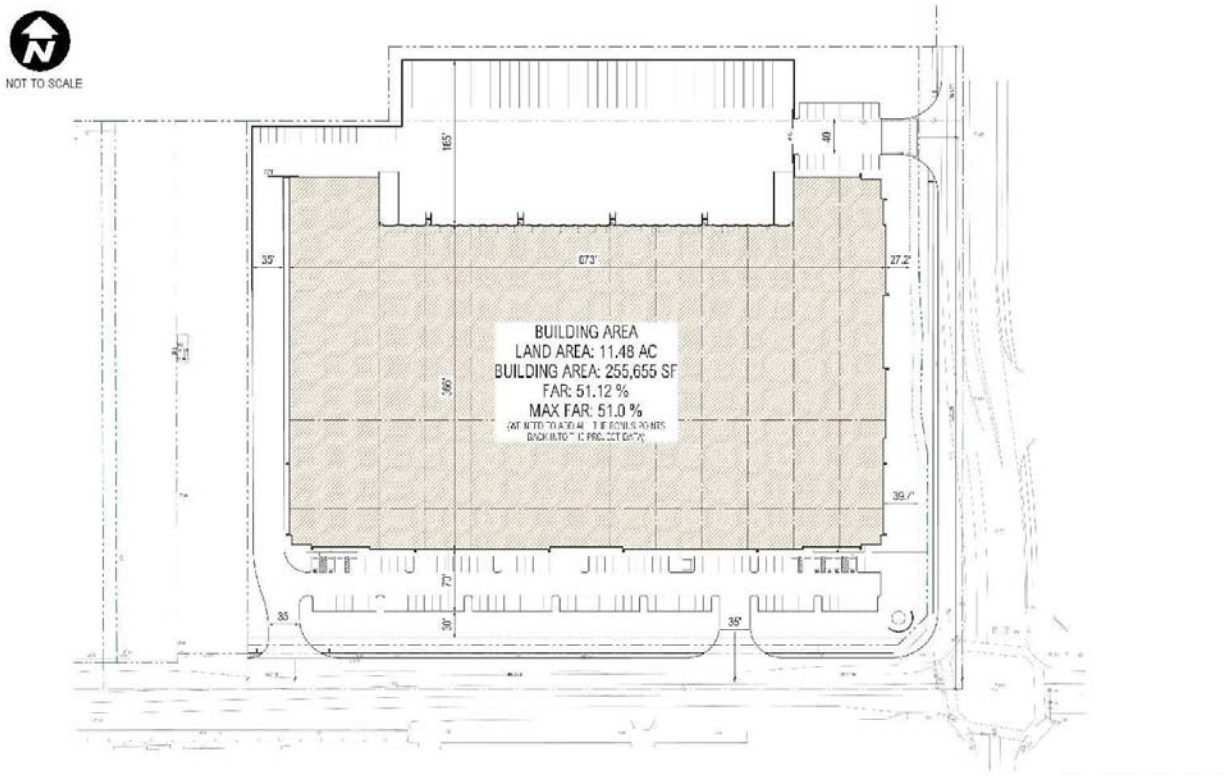
Measures listed below (or equivalent language) shall appear on all Project grading plans, construction specifications and bid documents, and the City shall ensure such language is incorporated prior to issuance of any development permits.

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1113 (Architectural Coatings) (2); Rule 431.2 (Low Sulfur Fuel); Rule 403 (Fugitive Dust) (3); and Rule 1186 / 1186.1 (Street Sweepers) (4). It should be noted that BACMs are not mitigation as they are standard regulatory requirements.

BACM AQ-1

- The following measures shall be incorporated into Project plans and specifications as implementation of Rule 403.
- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered, with complete coverage of disturbed areas, at least three (3) times daily during dry weather; preferably in the mid-morning, afternoon, and after work is done for the day.
- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less.

EXHIBIT 1-A: SITE PLAN



BACM AQ-2

The following measures shall be incorporated into Project plans and specifications as implementation of Rule 1113 (5):

- Only "Low-Volatile Organic Compounds" paints (no more than 50 gram/liter of VOC) and/or High Pressure Low Volume (HPLV) applications consistent with South Coast Air Quality Management District Rule 1113 shall be used.

1.4 CONSTRUCTION-SOURCE AIR POLLUTANT EMISSIONS MITIGATION MEASURES

MM AQ-1

During the site preparation phase, construction equipment greater than 150 horsepower (>150 HP), the Construction Contractor shall use off-road diesel construction equipment that complies with EPA/CARB Tier 3 emissions standards and will ensure that all construction equipment be tuned and maintained in accordance with the manufacturer's specifications.

1.5 OPERATIONAL-SOURCE AIR POLLUTANT EMISSIONS MITIGATION MEASURES

MM AQ-2

In order to reduce the operational impacts associated with NO_x emissions, the Project shall implement one of the following options:

- Option A: The Project shall limit the number of heavy-duty diesel-fueled trucks accessing the Project site to 164 trucks per day if the truck fleet is wholly or partially older than the 2010 U.S EPA/CARB truck engine standards.
- Option B: The Project shall limit the number of heavy-duty diesel-fueled trucks accessing the Project site to 210 trucks per day if the truck fleet is equal to or better than the 2010 U.S EPA/CARB truck engine standards.

Pursuant to a phase-in schedule established by U.S. EPA/CARB, all heavy- and heavier-duty diesel-fueled trucks must have a 2010 Model Year engine or newer by 2023. Thus, the above measure shall be in effect on the Project until 2023. It is recommended that the above options be included as a condition of Project approval, and that the building user keep a truck log that would be available to the City or its designee upon request to verify compliance.

2 AIR QUALITY SETTING

This section provides an overview of the existing air quality conditions in the Project area and region.

2.1 SOUTH COAST AIR BASIN

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD (6). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As discussed above, the Project site is located within the South Coast Air Basin, a 6,745-square mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County. The larger South Coast district boundary includes 10,743 square miles.

The SCAB is bound by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Los Angeles County portion of the Mojave Desert Air Basin is bound by the San Gabriel Mountains to the south and west, the Los Angeles / Kern County border to the north, and the Los Angeles / San Bernardino County border to the east. The Riverside County portion of the Salton Sea Air Basin is bound by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

2.2 REGIONAL CLIMATE

The regional climate has a substantial influence on air quality in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SCAB vary from the low to middle 60s (degrees Fahrenheit). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide to sulfates is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71 percent along the coast and 59 percent inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90 percent of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14½ hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as NOX and CO from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

2.3 WIND PATTERNS AND PROJECT LOCATION

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The Basin is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season.

2.4 EXISTING AIR QUALITY

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated and in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-1 (7).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards presented in Table 2-1. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O_3, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are not equaled or exceeded at any time in any consecutive three-year period; and the federal standards (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The O_3 standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

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TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°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.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

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

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

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

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

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. 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 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (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.

11. On June 2, 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 one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' 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.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ 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.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (5/4/16)**

2.5 REGIONAL AIR QUALITY

The SCAQMD monitors levels of various criteria pollutants at 38 permanent monitoring stations and 5 single-pollutant source Lead (Pb) air monitoring sites throughout the air district (8). In 2015, the federal and state ambient air quality standards (NAAQS and CAAQS) were exceeded on one or more days for ozone, PM_{10}, and $PM_{2.5}$ at most monitoring locations (9). No areas of the SCAB exceeded federal or state standards for NO_2, SO_2, CO, sulfates or lead. See Table 2-2, for attainment designations for the SCAB (10) (11). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

TABLE 2-2: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN (SCAB)

Criteria Pollutant	State Designation	Federal Designation
Ozone - 1hour standard	Nonattainment	Nonattainment (“extreme”)
Ozone - 8 hour standard	Nonattainment	Nonattainment (“extreme”)
PM_{10}	Nonattainment	Attainment (Maintenance)
$PM_{2.5}$	Nonattainment	Nonattainment (“serious”)
Carbon Monoxide	Attainment	Attainment (Maintenance)
Nitrogen Dioxide	Attainment	Unclassifiable/Attainment
Sulfur Dioxide	Attainment	Unclassifiable/Attainment
Lead[1]	Attainment	Nonattainment (Partial)

Source: State/Federal designations were taken from http://www.arb.ca.gov/desig/adm/adm.htm
Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the South Coast Air Basin

2.6 LOCAL AIR QUALITY

Relative to the Project site, the nearest long-term air quality monitoring site for Ozone (O_3), Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Inhalable Particulates (PM_{10}) and Ultra-Fine Particulates ($PM_{2.5}$) is the South Coast Air Quality Management District Central San Bernardino Valley 1 (SRA 34) monitoring station, located approximately 4.29 miles southwest of the Project site.

The most recent three (3) years of data available is shown on Table 2-3 and identifies the number of days ambient air quality standards were exceeded for the study area, which is was considered to be representative of the local air quality at the Project site (12) (13). Additionally, data for SO_2 has been omitted as attainment is regularly met in the South Coast Air Basin and few monitoring stations measure SO_2 concentrations.

[1] The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

TABLE 2-3: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2014-2016

POLLUTANT	STANDARD	YEAR		
		2014	2015	2016
Ozone (O_3)				
Maximum 1-Hour Concentration (ppm)		0.127	0.133	0.139
Maximum 8-Hour Concentration (ppm)		0.105	0.111	0.105
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	31	36	34
Number of Days Exceeding State 8-Hour Standard	> 0.07 ppm	52	59	52
Number of Days Exceeding Federal 1-Hour Standard	> 0.12 ppm	1	3	3
Number of Days Exceeding Federal 8-Hour Standard	> 0.075 ppm	52	57	49
Number of Days Exceeding Health Advisory	≥ 0.15 ppm	--	--	--
Carbon Monoxide (CO)				
Maximum 1-Hour Concentration (ppm)		3	2.8	1.7
Maximum 8-Hour Concentration (ppm)		1.2	1.2	1.0
Nitrogen Dioxide (NO_2)				
Maximum 1-Hour Concentration (ppm)		0.070	0.079	0.072
Annual Arithmetic Mean Concentration (ppm)		0.020	0.036	0.0.18
Number of Days Exceeding State 1-Hour Standard	> 0.18 ppm	0	0	0
Particulate Matter ≤ 10 Microns (PM_{10})				
Maximum 24-Hour Concentration (µg/m3)		68	96	94
Number of Samples		58	55	61
Number of Samples Exceeding State Standard	> 50 µg/m^3	13	13	15
Number of Samples Exceeding Federal Standard	> 150 µg/m^3	0	0	0
Particulate Matter ≤ 2.5 Microns ($PM_{2.5}$)				
Maximum 24-Hour Concentration (µg/m^3)		78.9	47.3	30.5
Annual Arithmetic Mean (µg/m^3)		13.2	10.7	12.0
Number of Samples Exceeding Federal 24-Hour Standard	> 35 µg/m^3	1	2	0

-- = data not available from SCAQMD or ARB;

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and effects are identified below:

- Carbon Monoxide (CO): Is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- Sulfur Dioxide (SO_2): Is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X).

- Nitrogen Oxides (Oxides of Nitrogen, or NO_x): Nitrogen oxides (NO_x) consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant, and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitors.
- Ozone (O_3): Is a highly reactive and unstable gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- PM_{10} (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. PM_{10} also causes visibility reduction and is a criteria air pollutant.
- $PM_{2.5}$ (Particulate Matter less than 2.5 microns): A similar air pollutant consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.
- Volatile Organic Compounds (VOC): Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The SCAQMD uses the terms VOC and ROG (see below) interchangeably.
- Reactive Organic Gases (ROG): Similar to VOC, Reactive Organic Gases (ROG) are also precursors in forming ozone and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The SCAQMD uses the terms ROG and VOC (see previous) interchangeably.
- Lead (Pb): Lead is a heavy metal that is highly persistent in the environment. In the past, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. As a

result of the removal of lead from gasoline, there have been no violations at any of the SCAQMD's regular air monitoring stations since 1982. Currently, emissions of lead are largely limited to stationary sources such as lead smelters. It should be noted that the Project is not anticipated to generate a quantifiable amount of lead emissions. Lead is a criteria air pollutant.

Health Effects of Air Pollutants

Ozone

Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for ozone effects. Short-term exposure (lasting for a few hours) to ozone 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. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in communities with high ozone levels.

Ozone exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO, resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels; these include pre-term births and heart abnormalities.

Particulate Matter

A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma

attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long term exposure to particulate matter.

The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.

Nitrogen Dioxide

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO_2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO_2.

Sulfur Dioxide

A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2.

Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.

Odors

The science of odor as a health concern is still new. Merely identifying the hundreds of VOCs that cause odors poses a big challenge. Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.7 REGULATORY BACKGROUND

2.7.1 FEDERAL REGULATIONS

The U.S. EPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_x, SO_2, PM_{10}, and lead (14). The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955, and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (15). The CAA also mandates that states submit and implement State Implementation Plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The

sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and lead. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 3-1 (previously presented) provides the NAAQS within the basin.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and nitrogen oxides (NO_x). NOx is a collective term that includes all forms of nitrogen oxides (NO, NO_2, NO_3) which are emitted as byproducts of the combustion process.

2.7.2 CALIFORNIA REGULATIONS

The CARB, which became part of the California EPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. The California CAA mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. However at this time, hydrogen sulfide and vinyl chloride are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (16) (14).

Local air quality management districts, such as the SCAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare air quality management plans that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROGs, NO_x, CO and PM_{10}. However, air basins

may use alternative emission reduction strategy that achieves a reduction of less than five percent per year under certain circumstances.

2.7.3 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In regards to the NAAQS, the Project region within the SCAB is in nonattainment for ozone (8-hour) and PM2.5. For the CAAQS, the Project region within the SCAB is in nonattainment for ozone (1-hour and 8-hour), PM_{10}, and $PM_{2.5}$. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards (17). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.10.

2.8 REGIONAL AIR QUALITY IMPROVEMENT

The Project is within the jurisdiction of the SCAQMD. In 1976, California adopted the Lewis Air Quality Management Act which created SCAQMD from a voluntary association of air pollution control districts in Los Angeles, Orange, Riverside, and San Bernardino counties. The geographic area of which SCAQMD consists is known as the Basin. SCAQMD develops comprehensive plans and regulatory programs for the region to attain federal standards by dates specified in federal law. The agency is also responsible for meeting state standards by the earliest date achievable, using reasonably available control measures.

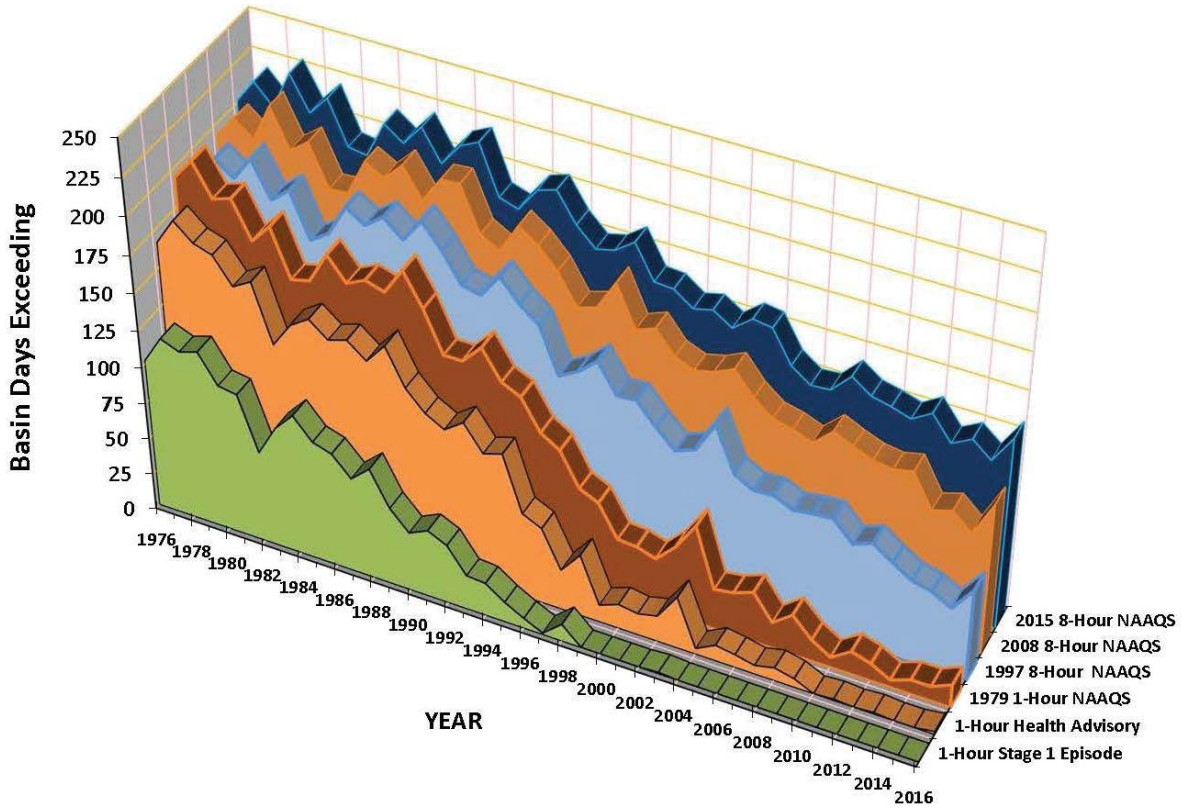
SCAQMD rule development through the 1970s and 1980s resulted in dramatic improvement in Basin air quality. Nearly all control programs developed through the early 1990s relied on (i) the development and application of cleaner technology; (ii) add-on emission controls, and (iii) uniform CEQA review throughout the Basin. Industrial emission sources have been significantly reduced by this approach and vehicular emissions have been reduced by technologies implemented at the state level by CARB.

As discussed above, the SCAQMD is the lead agency charged with regulating air quality emission reductions for the entire Basin. SCAQMD created AQMPs which represent a regional blueprint for achieving healthful air on behalf of the 16 million residents of the South Coast Basin. The 2012 AQMP states, “the remarkable historical improvement in air quality since the 1970’s is the direct result of Southern California’s comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its AQMPs,” (18).

Ozone, NO_x, VOC, and CO have been decreasing in the Basin since 1975 and are projected to continue to decrease through 2020 (19). These decreases result primarily from motor vehicle controls and reductions in evaporative emissions. Although vehicle miles traveled in the Basin continue to increase, NO_x and VOC levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NO_x emissions from electric utilities have also decreased due to use of cleaner fuels and renewable energy. Ozone contour maps show that the number of days exceeding the national 8-hour standard has decreased between 1997 and 2007. In the 2007 period, there was an

overall decrease in exceedance days compared with the 1997 period. Ozone levels in the SCAB have decreased substantially over the last 30 years as shown in Table 2-4 (20). Today, the maximum measured concentrations are approximately one-third of concentrations within the late 70's.

TABLE 2-4: SOUTH COAST AIR BASIN OZONE TREND



The overall trends of PM_{10} and $PM_{2.5}$ in the air (not emissions) show an overall improvement since 1975. Direct emissions of PM_{10} have remained somewhat constant in the Basin and direct emissions of $PM_{2.5}$ have decreased slightly since 1975. Area wide sources (fugitive dust from roads, dust from construction and demolition, and other sources) contribute the greatest amount of direct particulate matter emissions.

As with other pollutants, the most recent PM_{10} statistics also show overall improvement as illustrated in Table 2-5. During the period for which data are available, the 24-hour national annual average decreased by approximately 50 percent, from 103.7 µg/m³ in 1989 to 52.3 µg/m³ in 2016. Although the values in the late 1990's show some variability, this is probably due to meteorology rather than a change in emissions. Despite the overall decrease, ambient concentrations still exceed the State annual and 24-hour PM_{10} standards. Similar to the ambient concentrations, the calculated number of days above the 24-hour PM_{10} standards has also shown an overall drop. The most recent report to include information on the number of days above the national standard was in 2015, in which there were 6.6 calculated national standard exceedance days (21).

TABLE 2-5: SOUTH COAST AIR BASIN PM_{10} TREND

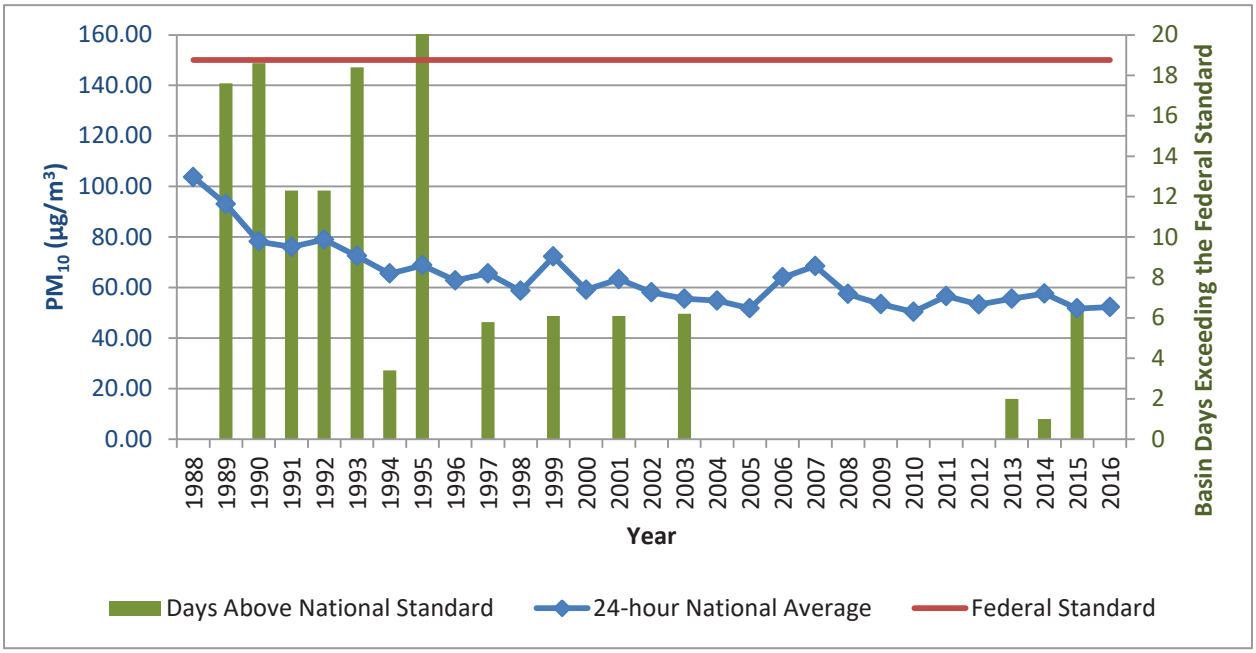


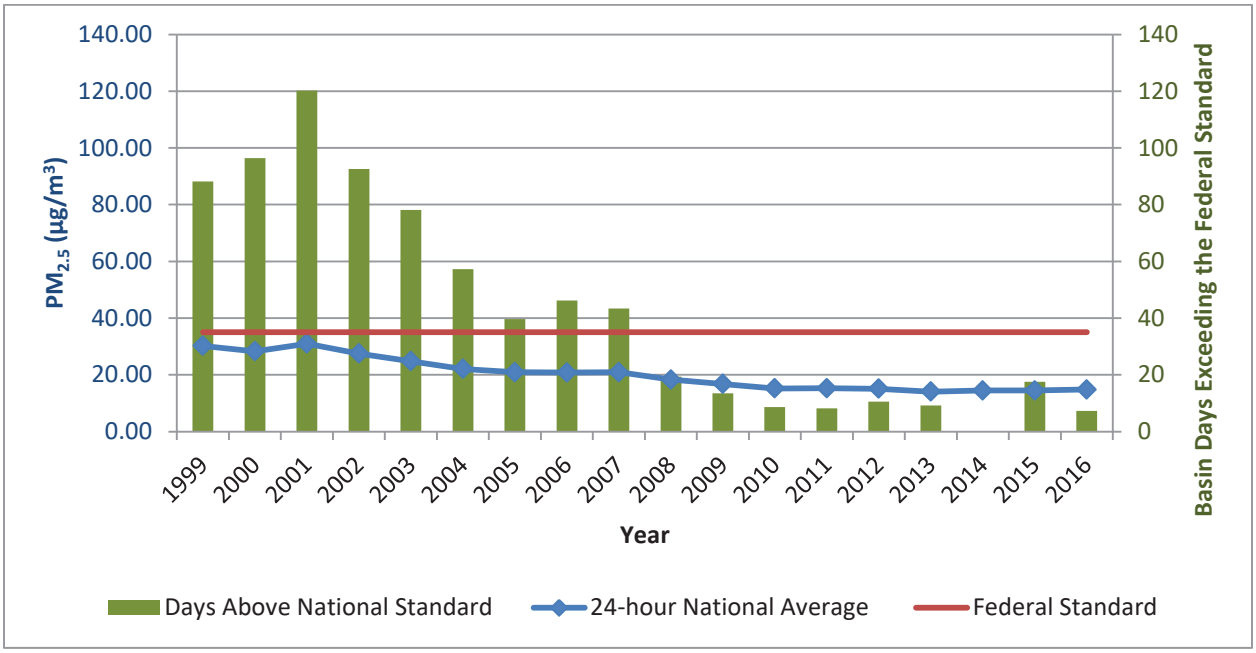
Table 2-6 shows the most recent 24-hour average $PM_{2.5}$ concentrations (national) in the SCAB from 1999 through 2016. Overall, the annual average concentrations have decreased by almost 51 percent. The calculated number of days above the national standard also decreased, from about 88 days in 1999 to about 7 days in 2016. The SCAB is currently designated as nonattainment for the State and national $PM_{2.5}$ standards.

While the 2012 AQMP PM_{10} attainment demonstration and the 2015 associated supplemental SIP submission indicated that attainment of the 24-hour standard was predicted to occur by the end of 2015, it could not anticipate the effect of the ongoing drought on the measured $PM_{2.5}$.

The 2006 to 2010 base period used for the 2012 attainment demonstration had near-normal rainfall. While the trend of $PM_{2.5}$- equivalent emission reductions continued through 2015, the severe drought conditions contributed to the $PM_{2.5}$ increases observed after 2012. As a result of the disrupted progress toward attainment of the federal 24-hour $PM_{2.5}$ standard, SCAQMD submitted a request and the U.S. EPA approved, in January 2016, a "bump up" to the nonattainment classification from "moderate" to "serious," with a new attainment deadline as soon as practicable, but not beyond December 31, 2019.

In March 2017, the AQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (22). Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories (23).

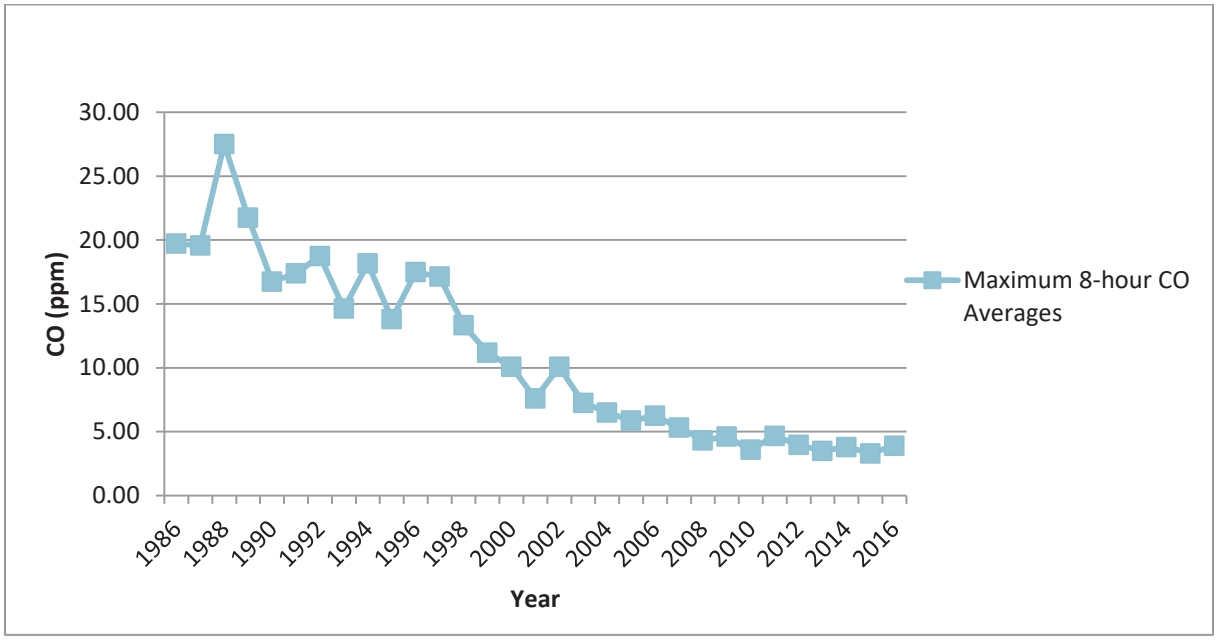
TABLE 2-6: SOUTH COAST AIR BASIN $PM_{2.5}$ TREND



The most recent CO concentrations in the SCAB are shown in Table 2-7 (24). CO concentrations in the SCAB have decreased markedly — a total decrease of more about 80 percent in the peak 8-hour concentration since 1986. The number of exceedance days has also declined. The entire SCAB is now designated as attainment for both the state and national CO standards. Ongoing reductions from motor vehicle control programs should continue the downward trend in ambient CO concentrations.

Part of the control process of the SCAQMD's duty to greatly improve the air quality in the Basin is the uniform CEQA review procedures required by SCAQMD's CEQA Handbook (25). The single threshold of significance used to assess Project direct and cumulative impacts has in fact "worked" as evidenced by the track record of the air quality in the Basin dramatically improving over the course of the past decades. As stated by the SCAQMD, the District's thresholds of significance are based on factual and scientific data and are therefore appropriate thresholds of significance to use for this Project.

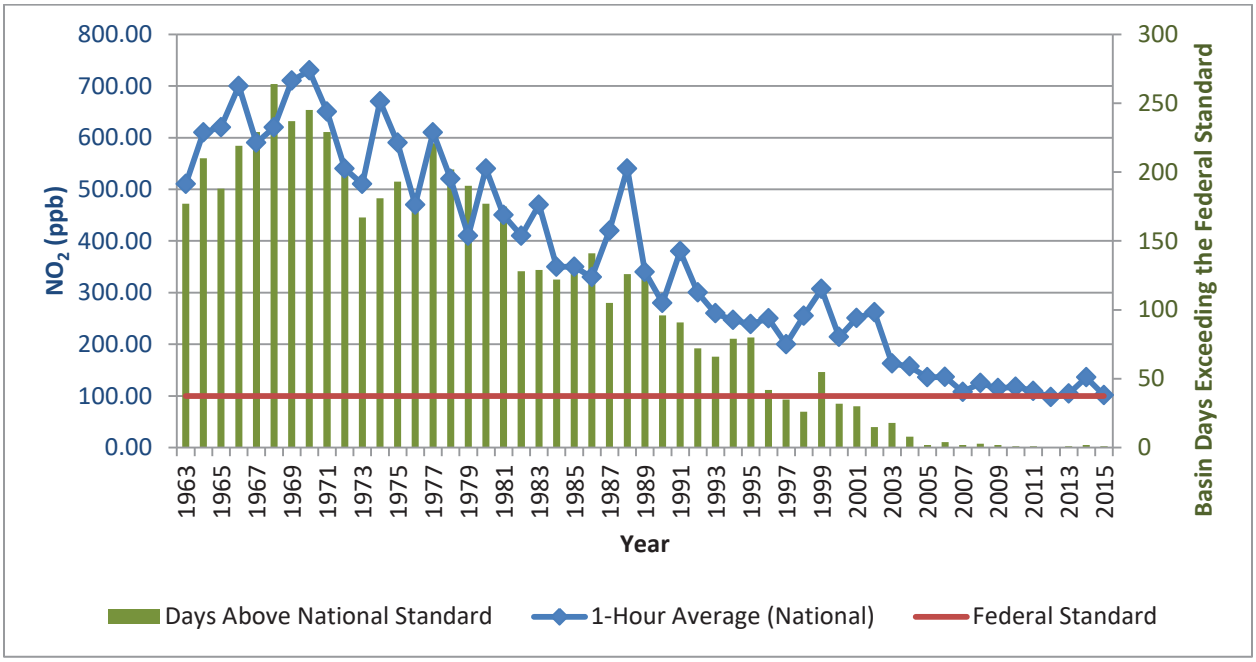
TABLE 2-7: SOUTH COAST AIR BASIN CARBON MONOXIDE TREND



The most recent NO_2 data for the SCAB is shown in Table 2-8 (24). Over the last 50 years, NO_2 values have decreased significantly; the peak 1-hour average for 2016 was approximately 81 percent lower than what it was during 1963. The SCAB attained the State 1-hour NO_2 standard in 1994, bringing the entire State into attainment. A new state annual average standard of 0.030 parts per million was adopted by the ARB in February 2007 (26). The new standard is just barely exceeded in the South Coast. NO_2 is formed from NO_x emissions, which also contribute to ozone. As a result, the majority of the future emission control measures will be implemented as part of the overall ozone control strategy. Many of these control measures will target mobile sources, which account for more than three-quarters of California's NO_x emissions. These measures are expected to bring the South Coast into attainment of the State annual average standard.

The American Lung Association website includes data collected from State air quality monitors that are used to compile an annual State of the Air report. The latest State of the Air Report compiled for the Basin was in 2017 (27). As noted in this report, air quality in the Basin has significantly improved in terms of both pollution levels and high pollution days over the past three decades. The area's average number of high ozone days dropped from 38% regionally in the initial 2000 State of the Air report (1996–1998) to 69% in the 2004 report and continues to decrease the number of days. The region has also seen dramatic reduction in particle pollution since the initial 2000 State of the Air report (27).

TABLE 2-8: SOUTH COAST AIR BASIN NITROGEN DIOXIDE TREND

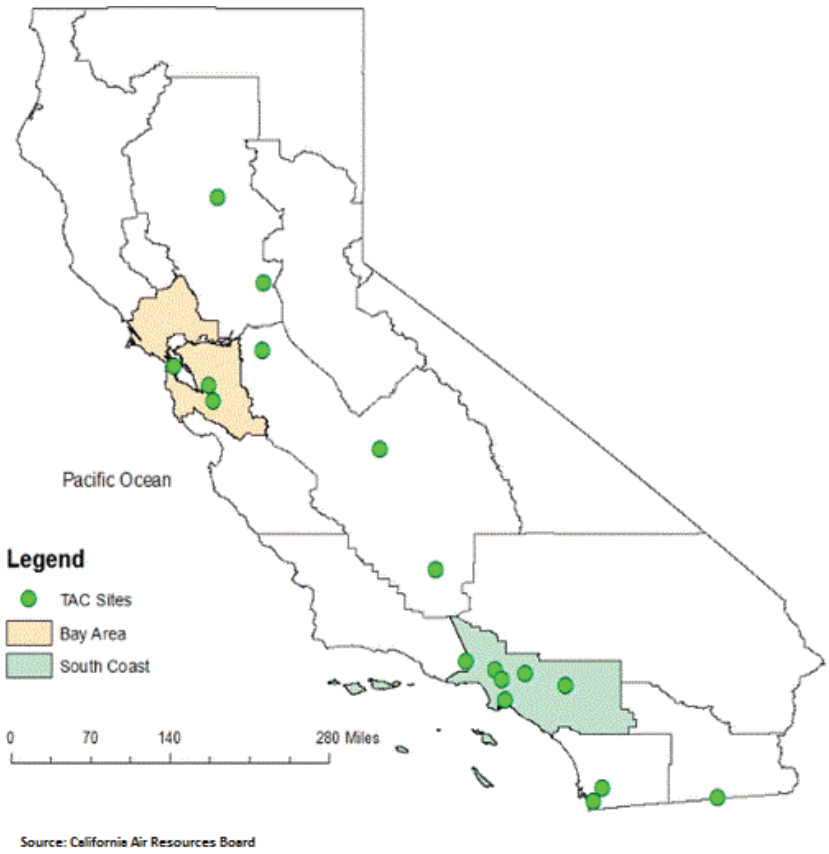


TOXIC AIR CONTAMINANTS (TACS) TRENDS

In 1984, as a result of public concern for exposure to airborne carcinogens, the CARB adopted regulations to reduce the amount of air toxic contaminant emissions resulting from mobile and area sources, such as cars, trucks, stationary products, and consumer products. According to the *Ambient and Emission Trends of Toxic Air Contaminants in California* journal article (28) which was prepared for CARB, results show that between 1990-2012, ambient concentration and emission trends for the seven TACs responsible for most of the known cancer risk associated with airborne exposure in California have declined significantly (between 1990 and 2012). The seven TACs studied include those that are derived from mobile sources: diesel particulate matter (DPM), benzene, and 1,3-butadiene; those that are derived from stationary sources: perchloroethylene and hexavalent chromium; and those derived from photochemical reactions of emitted VOCs: formaldehyde and acetaldehyde[2]. TACs data was gathered at monitoring sites from both the Bay Area and South Coast Air Basins, as shown on Exhibit 2-A; Several of the sites in the SCAB include Reseda, Compton, Rubidoux, Burbank, and Fontana. The decline in ambient concentration and emission trends of these TACs are a result of various regulations CARB has implemented to address cancer risk.

[2] It should be noted that ambient DPM concentrations are not measured directly. Rather, a surrogate method using the coefficient of haze (COH) and elemental carbon (EC) is used to estimate DPM concentrations.

EXHIBIT 2-A: CALIFORNIA TOXIC AIR CONTAMINANT SITES



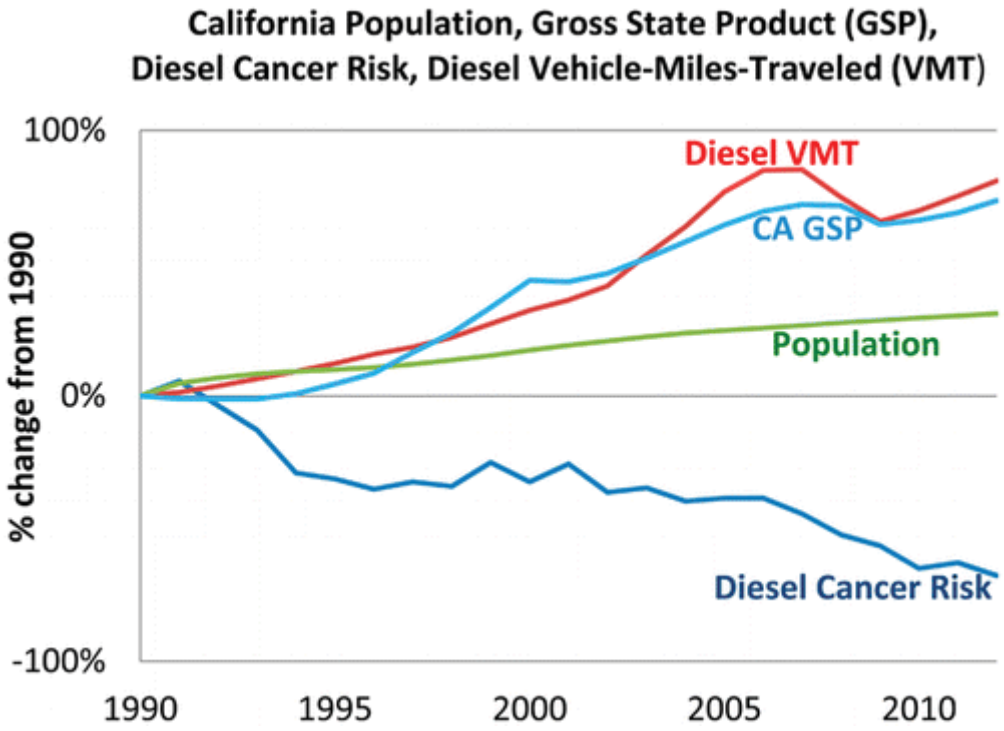
Mobile Source TACs

CARB introduced two programs that aimed at reducing mobile emissions for light and medium duty vehicles through vehicle emissions controls and cleaner fuel. In California, light-duty vehicles sold after 1996 are equipped with California's second-generation On-Board Diagnostic (OBD-II) system. The OBD II system monitors virtually every component that can affect the emission performance of the vehicle to ensure that the vehicle remains as clean as possible over its entire life, and assists repair technicians in diagnosing and fixing problems with the computerized engine controls. If a problem is detected, the OBD II system illuminates a warning lamp on the vehicle instrument panel to alert the driver. This warning lamp typically contains the phrase Check Engine or Service Engine Soon. The system will also store important information about the detected malfunction so that a repair technician can accurately find and fix the problem. ARB has recently developed similar OBD requirements for heavy-duty vehicles over 14,000 lbs. CARB's phase II Reformulated Gasoline (RFG-2) regulation, adopted in 1996, also led to a reduction of mobile source emissions. Through such regulations, benzene levels declined 88% from 1990-2012. 1,3-Butadiene concentrations also declined 85% from 1990-2012 as a result of the use of reformulated gasoline and motor vehicle regulations (28).

In 2000, CARB's Diesel Risk Reduction Plan (DRRP) recommended the replacement and retrofit of diesel-fueled engines and the use of ultra-low-sulfur (<15ppm) diesel fuel. As a result of these measures, DPM concentrations have declined 68% since 2000, even though the state's

population increased 31% and the amount of diesel vehicles miles traveled increased 81%, as shown on Exhibit 2-B. With the implementation of these diesel-related control regulations, ARB expects a DPM decline of 71% for 2000-2020.

EXHIBIT 2-B: DIESEL PARTICULATE MATTER AND DIESEL VEHICLE MILES TREND



Source: California Air Resources Board

DIESEL REGULATIONS

The CARB and the Ports of Los Angeles and Long Beach have adopted several iterations of regulations for diesel trucks that are aimed at reducing diesel particulate matter (DPM). More specifically, the CARB Drayage Truck Regulation (29), the CARB statewide On-road Truck and Bus Regulation (30), and the Ports of Los Angeles and Long Beach "Clean Truck Program" (CTP) require accelerated implementation of "clean trucks" into the statewide truck fleet (31). In other words, older more polluting trucks will be replaced with newer, cleaner trucks as a function of these regulatory requirements.

Moreover, the average statewide DPM emissions for Heavy Duty Trucks (HDT), in terms of grams of DPM generated per mile traveled, will dramatically be reduced due to the aforementioned regulatory requirements.

Diesel emissions identified in this analysis would therefore overstate future DPM emissions since not all the regulatory requirements are reflected in the modeling.

CANCER RISK TRENDS

Based on information available from CARB, overall cancer risk throughout the basin has had a declining trend since 1990. In 1998, following an exhaustive 10-year scientific assessment process, the State of California Air Resources Board (ARB) identified particulate matter from diesel-fueled engines as a toxic air contaminant. The SCAQMD initiated a comprehensive urban toxic air pollution study, called MATES-II (for Multiple Air Toxics Exposure Study). Diesel particulate matter (DPM) accounts for more than 70 percent of the cancer risk.

In 2008 the SCAQMD prepared an update to the MATES-II study, referred to as MATES-III. MATES-III estimates the average excess cancer risk level from exposure to TACs is an approximately 17% decrease in comparison to the MATES-II study.

Nonetheless, the SCAQMD's most recent in-depth analysis of the toxic air contaminants and their resulting health risks for all of Southern California was from the *Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES IV,"* which shows that cancer risk has decreased more than 55% between MATES III (2005) and MATES IV (2012) (25).

MATES-IV study represents the baseline health risk for a cumulative analysis. MATES-IV calculated cancer risks based on monitoring data collected at ten fixed sites within the South Coast Air Basin (SCAB). None of the fixed monitoring sites are within the local area of the Project site. However, MATES-IV has extrapolated the excess cancer risk levels throughout the basin by modeling the specific grids. MATES-IV modeling predicted an excess cancer risk of 757.29 in one million for the Project area. DPM is included in this cancer risk along with all other TAC sources. DPM accounts for 68% of the total risk shown in MATES-IV. Cumulative Project generated TACs are limited to DPM.

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3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will violate an air quality standard or contribute to an existing or projected air quality violation. Additionally, the Project has been evaluated to determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the SCAB is non-attainment under an applicable federal or state ambient air quality standard. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The SCAQMD has developed regional and localized significance thresholds for regulated pollutants, as summarized at Table 3-1 (32). The SCAQMD's CEQA Air Quality Significance Thresholds (March 2015) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact. It should be noted that the SCAQMD provides a threshold for emissions of lead, however for purposes of this analysis no lead emissions are calculated as there are no substantive sources of lead emissions. Additionally, the air quality modeling program (discussed below) does not calculate any emissions of lead from typical construction or operational activities.

TABLE 3-1: MAXIMUM DAILY EMISSIONS THRESHOLDS[A] (1 OF 2)

Pollutant	Construction	Operations
Regional Thresholds		
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

[A]: Based on SCAQMD Air Quality Significance Thresholds, March 2015

TABLE 3-1: MAXIMUM DAILY EMISSIONS THRESHOLDS[A] (2 OF 2)

Pollutant	Construction	Operations
Localized Thresholds		
NO_x	118 lbs/day (Demolition)	270 lbs/day
	220 lbs/day (Site Preparation)	
	237 lbs/day (Grading)	
CO	667 lbs/day (Demolition)	1,746 lbs/day
	1,359 lbs/day (Site Preparation)	
	1,488 lbs/day (Grading)	
PM_{10}	4 lbs/day (Demolition)	4 lbs/day
	11 lbs/day (Site Preparation)	
	12 lbs/day (Grading)	
$PM_{2.5}$	3 lbs/day (Demolition)	2 lbs/day
	6 lbs/day (Site Preparation)	
	7 lbs/day (Grading)	

3.3 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ EMPLOYED TO ESTIMATE AQ EMISSIONS

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (NO_x, VOC, PM_{10}, $PM_{2.5}$, SO_x, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (33). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendix 3.1 to 3.6.

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the Project will result in emissions of VOCs, NO_x, SO_x, CO, PM_{10}, and $PM_{2.5}$. Construction related emissions are expected from the following construction activities:

- Demolition
- Site Preparation
- Grading

- Building Construction
- Paving
- Architectural Coating

Construction is expected to commence in November 2018 and will last through May 2020 Construction duration by phase is shown on Table 3-2. The construction schedule utilized in the analysis represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[3] The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA guidelines. Site specific construction fleet may vary due to specific project needs at the time of construction. The duration of construction activity was based on a 2020 opening year. The associated construction equipment was generally based on CalEEMod 2016.3.2 defaults. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.1 of this analysis. A detailed summary of construction equipment assumptions by phase is provided at Table 3-3.

Dust is typically a major concern during rough grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). The CalEEMod model was utilized to calculate fugitive dust emissions resulting from this phase of activity. It is our understanding the Project site with require demolition of 22,599 square feet of existing building structures. Additionally, based on consultation with the client, the Project site is expected require 11,229 cubic yards of soil import.

Construction emissions for construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were estimated based on information from the applicant and the CalEEMod model.

TABLE 3-2: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Demolition	11/01/2018	11/28/2018	20
Site Preparation	11/29/2018	12/12/2018	10
Grading	12/13/2018	01/23/2019	30
Building Construction	01/24/2019	03/18/2020	300
Paving	03/19/2020	04/5/2020	20
Architectural Coating	03/19/2020	05/13/2020	40

[3] As shown in the California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2, Section 4.3 "OFFROAD Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Activity	Equipment	Number	Hours Per Day
Demolition	Concrete/Industrial Saws	1	8
	Excavators	3	8
	Rubber Tired Dozers	2	8
Site Preparation	Crawler Tractors	4	8
	Rubber Tired Dozers	3	8
Graders	Crawler Tractors	2	8
	Excavators	2	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Scrapers	2	8
Building Construction	Cranes	1	8
	Crawler Tractors	3	8
	Forklifts	3	8
	Generator Sets	1	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

3.4.1 CONSTRUCTION EMISSIONS SUMMARY

The SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1113 (Architectural Coatings) (2); Rule 431.2 (Low Sulfur Fuel) (34); Rule 403 (Fugitive Dust) (35); and Rule 1186 / 1186.1 (Street Sweepers) (36). As such, credit for Rule 1113 and Rule 403 have been taken.

The estimated maximum daily construction emissions without mitigation are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix 3.1. Under the assumed scenarios, emissions resulting from the Project construction would not exceed criteria pollutant thresholds established by the SCAQMD for emissions of any criteria pollutants.

TABLE 3-4: EMISSIONS SUMMARY OF CONSTRUCTION (WITHOUT MITIGATION)

Year	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
2018	6.31	84.59	38.80	0.11	11.19	6.88
2019	5.94	78.31	36.79	0.11	8.04	4.35
2020	32.14	43.12	25.40	0.07	3.68	2.10
Maximum Daily Emissions	**32.14**	**84.59**	**38.80**	**0.11**	**11.19**	**6.88**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Impacts with Mitigation

Although mitigation is not needed to reduce estimated maximum daily construction regional emissions, mitigation measures would be required to decrease localized emissions (please refer to the subsequent discussions at "Localized Significance"). Detailed construction model outputs are presented in Appendix 3.2. Implementation of these localized emissions mitigation measures would further reduce already less-than-significant regional emissions as indicated at Table 3.5.

TABLE 3-5: EMISSIONS SUMMARY OF CONSTRUCTION (WITH MITIGATION)

Year	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
2018	5.44	76.14	40.21	0.11	10.19	6.00
2019	5.11	70.55	38.32	0.11	7.69	4.04
2020	32.14	38.23	27.61	0.07	3.50	1.95
Maximum Daily Emissions	**32.14**	**76.14**	**40.21**	**0.11**	**10.19**	**6.00**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of VOCs, NO_x, SO_x, CO, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions

3.5.1 AREA SOURCE EMISSIONS

Architectural Coatings

Over a period of time the buildings that are part of this Project will be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of Project maintenance. The emissions associated with architectural coatings were calculated using the CalEEMod model.

Consumer Products

Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on assumptions provided in the CalEEMod model. In the case of the industrial uses proposed by the Project, no substantive on-site use of consumer products is anticipated.

Landscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in the CalEEMod model.

3.5.2 ENERGY SOURCE EMISSIONS

Combustion Emissions Associated with Natural Gas and Electricity

Electricity and natural gas are used by almost every project. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits (RECLAIM) for generation within the SCAB, criteria pollutant emissions from offsite generation of electricity is generally excluded from the evaluation of significance and only natural gas use is considered. The emissions associated with natural gas use were calculated using the CalEEMod model.

3.5.3 MOBILE SOURCE EMISSIONS

Vehicles

Project-related operational air quality impacts derive predominantly from mobile sources. In this regard, approximately 90 percent (by weight) of all Project operational-source emissions would be generated by mobile sources (vehicles). The Project related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the report, Baseline/Alder Warehouse Project Traffic Impact Analysis (Dudek 2018) were utilized in this analysis (37).

Per the Baseline/Alder Warehouse Project Traffic Impact Analysis, the Project is expected to generate a net total of approximately 910 trip-ends per day (actual vehicles) (37). The net

Project trip generation includes 364 truck trip-ends per day from the proposed buildings within the Project site including 1.97% 2-axle trucks, 28.02% 3-axle trucks, and 70.01% 4+-axle trucks.

3.5.3.1 Trip Length

Background

A technical deficiency inherent in calculating the projected vehicle emissions associated with any project is related to the estimation of trip length and vehicle miles traveled (VMT). VMT for a given project is calculated by the total number of vehicle trips to/from the Project x average trip length. This method of estimating VMT for use in calculating vehicle emissions likely results in the over-estimation and double-counting of emissions because, for a distribution warehouse center such as the Project, the land use is likely to attract (divert) existing vehicle trips that are already on the circulation system as opposed to generating new trips. In this regard, the Project would, to a large extent, redistribute existing mobile-source emissions rather than generate additional emissions within the Basin. As such, the estimation of the Baseline/Alder Warehouse Project's vehicular-source emissions are likely overstated in that no credit for, or reduction in, emissions is assumed based on diversion of existing trips.

Provided below is a summary of the VMT recommendations of the SCAQMD and SCAG, followed by a description of the methodology used to calculate the VMT rates used in this AQIA.

SCAQMD Recommendation

In the last five years, the SCAQMD has provided numerous comments on the trip length for warehouse/distribution and industrial land use projects (38). The SCAQMD asserts that the model-default trip length in CalEEMod™ and the URBan EMISsions (URBEMIS) 2007 model (version 9.2.4) would underestimate emissions. The SCAQMD asserts that for warehouse, distribution center, and industrial land use projects, most of the heavy-duty trucks would be hauling consumer goods, often from the Ports of Long Beach and Los Angeles (POLA and POLB) and/or to destinations outside of California. The SCAQMD states that for this reason, the CalEEMod™ and the URBan EMISsions model default trip length (approximately 12.6 miles) would not be representative of activities at like facilities. The SCAQMD generally recommends the use of a 40-mile one-way trip length.

Southern California Association of Government (SCAG) Heavy Duty Truck Model

SCAG is comprised of six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 190 cities in Southern California, and is the organization charged with addressing and resolving short- and long-term regional policy issues. The SCAG region also consists of 14 sub-regional entities recognized by the Regional Council as partners in the regional policy planning process. The SCAG region has more than 19 million residents and encompasses more than 38,000 square miles, representing the largest and most diverse region in the country.

SCAG maintains a regional transportation model. In its most recent (2008) transportation validation for the 2003 Regional Model, SCAG indicates the average internal truck trip length

for the SCAG region is 5.92 miles for Light Duty Trucks, 13.06 miles for Medium Duty Trucks, and 24.11 miles for Heavy Duty Trucks.

Approach for Analysis of the Project

The SCAQMD approach identified above is deemed to be the most applicable for the Project. This same methodology is employed in analyses for similar projects in the City and is considered by the Lead Agency to be appropriate and accurate.

Two separate model runs were utilized in order to more accurately model emissions resulting from vehicle operations. The first run analyzed passenger car emissions, which incorporated a default trip length of 16.6 miles for passenger cars within San Bernardino County and a fleet mix of 100% Light-Duty-Auto vehicles (LDA). The second run analyzed truck emissions, which incorporated an average truck trip length of 40 miles and a fleet mix of: 1.97% of Light-Heavy-Duty (LHD), 28.02% of Medium-Heavy-Duty (MHD), and 70.01% of Heavy-Heavy-Duty (HHD) for warehousing uses. This proportional truck mix by axle type is based on information provided in the Project's traffic study. The estimated emissions resulting from vehicle operations are summarized in Section 3.5.4 (presented later in this report.) Detailed emission calculations are provided in Appendix 3.3 to 3.6.

Fugitive Dust Related to Vehicular Travel

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of tire wear particulates. The emissions estimates for travel on paved roads were calculated using the CalEEMod model.

3.5.4 Operational Emissions Summary

Impacts Without Mitigation

Operational-source emissions without implementation of mitigation measures are summarized on Table 3-6. Detailed construction model outputs are presented in Appendix 3.3 to 3.6. As indicated, the Project would exceed regional thresholds of significance established by the SCAQMD for emissions of NO_x.

TABLE 3-6: SUMMARY OF PEAK OPERATIONAL EMISSIONS (1 OF 2)

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source	5.76	4.60E-04	0.05	0.00	1.80E-04	1.80E-04
Energy Source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (Passenger Cars)	0.85	1.22	17.63	0.06	6.92	1.86
Mobile (Trucks)	3.47	115.12	22.54	0.46	13.91	4.44
Total Maximum Daily Emissions	**10.09**	**116.48**	**40.34**	**0.52**	**20.84**	**6.31**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

TABLE 3-6: SUMMARY OF PEAK OPERATIONAL EMISSIONS (2 OF 2)

Operational Activities – Winter Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source	5.76	4.60E-04	0.05	0.00	1.80E-04	1.80E-04
Energy Source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (Passenger Cars)	0.69	1.28	14.19	0.05	6.92	1.86
Mobile (Trucks)	3.54	117.75	23.91	0.45	13.91	4.45
Total Maximum Daily Emissions	**10.01**	**119.17**	**38.27**	**0.51**	**20.84**	**6.32**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

Impacts With Mitigation Measures

Operational-source emissions with implementation of mitigation measures are summarized on Tables 3-7 and 3-8. MM AQ-2 Option A and Option B are recommended to reduce the NO_x impacts to less than significant levels. After implementation of either Option A or Option B of MM AQ-2, Project operational-source emissions would not exceed the applicable SCAQMD thresholds for any criteria pollutant and a less than significant impact would occur.

TABLE 3-7: SUMMARY OF OPERATIONAL EMISSIONS (WITH MITIGATION OPTION A)

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source	5.76	4.60E-04	0.05	0.00	1.80E-04	1.80E-04
Energy Source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (Passenger Cars)	0.85	1.22	17.63	0.06	6.92	1.86
Mobile (Trucks)	1.56	51.98	10.32	0.21	627	2.01
Total Maximum Daily Emissions	**8.19**	**53.34**	**28.12**	**0.27**	**13.21**	**3.88**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Operational Activities – Winter Scenario	**Emissions (pounds per day)**					
	VOC	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Area Source	5.76	4.60E-04	0.05	0.00	1.80E-04	1.80E-04
Energy Source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (Passenger Cars)	0.69	1.28	14.19	0.05	6.92	1.86
Mobile (Trucks)	1.60	53.02	10.77	0.20	6.26	2.00
Total Maximum Daily Emissions	**8.06**	**54.44**	**25.12**	**0.26**	**13.20**	**3.87**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

TABLE 3-8: SUMMARY OF OPERATIONAL EMISSIONS (WITH MITIGATION OPTION B)

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source	5.76	4.60E-03	0.05	0.00	1.80E-04	1.80E-04
Energy Source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (Passenger Cars)	0.85	1.22	17.63	0.06	6.92	1.86
Mobile (Trucks)	2.00	52.71	13.00	0.26	8.02	2.56
Total Maximum Daily Emissions	**8.62**	**54.07**	**30.80**	**0.33**	**14.96**	**4.43**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Operational Activities – Winter Scenario	**Emissions (pounds per day)**					
	VOC	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Area Source	5.76	4.60E-03	0.05	0.00	1.80E-04	1.80E-04
Energy Source	0.02	0.14	0.12	8.40E-04	0.01	0.01
Mobile (Passenger Cars)	0.69	1.28	14.19	0.05	6.92	1.86
Mobile (Trucks)	2.04	53.42	13.79	0.26	8.02	2.56
Total Maximum Daily Emissions	**8.51**	**54.84**	**28.15**	**0.32**	**14.95**	**4.44**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.6 LOCALIZED SIGNIFICANCE- CONSTRUCTION ACTIVITY

BACKGROUND ON LOCALIZED SIGNIFICANCE THRESHOLD (LST) DEVELOPMENT

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (Methodology) (19). The SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as Localized Significance Thresholds (LSTs).

The significance of localized emissions impacts depends on whether ambient levels in the vicinity of any given project are above or below State standards. In the case of CO and NO_2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$; both of which are non-attainment pollutants.

The SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air

quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses.

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (LST Methodology) (39).

EMISSIONS CONSIDERED

SCAQMD's Methodology clearly states that "off-site mobile emissions from the Project should NOT be included in the emissions compared to LSTs (40)." Therefore, for purposes of the construction LST analysis only emissions included in the CalEEMod "on-site" emissions outputs were considered.

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate Source Receptor Area (SRA) for the LST is the Central San Bernardino Valley monitoring station (SRA 34). LSTs apply to carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter ≤ 10 microns (PM_{10}), and particulate matter ≤ 2.5 microns ($PM_{2.5}$). The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.

In order to determine the appropriate methodology for determining localized impacts that could occur as a result of Project-related construction, the following process is undertaken:

- The CalEEMod model is utilized to determine the maximum daily on-site emissions that will occur during construction activity.
- The SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (21) is used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod.
- If the total acreage disturbed is less than or equal to five acres per day, then the SCAQMD's screening look-up tables are utilized to determine if a Project has the potential to result in a significant impact (the SCAQMD recommends that Projects exceeding the screening look-up tables undergo dispersion modeling to determine actual impacts). The look-up tables establish a maximum daily emissions threshold in pounds per day that can be compared to CalEEMod outputs.

MAXIMUM DAILY DISTURBED-ACREAGE

Table 3-9 is used to determine the maximum daily disturbed-acreage for purposes of modeling localized emissions. As shown, the proposed Project could actively disturb approximately 1.0 acre per day during demolition, 3.5 acres per day during site preparation, and 4.0 acres per day during grading activities.

TABLE 3-9: MAXIMUM DAILY DISTURBED-ACREAGE

Construction Phase	Equipment Type	Equipment Quantity	Acres graded per 8-hour day	Operating Hours per Day	Acres graded per day
Demolition	Crawler Tractors	0	0.5	8	0
	Graders	0	0.5	8	0
	Rubber Tired Dozers	2	0.5	8	1
	Scrapers	0	1	8	0
Total acres graded per day during Demolition					1.0
Construction Phase	**Equipment Type**	**Equipment Quantity**	**Acres graded per 8-hour day**	**Operating Hours per Day**	**Acres graded per day**
Site Preparation	Crawler Tractors	4	0.5	8	2
	Graders	0	0.5	8	0
	Rubber Tired Dozers	3	0.5	8	1.5
	Scrapers	0	1	8	0
Total acres graded per day during Site Preparation					3.5
Construction Phase	**Equipment Type**	**Equipment Quantity**	**Acres graded per 8-hour day**	**Operating Hours per Day**	**Acres graded per day**
Grading	Crawler Tractors	2	0.5	8	1
	Graders	1	0.5	8	0.5
	Rubber Tired Dozers	1	0.5	8	0.5
	Scrapers	2	1	8	2
Total acres graded per day during Grading					4.0

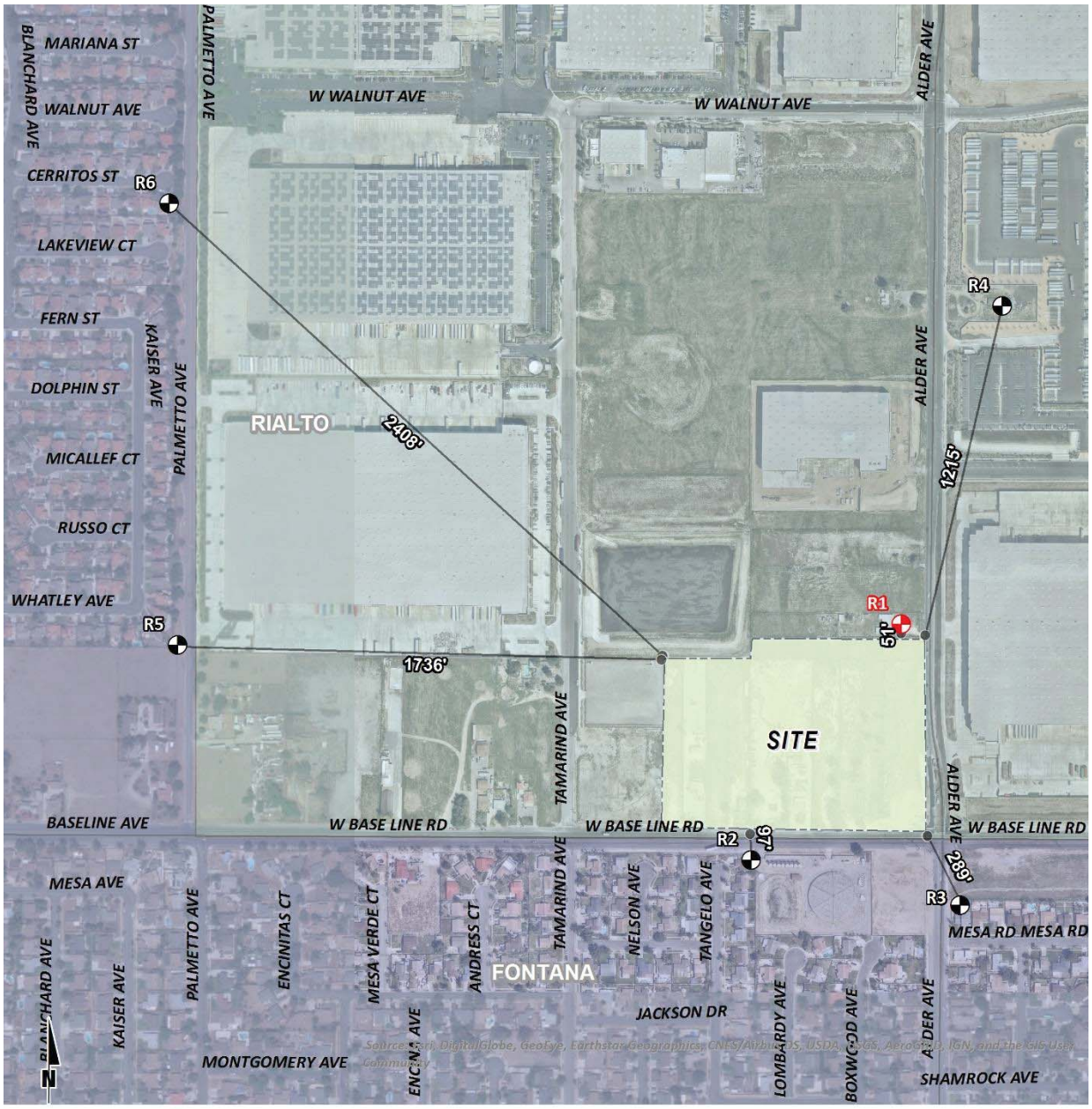
Sensitive Receptors

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, individuals with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as "sensitive receptors"; they are also known to be locations where an individual can remain for 24 hours. Sensitive receptors relative to the Project study area include existing residential homes, as described below, at locations R1 to R6. As shown on Exhibit 3-A, the nearest sensitive receptor is R1, a single-family residence located north of the Project site, approximately 51 feet/15.54 meters from the Project Site.

R1: Located approximately 51 feet north of the Project site, R1 represents an existing residential home west of Alder Avenue.

R2: Location R2 represents existing residential community located approximately 97 feet south of the Project site, south of Baseline Road.

EXHIBIT 3-A: SENSITIVE RECEPTOR LOCATIONS



Legend

Residential Receptor

TYPE

- Residential Receptor (R1)
- Maximally Exposed Individual Residential Receptor

R3: Location R3 represents existing residential community located roughly 289 feet southeast of the Project site, south of Baseline Road.

R4: Location R4 represents existing residential home located roughly 1,215 feet northeast of the Project site, east of Alder Avenue.

R5: Location R5 represents existing residential community located roughly 1,736 feet west of the Project site, west of Palmetto Avenue.

R6: Location R6 represents existing residential community located roughly 2,408 feet northwest of the Project site, west of Palmetto Avenue.

CONSTRUCTION-SOURCE EMISSIONS LST ANALYSIS

Since the total acreage disturbed is less than five acres per day for the demolition, site preparation, and grading phase of construction, the SCAQMD's screening look-up tables are utilized in determining impacts. A 25-meter receptor distance is conservatively utilized as a screening threshold to determine the LSTs for emissions of CO, NO_2, PM_{10}, and $PM_{2.5}$.

Impacts without Mitigation

Table 3-10 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. Outputs from the model runs for construction LSTs are provided in Appendix 3.1. It should be noted that credit for BACMs AQ-1 and AQ-2 has been taken. As shown, localized construction emissions would exceed the applicable SCAQMD LSTs for $PM_{2.5}$ during site preparation activities.

TABLE 3-10: LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITHOUT MITIGATION)

On-Site Demolition Emissions	Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**38.32**	**22.30**	**2.37**	**1.87**
SCAQMD Localized Threshold	118	667	4	3
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Site Preparation Emissions	**Emissions (pounds per day)**			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**71.60**	**23.73**	**10.99**	**6.83**
SCAQMD Localized Threshold	220	1,359	11	6
Threshold Exceeded?	**NO**	**NO**	**NO**	**YES**
On-Site Grading Emissions	**Emissions (pounds per day)**			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**71.22**	**35.72**	**6.72**	**4.12**
SCAQMD Localized Threshold	237	1,488	12	7
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Impacts with Mitigation

Table 3-11 identifies the localized impacts at the nearest receptor location in the vicinity of the Project with implementation of MM AQ-1. After implementation of MM AQ-1, construction

emissions would not exceed the applicable SCAQMD LSTs for any criteria pollutant. Therefore, a less than significant impact would occur. Outputs from the model runs for mitigated construction LSTs are provided in Appendix 3.2.

TABLE 3-11: LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITH MITIGATION)

On-Site Demolition Emissions	Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**38.32**	**22.30**	**2.37**	**1.87**
SCAQMD Localized Threshold	118	667	4	3
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Site Preparation Emissions	**Emissions (pounds per day)**			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**50.45**	**26.64**	**9.99**	**5.94**
SCAQMD Localized Threshold	220	1,359	11	6
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Grading Emissions	**Emissions (pounds per day)**			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**71.22**	**35.72**	**6.72**	**4.12**
SCAQMD Localized Threshold	237	1,488	12	7
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

3.7 LOCALIZED SIGNIFICANCE – LONG-TERM OPERATIONAL ACTIVITY

The Project is located on an 11.48-acre parcel. As noted previously, the LST methodology provides look-up tables for sites with an area with daily disturbance of 5 acres or less. For projects that exceed 5 acres, the 5-acre LST look-up tables can be used as a screening tool to determine which pollutants require additional detailed analysis. This approach is conservative as it assumes that all on-site emissions associated with the project would occur within a concentrated 5-acre area. This screening method would therefore over-predict potential localized impacts, because by assuming that on-site operational activities are occurring over a smaller area, the resulting concentrations of air pollutants are more highly concentrated once they reach the smaller site boundary than they would be for activities if they were spread out over a larger surface area. On a larger site, the same amount of air pollutants generated would disperse over a larger surface area and would result in a lower concentration once emissions reach the project-site boundary. As such, LSTs for a 5-acre site during operations are used as a screening tool to determine if further detailed analysis is required.

Table 3-12 shows the calculated emissions for the Project's operational activities compared with the applicable LSTs. The LST analysis includes on-site sources only; however, the CalEEMod™ model outputs do not separate on-site and off-site emissions from mobile sources. In an effort to establish a maximum potential impact scenario for analytic purposes, the emissions shown on Table 3-12 represent all on-site Project-related stationary (area) sources and five percent (5%) of the Project-related mobile sources. Considering that the weighted trip

length used in CalEEMod™ for the Project is approximately 40 miles for trucks and passenger cars, 5% of this total would represent an on-site travel distance of approximately 2.0 mile/ 10,560 feet for each vehicle. Thus the 5% assumption is conservative and would tend to overstate the actual impact. Modeling based on these assumptions demonstrates that even within broad encompassing parameters, Project operational-source emissions would not exceed applicable LSTs.

The nearest sensitive receptor land use is immediately adjacent of the Project site. As previously noted, a 25-meter receptor distance is utilized to determine the LSTs for emissions of NO_x, CO, PM_{10}, and $PM_{2.5}$.

LOCALIZED THRESHOLDS FOR OPERATIONAL ACTIVITY

Applicable localized thresholds from the SCAQMD's mass-rate LST lookup tables for a five-acre project site are as follows:

- NO_x: 270 pounds per day;
- CO: 1,746 pounds per day.
- PM_{10}: 4 pounds per day;
- $PM_{2.5}$: 2 pounds per day; or

If emissions exceed the applicable LST thresholds for operational activity, then additional dispersion modeling needs to be conducted to determine if there is an actual exceedance of the AAQS.

As shown on Table 3-12, operational emissions will not exceed the LST thresholds for the nearest sensitive receptor. Therefore, the Project will have a less than significant localized impact during operational activity.

TABLE 3-12: LOCALIZED SIGNIFICANCE OPERATIONS SUMMARY

Operational Activity	Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**5.96**	**2.18**	**1.05**	**0.33**
SCAQMD Localized Threshold	270	1,746	4	2
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

3.8 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific carbon monoxide (CO) "hot spots" is not needed to reach this conclusion.

An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the SCAB was designated nonattainment under the California AAQS and National AAQS for CO (41).

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment, as previously noted in Table 2-2. Also, CO concentrations in the Project vicinity have steadily declined, as indicated by historical emissions data presented previously at Table 2-3.

To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 3-13.

TABLE 3-13: CO MODEL RESULTS

Intersection Location	Carbon Monoxide Concentrations (parts per million)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire-Veteran	4.6	3.5	3.7
Sunset-Highland	4	4.5	3.5
La Cienega-Century	3.7	3.1	5.2
Long Beach-Imperial	3	3.1	8.4

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations
Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

To identify CO hotspots, the SCAQMD follows the South Coast Air Quality Management District's criterion. As identified within SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 8.4 ppm CO concentration measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 7.7 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (41). Therefore, even if the traffic volumes for the proposed Project were double or even triple of the traffic volumes generated at the Long Beach Blvd. and Imperial Hwy. intersection, coupled with the on-going improvements in ambient air quality, the Project would not be capable of resulting in a CO "hot spot" at any study area intersections.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (42).

Traffic volumes generating the CO concentrations for the "hot spot" analysis, shown on Table 3-14. The busiest intersection evaluated was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day. The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).[4] At buildout of the Project, the highest daily traffic volumes generated at the roadways within the vicinity of the Project are expected to generate less than the highest daily traffic volumes generated at the busiest intersection in the CO "hot spot" analysis. As such, the Project would not likely exceed the most stringent 1-hour CO standard. At buildout of the Project, the highest average daily trips on a segment of road would be 51,626 daily trips on south Alder Avenue and I-210 Eastbound Ramps which is lower than the highest daily traffic volumes generated at the busiest intersection in the CO "hot spot" analysis (37).

TABLE 3-14: TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vehicles per hour)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Wilshire-Veteran	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset-Highland	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega-Century	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach-Imperial	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: 2003 AQMP

The proposed Project considered herein would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study, or based on representative BAAQMD CO threshold considerations, as shown on Table 3-15. Therefore, CO "hot spots" are not an environmental impact of concern for the proposed Project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

TABLE 3-15: PROJECT PEAK HOUR TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
Alder Av./I-210 EB Ramps	1,622/1,706	2,190/1,790	724/1,299	0/0	4,536/4,795
Alder Av./Renaissance Pkwy.	1,625/2,151	1,861/1,435	1,065/1,808	375/391	4,926/5,785
Alder Av./Baseline Rd.	2,969/1,188	844/1,169	1,267/1,225	923/758	6,003/4,340
Ayala Drive/Cedar Av./Baseline Rd.	1,031/1,202	1,237/1,416	677/1,086	1,190/1,160	4,135/4,864

Source: Baseline/Alder Warehouse Traffic Impact Analysis (Dudek., 2018).

4 Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

3.9 AIR QUALITY MANAGEMENT PLANNING

The Project site is located within the SCAB, which is characterized by relatively poor air quality. The SCAQMD has jurisdiction over an approximately 10,743 square-mile area consisting of the four-county Basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. In these areas, the SCAQMD is principally responsible for air pollution control, and works directly with the Southern California Association of Governments (SCAG), county transportation commissions, local governments, as well as state and federal agencies to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient air quality standards.

Currently, these state and federal air quality standards are exceeded in most parts of the Basin. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

In March 2017, the AQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (22). Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories (43). The Project's consistency with the AQMP will be determined using the 2016 AQMP as discussed below.

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook (1993) (25). These indicators are discussed below:

- Consistency Criterion No. 1: The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

Construction Impacts

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if localized significance thresholds (LSTs) or regional significance thresholds were exceeded. The Project would not exceed the applicable LST thresholds or regional significance thresholds for construction activity. Therefore, the Project would not conflict with the AQMP according to this criterion.

Operational Impacts

The Project would not exceed the applicable LST thresholds or regional significance thresholds (after mitigation) for operational activity. Therefore, the Project would not conflict with the AQMP according to this criterion.

On the basis of the preceding discussion, the Project is consistent with the first criterion.

- Consistency Criterion No. 2: The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

Overview

The 2016 AQMP demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the Southern California Association of Governments (SCAG), which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in City of Rialto General Plan is considered to be consistent with the AQMP.

Construction Impacts

Peak day emissions generated by construction activities are largely independent of land use assignments, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities.

Operational Impacts

The Project is located within both the Rialto Airport Specific Plan and the Renaissance Specific Plan. The northwestern portion of the Project site that is located within the Rialto Airport Specific Plan is zoned as Planned Industrial Development (I-PID). The I-PID designation allows of light industrial and industrial/business park uses (44). The remaining portion of the Project is located within the Renaissance Specific Plan and is designated as "Employment (EMP)". This land use designation accommodates a mixture of professional office, light industrial, research and development, business park, light manufacturing, assembly, and related storage and support services uses. The southeastern corner of the Project site is designated as EMP with a Commercial Overlay. The Commercial Overlay allows for the development of general commercial land uses which include convenience retail and service uses that would serve the local community (45). The Project consist of the development of up to 255,655 square feet (sf) of industrial/warehouse use on an approximately 11.48-acre site. The Project land uses are generally consistent with the land uses allowed under the City land use designations for the Project site. As such, the Project would be consistent with the growth projections and no changes are proposed to these existing designations.

AQMP Consistency Conclusion

The Project would not result in or cause NAAQS or CAAQS violations. The Project's proposed land use designation for the subject site is permitted/conditionally permitted in the adopted City General Plan. The Project is therefore consistent with the AQMP.

3.10 POTENTIAL IMPACTS TO SENSITIVE RECEPTORS

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, child care centers, and athletic facilities can also be considered as sensitive receptors.

The proposed Project would not result in a CO "hotspot" as a result of Project related traffic during ongoing operations, nor would the Project result in a significant adverse health impact as discussed in Section 3.8. Thus, a less than significant impact to sensitive receptors during operational activity is expected.

3.11 ODORS

Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills or various heavy industrial uses. The Project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the Project would include disposal of miscellaneous commercial refuse. Consistent with City requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations, thereby precluding substantial generation of odors due to temporary holding of refuse on-site. Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances (46).

3.12 CUMULATIVE IMPACTS

Related projects could contribute to an existing or projected air quality exceedance because the Basin is currently nonattainment for ozone, PM_{10}, and $PM_{2.5}$.

The SCAQMD relies on the SCAQMD guidance for determining cumulative impacts. The SCAQMD has recognized that there is typically insufficient information to quantitatively evaluate the cumulative contributions of multiple projects because each project applicant has no control over nearby projects.

Related projects could contribute to an existing or projected air quality exceedance because the Basin is currently nonattainment for ozone, PM_{10}, and $PM_{2.5}$.

The SCAQMD published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (47). In this report the AQMD clearly states (Page D-3):

"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable. As previously noted, the Project will not exceed the applicable SCAQMD regional threshold for construction and operational-source emissions. As such, the Project will not result in a cumulatively significant impact for construction or operational activity.

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4 CONCLUSION

The results of this Baseline/Alder Warehouse Air Quality Impact Analysis are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table 4-1 shows the findings of significance for each potential air quality impact under CEQA before and after any required mitigation measures described below.

CONSTRUCTION MITIGATION MEASURES

The Project has the potential to exceed the localized significance thresholds for emissions of $PM_{2.5}$. Mitigation measure MM AQ-1 is required to reduce emissions of $PM_{2.5}$ to less than significant levels. After implementation of MM AQ-1, Project construction-source emissions would not exceed the localized significance thresholds for any criteria pollutant and a less than significant impact would occur.

OPERATIONAL MITIGATION MEASURES

The Project has the potential to exceed the threshold of significance for emissions of NO_x. Mitigation measure MM AQ-2 (Option A or B) is required to reduce emissions of NO_x to less than significant levels. After implementation of either Option A or Option B of MM AQ-2, Project operational-source emissions would not exceed the applicable SCAQMD thresholds for any criteria pollutant and a less than significant impact would occur.

TABLE 4-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Construction Emissions	3.4	*Potentially Significant*	*Less Than Significant*
Operational Emissions	3.5	*Potentially Significant*	*Less Than Significant*
CO "Hot Spot" Analysis	3.8	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.9	*Less Than Significant*	*n/a*
Sensitive Receptors	3.10	*Less Than Significant*	*n/a*
Odors	3.11	*Less Than Significant*	*n/a*
Cumulative Impacts	3.12	*Potentially Significant*	*Less Than Significant*

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6 CERTIFICATION

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed Baseline/Alder Warehouse Project. The information contained in this air quality impact assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 2.1:

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APPENDIX 3.1:

CALEEMOD CONSTRUCTION (UNMITIGATED) EMISSIONS MODEL OUTPUTS

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APPENDIX 3.2:

CALEEMOD CONSTRUCTION (MITIGATED) EMISSIONS MODEL OUTPUTS

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APPENDIX 3.4:

CALEEMOD OPERATIONAL (TRUCKS) EMISSIONS MODEL OUTPUTS

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APPENDIX 3.5:

CALEEMOD OPERATIONAL (OPTION A) EMISSIONS MODEL OUTPUTS

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APPENDIX 3.6:

CALEEMOD OPERATIONAL (OPTION B) EMISSIONS MODEL OUTPUTS

Baseline/Alder Warehouse

GREENHOUSE GAS ANALYSIS

CITY OF RIALTO

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LIST OF ABBREVIATED TERMS

(1)	Reference
ARB	California Air Resources Board
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CAT	Climate Action Team
CBSC	California Building Standards Commission
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
EPA	Environmental Protection Agency
EPS	Emission Performance Standard
GCC	Global Climate Change
GHGA	Greenhouse Gas Analysis
GHG Plan	Greenhouse Gas Plan
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
LCA	Life-Cycle Analysis
MMs	Mitigation Measures
$MMTCO_2e$	Million Metric Ton of Carbon Dioxide Equivalent
$MTCO_2e$	Metric Ton of Carbon Dioxide Equivalent
N_20	Nitrogen Dioxide
NIOSH	National Institute for Occupational Safety and Health
NO_x	Oxides of Nitrogen
PFC	Perfluorocarbons
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less

PPM	Parts Per Million
Project	Baseline/Alder Warehouse
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile Organic Compounds

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EXECUTIVE SUMMARY

GHG Impact #1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.

The City of Rialto does not have an adopted threshold of significance for GHG emissions. For CEQA purposes, the City has discretion to select an appropriate significance criterion, based on substantial evidence. The AQMD's adopted numerical threshold of 10,000 $MTCO_2e$ per year for industrial stationary source emissions is selected as the significance criterion. The AQMD-adopted industrial threshold was selected by the City because the proposed Project is analogous to an industrial use much more closely than any other land use such as commercial or residential in terms of its expected operating characteristics. The Project proposes a single industrial/warehouse building, characteristic of an industrial operation. Further, analysis of the Project's traffic generation is based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017 for industrial and warehouse uses. Also, 10,000 $MTCO_2e$ has been used as the significance threshold by many local government lead agencies for logistics projects throughout the SCAG region since the AQMD adopted this threshold for its own use. Further, to ensure that the threshold is conservative in its application, although the AQMD uses their adopted 10,000 $MTCO_2e$ threshold to determine the significance of stationary source emissions for industrial projects, the 10,000 $MTCO_2e$ threshold used in this analysis is applied to all sources of Project-related GHG emissions whether stationary source, mobile source, area source, or other.

Use of this threshold is also consistent with guidance provided in the CAPCOA *CEQA and Climate Change* handbook, as such the City has opted to use a non-zero threshold approach based on Approach 2 of the handbook. Threshold 2.5 (Unit-Based Thresholds Based on Market Capture) establishes a numerical threshold based on capture of approximately 90 percent of emissions from future development. The latest threshold developed by SCAQMD using this method is 10,000 metric tons carbon dioxide equivalent ($MTCO_2E$) per year for industrial projects. This threshold is based on the review of 711 CEQA projects.

As shown on Table ES-1, the Project will result in approximately 9,585.76 $MTCO_2e$ per year; the proposed project would not exceed the SCAQMD/City's screening threshold of 10,000 $MTCO_2e$ per year. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change and no mitigation or further analysis is required.

TABLE ES-1: PROJECT-RELATED GREENHOUSE GAS EMISSIONS

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	41.79	0.01	0.00	41.99
Area	0.01	3.00E-05	0.00	0.01
Energy	230.33	0.01	2.24E-03	231.22
Mobile Sources (Passenger Cars)	907.85	0.02	0.00	908.32
Mobile Sources (Trucks)	7,949.81	0.28	0.00	7,956.73
Waste	48.78	2.88	0.00	120.86
Water Usage	264.04	1.94	0.05	326.63
Total CO_2E (All Sources)	**9,585.76**			
Screening Threshold (CO_2E)	**10,000**			
Threshold Exceeded?	**NO**			

Source: CalEEMod™ model output, See Appendix 3.1 and 3.2 for detailed model outputs.
Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.
Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as x 10^{b}") and is followed by the value of the exponent

GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

The Project would be consistent with and would not conflict with implementation of the goals and objectives established by Assembly Bill 32 (AB 32) and Senate Bill 32 (SB 32) (or targets established by Executive Orders S-3-05 and B-30-15) as evaluated in Section 3.7 of this report. As such, the Project would result in a less than significant impact with respect to this threshold.

TABLE ES-2: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact 1	3.0	*Less Than Significant*	*n/a*
GHG Impact 2	3.0	*Less Than Significant*	*n/a*

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1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the proposed Baseline/Alder Warehouse (referred to as "Project"). The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed Baseline/Alder Warehouse Project is located on the northwest corner of the intersection of Baseline Road and Alder Avenue in the City of Rialto.

1.2 PROJECT DESCRIPTION

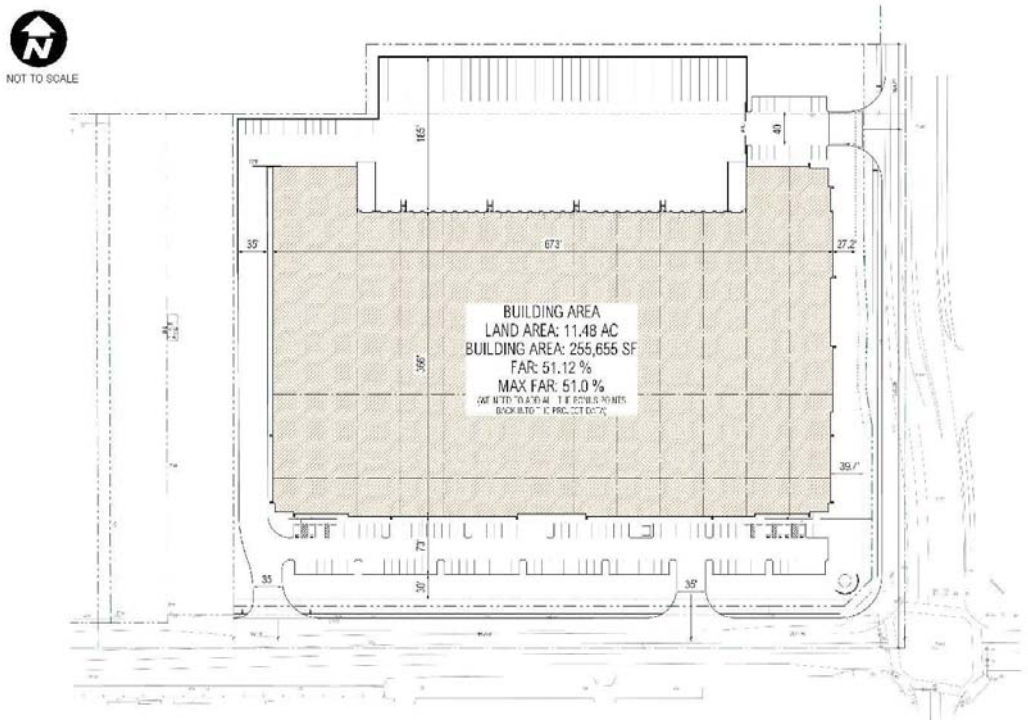
It is our understanding that the Project is proposed to consist of up to 255,655 square feet (sf), one-story industrial/warehouse building on an approximately 11.48-acre site, as shown on Exhibit 1-A. For the purposes of this analysis, the Project is anticipated to be developed in a single phase with an Opening Year of 2020.

1.3 REGULATORY REQUIREMENTS

The Project would be required to comply with regulations imposed by the State of California and the South Coast Air Quality Management District aimed at the reduction of air pollutant emissions. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of greenhouse gas emissions include:

- Global Warming Solutions Act of 2006 (AB32) (1). AB 32 is applicable to the Project because, as a development Project, the Baseline/Alder Warehouse Project will need to meet 2020 GHG reduction goals set forth in AB 32. AB 32 requires the California Air Resources Board (CARB or ARB) to develop regulations and market mechanisms to reduce California's greenhouse gas emissions to 1990 levels by the year of 2020. Many of the GHG reduction measures outlined in AB 32 (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted over the last five years and implementation activities are ongoing.
- Pavley Fuel Efficiency Standards (AB1493). Establishes fuel efficiency ratings for new vehicles (2). AB 1493 (Pavley) establishes fuel efficiency rating for model year 2009-2016 passenger cars and light trucks. AB 1493 is applicable to the Project because model year 2009-2016 passenger cars and light duty truck vehicles traveling to and from the Project site are required by the State of California to implement GHG emission reduction standards related to fuel efficiency. The CARB anticipates that implementation of the Pavley regulations will reduce GHG emissions from California passenger vehicles by about 30 percent in 2016 compared to emissions that occurred prior to 2009 when AB 1492 was enacted.
- Title 24 California Code of Regulations (California Building Code). Establishes energy efficiency requirements for new construction (3). The Title 24 energy standards address the energy efficiency of new (and altered) homes and commercial buildings. Because energy efficiency

EXHIBIT 1-A: SITE PLAN



reduces energy costs, increases reliability and availability of electricity, improves building occupant comfort, and reduces impacts to the environment, standards are important and necessary for California's energy future. Therefore, a new development such as the Baseline/Alder Warehouse Project is required to comply with Title 24 Code of Regulations and would therefore increase the Project's energy efficiency and reduce its environmental impact.

- Title 17 California Code of Regulations (Low Carbon Fuel Standard). Requires carbon content of fuel sold in California to be 10% less by 2020 (4). Because the LCFS applies to any transportation fuel that is sold, supplied, or offered for sale in California, and to any person who, as a regulated party, is responsible for a transportation fuel in a calendar year, all vehicles accessing the site will be required to comply with LCFS. Implementation of such a standard will reduce greenhouse gas emissions by reducing the full fuel-cycle, carbon intensity of the transportation fuel pool used in California.
- California Water Conservation in Landscaping Act of 2006 (AB1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes (5). As new development project within the State of California, the Baseline/Alder Warehouse Project is required to comply with the City of Rialto's adopted water efficient landscape requirements and would therefore be consistent with the requirements of AB1881 in order to help conserve California's water resources and to promote efficient water use.
- Senate Bill 32 (SB 32). Requires the state to reduce statewide greenhouse gas emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide greenhouse gas reduction target of 80% below 1990 levels by 2050 (6) (7).

1.4 CONSTRUCTION-SOURCE AIR POLLUTANT EMISSIONS MITIGATION MEASURES

The Project Air Quality Impact Analysis (AQIA) establishes construction activity mitigation measures that would globally reduce air pollutant emissions generated by subsequent development proposals within the Project site. Although these measures could act to reduce GHG emissions, there is insufficient data to support any reductions associated with the construction activity mitigation measures identified in the AQIA. Thus, as a conservative measure no reduction in GHG emissions are taken for construction activity mitigation measures identified in the AQIA.

1.5 OPERATIONAL-SOURCE MITIGATION MEASURES

The Project would not result in a significant impact with respect to greenhouse gas emissions. Therefore, no mitigation measures are proposed.

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2 BACKGROUND

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE

Global Climate Change (GCC) is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. GCC is currently one of the most controversial environmental issues in the United States, and much debate exists within the scientific community about whether or not GCC is occurring naturally or as a result of human activity. Some data suggests that GCC has occurred in the past over the course of thousands or millions of years. These historical changes to the earth's climate have occurred naturally without human influence, as in the case of an ice age. However, many scientists believe that the climate shift taking place since the industrial revolution (1900) is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of greenhouse gases in the earth's atmosphere, including carbon dioxide, methane, nitrous oxide, and fluorinated gases. Many scientists believe that this increased rate of climate change is the result of greenhouse gases resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough greenhouse gas emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of greenhouse gases combined with the cumulative increase of all other sources of greenhouse gases, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GREENHOUSE GAS EMISSIONS INVENTORIES

Global

Worldwide anthropogenic (human) GHG emissions are tracked by the Intergovernmental Panel on Climate Change for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2015. For the Year 2015, the sum of these emissions totaled approximately 28,872,564 Gg CO_2e[1] (8) (9). The GHG emissions in more recent years may differ from the inventories presented in Table 2-1; however, the data is representative of currently available inventory data.

United States

1 The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2005 data, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF,"

As noted in Table 2-1, the United States, as a single country, was the number two producer of GHG emissions in 2015. The primary greenhouse gas emitted by human activities in the United States was CO_2, representing approximately 83 percent of total greenhouse gas emissions (10). Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 78 percent of the GHG emissions.

TABLE 2-1: TOP GHG PRODUCER COUNTRIES AND THE EUROPEAN UNION [2]

Emitting Countries	GHG Emissions (Gg CO_2e)
China	11,895,765
United States	6,586,655
European Union (28 member countries)	4,315,773
India	2,650,954
Russian Federation	2,100,849
Japan	1,322,568
Total	**28,872,564**

State of California

CARB compiles GHG inventories for the State of California. Based upon the 2017 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2015 greenhouse gas emissions inventory, California emitted 440.4 $MMTCO_2e$ including emissions resulting from imported electrical power in 2015 (11). Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute, California's total statewide GHG emissions rank second in the United States (Texas is number one) with emissions of 417 $MMTCO_2e$ excluding emissions related to imported power (12).

2.3 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2 (carbon dioxide), N_2O (nitrous oxide), CH_4 (methane), hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as greenhouse gases. Greenhouse gases are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse gas effect, the earth's average temperature would be approximately 61° Fahrenheit (F) cooler than it is currently. The cumulative accumulation of

[2] Used http://unfccc.int data for Annex I countries. Consulted the CAIT Climate Data Explorer in http://www.wri.org site to reference Non-Annex I countries such as China and India.

these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

Although California's rate of growth of greenhouse gas emissions is slowing, the state is still a substantial contributor to the U.S. emissions inventory total. In 2004, California is estimated to have produced 492 million gross metric tons of CO_2e greenhouse gas emissions. Despite a population increase of 16 percent between 1990 and 2004, California has significantly slowed the rate of growth of greenhouse gas emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls (13).

2.4 GREENHOUSE GASES

For the purposes of this analysis, emissions of carbon dioxide, methane, and nitrous oxide were evaluated (see Table 3-4 later in this report) because these gasses are the primary contributors to GCC from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

Water Vapor: Water vapor (H_20) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change.

As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up).

There are no human health effects from water vapor itself; however, when some pollutants come in contact with water vapor, they can dissolve and the water vapor can then act as a pollutant-carrying agent. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include: evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.

Carbon Dioxide: Carbon dioxide (CO_2) is an odorless and colorless GHG. Outdoor levels of carbon dioxide are not high enough to result in negative health effects. Carbon dioxide is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. Carbon dioxide is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (14).

Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30 percent. Left unchecked, the concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (15).

Methane: Methane (CH_4) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs. No health effects are known to occur from exposure to methane.

Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide: Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (16).

Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. Nitrous oxide can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction

Chlorofluorocarbons: Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of

air at the earth's surface). CFCs are no longer being used; therefore, it is not likely that health effects would be experienced. Nonetheless, in confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons: Hydrofluorocarbons (HFCs) are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are increasing due to its use as a refrigerant. The U.S. EPA estimates that concentrations of HFC-23 and HFC-134a are now about 10 parts per trillion (ppt) each; and that concentrations of HFC-152a are about 1 ppt (17). No health effects are known to result from exposure to HFCs, which are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons: Perfluorocarbons (PFCs) have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The U.S. EPA estimates that concentrations of CF_4 in the atmosphere are over 70 ppt.

No health effects are known to result from exposure to PFCs. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride: Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest global warming potential (GWP) of any gas evaluated (23,900). The U.S. EPA indicates that concentrations in the 1990s were about 4 ppt. In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Greenhouse gases have varying GWP values; GWP values represent the potential of a gas to trap heat in the atmosphere. Carbon dioxide is utilized as the reference gas for GWP, and thus has a GWP of 1.

The atmospheric lifetime and GWP of selected greenhouse gases are summarized at Table 2-2. As shown in the table below, GWP for the Second Assessment Report (SAR), the Intergovernmental Panel on Climate Change (IPCC)'s scientific and socio-economic assessment on climate change, range from 1 for carbon dioxide to 23,900 for sulfur hexafluoride and GWP for the IPCC's 4th Assessment Report (AR4) range from 1 for carbon dioxide to 22,800 for sulfur hexafluoride.

TABLE 2-2: GLOBAL WARMING POTENTIAL AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)	
		Second Assessment Report (SAR)	4th Assessment Report (AR4)
Carbon Dioxide	50-200	1	1
Methane	12 ± 3	21	25
Nitrous Oxide	114	310	298
HFC-23	270	11,700	14,800
HFC-134a	14	1,300	1,430
HFC-152a	1.4	140	124
Sulfur Hexafluoride (SF_6)	3,200	23,900	22,800

Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

2.5 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

Public Health

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35 percent under the lower warming range (3-5.5°F) to 75 to 85 percent under the medium warming range (5.5-8°F). In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming range scenario (8-10.5°F), there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could

increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25 percent of the water supply they need. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate O_3 pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

In addition, continued global climate change could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in

many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued global climate change could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global climate change has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90 percent due to decreased precipitation.

Moreover, continued global climate change has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of global climate change.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

2.6 HUMAN HEALTH EFFECTS

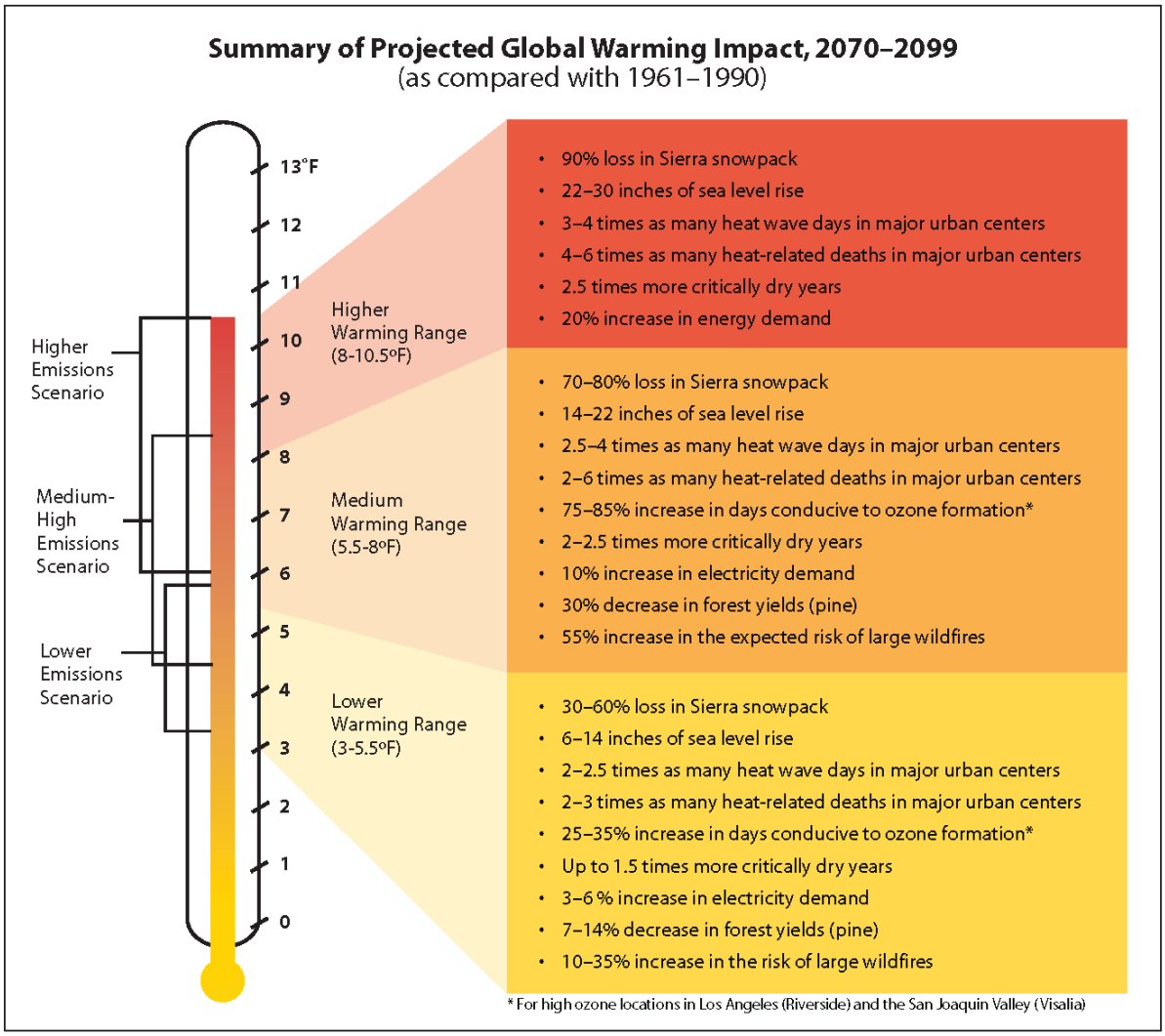
The potential health effects related directly to the emissions of carbon dioxide, methane, and nitrous oxide as they relate to development projects such as the proposed Project are still being debated in the scientific community. Their cumulative effects to global climate change have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (18). Exhibit 2-A presents the potential impacts of global warming.

Specific health effects associated with directly emitted GHG emissions are as follows:

Water Vapor: There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

Carbon Dioxide: According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of carbon dioxide can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of carbon dioxide in the earth's atmosphere are estimated to be approximately 370 parts per million (ppm), the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (19).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT



Methane: Methane is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Methane is also an asphyxiant and may displace oxygen in an enclosed space (20).

Nitrous Oxide: Nitrous Oxide is often referred to as laughing gas; it is a colorless greenhouse gas. The health effects associated with exposure to elevated concentrations of nitrous oxide include dizziness, euphoria, slight hallucinations, and in extreme cases of elevated concentrations nitrous oxide can also cause brain damage (20).

Fluorinated Gases: High concentrations of fluorinated gases can also result in adverse health effects such as asphyxiation, dizziness, headache, cardiovascular disease, cardiac disorders, and in extreme cases, increased mortality (19).

Aerosols: The health effects of aerosols are similar to that of other fine particulate matter. Thus aerosols can cause elevated respiratory and cardiovascular diseases as well as increased mortality (21).

2.7 REGULATORY SETTING

INTERNATIONAL

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (Convention). On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

International Climate Change Treaties. The Kyoto Protocol is an international agreement linked to the Convention. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of five percent against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In

December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014 more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2015 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts, and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or COP 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and

- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015a) (22).

NATIONAL

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

GHG Endangerment. In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the Supreme Court found that four GHGs, including carbon dioxide, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act. The Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator's findings (23).

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide 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 (model years

2012–2016). The EPA and the National Highway Safety Administration issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012c). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of carbon dioxide (CO_2) in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles and a 15 percent reduction for diesel vehicles by the 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions from the 2014 to 2018 model years.

Mandatory Reporting of GHGs. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S., and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA.

New Source Review. The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of

> the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for GHG emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Standards of Performance for GHG Emissions for New Stationary Sources: Electric Utility Generating Units. As required by a settlement agreement, the EPA proposed new performance standards for emissions of carbon dioxide for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts would be required to meet an output based standard of 1,000 pounds of carbon dioxide per megawatt-hour, based on the performance of widely used natural gas combined cycle technology. It should be noted that on February 9, 2016 the U.S. Supreme Court issued a stay of this regulation pending litigation. Additionally, the current EPA Administrator has also signed a measure to repeal the Clean Power Plan, including the CO2 standards.

Cap and Trade. Cap and trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Successful examples in the U.S. include the Acid Rain Program and the NO_x Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap and trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap and trade.

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec's cap and trade system January 1, 2014, and joint offset auctions took place in 2015 (C2ES 2015).

SmartWay Program. The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (EPA 2014):

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.
2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all heavy-duty trucks will have to comply with the ARB GHG Regulation that is designed with the SmartWay Program in mind, to reduce GHG emissions by making them more fuel-efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10 percent or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel will eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

CALIFORNIA

Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark Assembly Bill (AB 32) California Global Warming Solutions Act of 2006 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy

standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 32. The California State Legislature enacted AB 32, which requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "GHGs" as defined under AB 32 include carbon dioxide, methane, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The California Air Resources Board (ARB) is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

ARB approved the 1990 GHG emissions level of 427 $MMTCO_2e$ on December 6, 2007 (ARB 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a "business as usual" (BAU) scenario were estimated to be 596 $MMTCO_2e$, which do not account for reductions from AB 32 regulations (ARB 2008). At that level, a 28.4 percent reduction was required to achieve the 427 million $MTCO_2e$ 1990 inventory. In October 2010, ARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. The forecasted inventory without the benefits of adopted regulation is now estimated at 545 million $MTCO_2e$. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (ARB 2010).

PROGRESS IN ACHIEVING AB 32 TARGETS AND REMAINING REDUCTIONS REQUIRED

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by ARB for 2000 through 2012 (ARB 2014a). The State has achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target.

- 1990: 427 million $MTCO_2e$ (AB 32 2020 target)
- 2000: 463 million $MTCO_2e$ (an average 8 percent reduction needed to achieve 1990 base)
- 2010: 450 million $MTCO_2e$ (an average 5 percent reduction needed to achieve 1990 base)

ARB has also made substantial progress in achieving its goal of achieving 1990 emissions levels by 2020. As described earlier in this section, ARB revised the 2020 BAU inventory forecast to account for new lower growth projections, which resulted in a new lower reduction from BAU to achieve the 1990 base. The previous reduction from 2020 BAU needed to achieve 1990 levels was 28.4 percent and the latest reduction from 2020 BAU is 21.7 percent.

- 2020: 545 million $MTCO_2e$ BAU (an average 21.7 percent reduction from BAU needed to achieve 1990 base)

ARB Scoping Plan. ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- 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; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

The ARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities Climate for the next several years. The Update does not set new targets for the State, but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050 (ARB 2014).

Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the amount of reductions California must achieve to return to the 1990 emissions level by 2020 as required by AB 32. The no-action scenario is known as "business-as-usual" or BAU. The ARB originally defined the BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the Scoping Plan.

As part of CEQA compliance for the Scoping Plan, ARB prepared a Supplemental Functional Equivalent Document (FED) in 2011. The FED included an updated 2020 BAU emissions inventory projection based on current economic forecasts (i.e., as influenced by the economic

downturn) and emission reduction measures already in place, replacing its prior 2020 BAU emissions inventory. ARB staff derived the updated emissions estimates by projecting emissions growth, by sector, from the state's average emissions from 2006–2008. The new BAU estimate includes emission reductions for the million-solar-roofs program, the AB 1493 (Pavley I) motor vehicle GHG emission standards, and the Low Carbon Fuels Standard. In addition, ARB factored into the 2020 BAU inventory emissions reductions associated with 33 percent Renewable Energy Portfolio Standard (RPS) for electricity generation. The updated BAU estimate of 507 $MMTCO_2e$ by 2020 requires a reduction of 80 $MMTCO_2e$, or a 16 percent reduction below the estimated BAU levels to return to 1990 levels (i.e., 427 $MMTCO_2e$) by 2020.

In order to provide a BAU reduction that is consistent with the original definition in the Scoping Plan and with threshold definitions used in thresholds adopted by lead agencies for CEQA purposes and many climate action plans, the updated inventory without regulations was also included in the Supplemental FED. The ARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 $MMTCO_2e$. The updated ARB 2020 BAU projection in the Supplemental FED is 545 $MMTCO_2e$. Considering the updated BAU estimate of 545 $MMTCO_2e$ by 2020, ARB estimates a 21.7 percent reduction below the estimated statewide BAU levels is necessary to return to 1990 emission levels (i.e., 427 $MMTCO_2e$) by 2020, instead of the approximate 28.4 percent BAU reduction previously reported under the original Climate Change Scoping Plan (2008).

2017 Climate Change Scoping Plan Update

In November 2017, ARB released the final 2017 Scoping Plan Update, which identifies the State's post-2020 reduction strategy. The 2017 Scoping Plan Update reflects the 2030 target of a 40 percent reduction below 1990 levels, set by Executive Order B-30-15 and codified by Senate Bill 32 (SB 32). Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce methane emissions from agricultural and other wastes.

The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero-emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission

limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20 percent reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Scoping Plan also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible; or, a performance-based metric using a climate action plan or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory and supported by ARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that GHG emissions through 2020 could range from 317 to 415 $MTCO_2e$ per year, "indicating that existing state policies will likely allow California to meet its target [of 2020 levels under AB 32]." CALGAPS also showed that by 2030, emissions could range from 211 to 428 $MTCO_2e$ per year, indicating that "even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40 percent below the 1990 level [of SB 32]." CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Though the research indicated that the emissions would

not meet the State's 80 percent reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050 (24) (25).

Senate Bill 32. On September 8, 2016, Governor Jerry Brown signed the Senate Bill (SB) 32 and its companion bill, Assembly Bill (AB) 197. SB 32 requires the state to reduce statewide GHG emissions to 40 percent below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80 percent below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that ARB is not only respond to the Governor, but also the Legislature (6) (7).

Cap and Trade Program. The Scoping Plan identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to ARB, a cap-and-trade program will help put California on the path to meet its goal of reducing GHG emissions to 1990 levels by the year 2020 and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap will be able to trade permits to emit GHGs within the overall limit.

ARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. See 17 California Code of Regulations (CCR) §§ 95800 to 96023. The Cap-and-Trade Program is designed to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25.000 $MTCO_2e$ per year must comply with the Cap-and-Trade Program. Triggering of the 25.000 $MTCO_2e$ per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or "MRR").

Under the Cap-and-Trade Program, ARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender "compliance instruments" (30) for each $MTCO_2e$ of GHG they emit. There also are requirements to surrender compliance instruments covering 30 percent of the prior year's compliance obligation by November of each year. For example, in November 2014, a covered entity was required to submit compliance instruments to cover 30 percent of its 2013 GHG emissions.

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source.

Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by ARB in the First Update:

> The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (ARB 2014).

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus. the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures (ARB 2014).

As of January 1, 2015, the Cap-and-Trade Program covered approximately 85 percent of California's GHG emissions. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program.

The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. While the Cap-and-Trade Program technically covered fuel suppliers as early as 2012, they did not have a compliance obligation (i.e., they were not fully regulated) until 2015. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported. The point of regulation for transportation fuels is when they are "supplied" (i.e., delivered into commerce). Accordingly, as with stationary source GHG emissions and GHG emissions attributable to electricity use, virtually all, if not all, of GHG emissions from CEQA projects associated with vehicle-miles traveled (VMT) are covered by the Cap-and-Trade Program (ARB 2015) (26).

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the Program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions.[3]

SB 375 - the Sustainable Communities and Climate Protection Act of 2008. Passing the Senate on August 30, 2008, Senate Bill (SB) 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

[3] On March 17, 2011, the San Francisco Superior Court issued a final decision in *Association of Irritated Residents v. California Air Resources Board* (Case No. CPF-09-509562). While the Court upheld the validity of the ARB Scoping Plan for the implementation of AB 32, the Court enjoined ARB from further rulemaking under AB 32 until ARB amends its CEQA environmental review of the Scoping Plan to address the flaws identified by the Court. On May 23, 2011, ARB filed an appeal. On June 24, 2011, the Court of Appeal granted ARB's petition staying the trail court's order pending consideration of the appeal. In the interest of informed decision-making, on June 13, 2011, ARB released the expanded alternatives analysis in a draft Supplement to the AB 32 Scoping Plan Functional Equivalent Document. The ARB Board approved the Scoping Plan and the CEQA document on August 24, 2011.

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

AB 1493 Pavley Regulations and Fuel Efficiency Standards. California AB 1493, enacted on July 22, 2002, required ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30 percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

SB 350— Clean Energy and Pollution Reduction Act of 2015. In October 2015, the legislature approved and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.

- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly-owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

Executive Order S-3-05. Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07 – Low Carbon Fuel Standard. The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the Executive Order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The Low Carbon Fuel Standard was challenged in the U.S. District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against ARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012, pending final ruling on appeal, allowing ARB to continue to implement and enforce the regulation. The Ninth Circuit Court's decision, filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that Low Carbon Fuel Standards adopted by ARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled ARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for Low Carbon Fuel Standards. In a partially published opinion, the

Court of Appeal reversed the trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of ARB approving Low Carbon Fuel Standards (LCFS) regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, ARB was required to bring a new LCFS regulation to tits Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity (low-CI) fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The second public hearing was held on September 24 and September 25, 2015, where the LCFS Regulation was adopted. The Final Rulemaking Package adopting the regulation was filed with Office of Administrative Law (OAL) on October 2, 2015. OAL had until November 16, 2015 to make a determination (ARB 2015d).

Executive Order S-13-08. Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the Order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the ". . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 and directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of CO_2 equivalent ($MMCO_2e$). The Order also requires the state's climate adaptation plan to be updated every three years, and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable for local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

CALIFORNIA REGULATIONS AND BUILDING CODES

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Standards. California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

Title 24 Energy Efficiency Standards and California Green Building Standards. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The newest 2016 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2017.

The CEC indicates that the 2016 Title 24 standards will reduce energy consumption by 5 percent for nonresidential buildings above that achieved by the 2013 Title 24 (CEC 2015).

California Code of Regulations, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they establish a minimum 50 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official. CALGreen requires:

- Short-term bicycle parking. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- Designated parking. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).

- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (5.410.1).
- Construction waste. A minimum 65 percent diversion of construction and demolition waste from landfills, increasing voluntarily to 80 percent for new homes and commercial projects (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:
    - The installation of water-conserving fixtures (5.303.3) or
    - Using nonpotable water systems (5.303.4).
- Water use savings. 20 percent mandatory reduction of indoor water use with voluntary goal standards for 30, 35 and 40 percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- Water meters. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- Irrigation efficiency. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard (5.404).
- Building commissioning. Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2)..

Model Water Efficient Landscape Ordinance. The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881, the Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected upon compliance with the ordinance. Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed Department of Water Resources (DWR) to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015 effective December 15, 2015. New development projects that include landscape areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems;
- Incentives for graywater usage;
- Improvements in on-site stormwater capture;
- Limiting the portion of landscapes that can be planted with high water use plants; and
- Reporting requirements for local agencies.

ARB Refrigerant Management Program. ARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and

proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17, California Code of Regulations. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 pounds of a high GWP refrigerant. The refrigerant management program is designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

Tractor-Trailer GHG Regulation. The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers, or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors model year 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

Phase I and 2 Heavy-Duty Vehicle GHG Standards. ARB has adopted a new regulation for greenhouse gas (GHG) emissions from heavy-duty trucks and engines sold in California. It establishes GHG emission limits on truck and engine manufacturers and harmonizes with the U.S. EPA rule for new trucks and engines nationally. Existing heavy-duty vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer Greenhouse Gas Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation. In September 2011, the U.S. EPA adopted their new rule for heavy-duty trucks and engines. The U.S. EPA rule has compliance requirements for new compression and spark ignition engines, as well as trucks from Class 2b through Class 8. Compliance requirements begin with model year (MY) 2014 with stringency levels increasing through MY 2018. The rule organizes truck compliance into three groupings, which include a) heavy-duty pickups and vans; b) vocational vehicles; and c) combination tractors. The U.S. EPA rule does not regulate trailers.

ARB staff has worked jointly with the U.S. Environmental Protection Agency (U.S. EPA) and the National Highway Traffic Safety Administration (NHTSA) on the next phase of federal greenhouse gas (GHG) emission standards for medium- and heavy-duty vehicles, called federal Phase 2. The federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later model year heavy-duty vehicles, including trailers.

U.S. EPA and NHTSA issued a Notice of Proposed Rulemaking for Phase 2 in June 2015, and published the final rule in October 2016. ARB staff plans to bring a proposed California Phase 2 program before the Board in early 2018. ARB staff remains committed to a strong national program which will support California's GHG reduction commitments.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA.

On April 13, 2009, the Office of Planning and Research submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing GHG emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

A new section, CEQA Guidelines Section 15064.4, was added to assist agencies in determining the significance of GHG emissions. The new section allows agencies the discretion to determine whether a quantitative or qualitative analysis is best for a particular project. However, little guidance is offered on the crucial next step in this assessment process—how to determine whether the project's estimated GHG emissions are significant or cumulatively considerable.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts, respectively. GHG mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of GHG Reduction Plans. Compliance with such plans can support a

determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions.

REGIONAL

The project is within the Southern California Air Basin (SoCAB), which is under the jurisdiction of the SCAQMD.

South Coast Air Quality Management District

SCAQMD is the agency responsible for air quality planning and regulation in the SoCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SoCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, that could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project is less than significant:
    - Residential and Commercial land use: 3,000 $MTCO_2e$ per year
    - Based on land use type: residential: 3,500 $MTCO_2e$ per year; commercial: 1,400 $MTCO_2e$ per year; or mixed use: 3,000 $MTCO_2e$ per year
- Tier 4 has the following options:

  - Option 1: Reduce BAU emissions by a certain percentage; this percentage is currently undefined.
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
  - Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 $MTCO_2e$/SP/year for projects and 6.6 $MTCO_2e$/SP/year for plans;
  - Option 3, 2035 target: 3.0 $MTCO_2e$/SP/year for projects and 4.1 $MTCO_2e$/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's interim thresholds used the Executive Order S-3-05 year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

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3 PROJECT GREENHOUSE GAS IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant greenhouse gas impact. The significance of these potential impacts is described in the following section.

3.2 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ EMPLOYED TO ESTIMATE GHG EMISSIONS

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_x, SO_x, CO, PM_{10}, and $PM_{2.5}$) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (27). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine greenhouse gas emissions. Output from the model runs for both construction and operational activity are provided in Appendix 3.1 and 3.2. The CalEEMod model includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water.

3.3 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (28). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time a LCA would be extremely speculative and thus has not been prepared.

Additionally, the SDAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood or documented, and would be challenging to mitigate (29). Additionally, the science to calculate life cycle emissions is not yet established or well defined, therefore SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

3.4 PROJECT RELATED GREENHOUSE GAS EMISSIONS

3.4.1 CONSTRUCTION EMISSIONS

Construction activities associated with the Project would result in emissions of CO_2 and CH_4 from construction activities. The report Baseline/Alder Warehouse Air Quality Impact Analysis Report, Urban Crossroads, Inc. (2018) contains detailed information regarding construction activity (30).

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30-year project life then adding that number to the annual operational phase GHG emissions (31). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of CO_2, CH_4, and N_2O from the following primary sources:

- Building Energy Use (combustion emissions associated with natural gas and electricity)
- Water Supply, Treatment and Distribution
- Solid Waste
- Mobile Source Emissions

3.5.1 AREA SOURCE EMISSIONS

Landscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in the CalEEMod model.

3.5.2 ENERGY SOURCE EMISSIONS

Combustion Emissions Associated with Natural Gas and Electricity

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building, the building energy use emissions do not include street lighting[4]. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod default parameters were used.

3.5.3 MOBILE SOURCE EMISSIONS

Vehicles

Project-related operational greenhouse gas impacts derive predominantly from mobile sources. In this regard, approximately 92 percent (by weight) of all Project operational-source emissions

[4] The CalEEMod emissions inventory model does not include indirect emission related to street lighting. Indirect emissions related to street lighting are expected to be negligible and cannot be accurately quantified at this time as there is insufficient information as to the number and type of street lighting that would occur.

would be generated by mobile sources (vehicles). The Project related greenhouse gas impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the report, Baseline/Alder Warehouse Project Traffic Impact Analysis (Dudek 2018) were utilized in this analysis (32).

Per the Baseline/Alder Warehouse Project Traffic Impact Analysis, the Project is expected to generate a net total of approximately 910 trip-ends per day (actual vehicles) (32). The net Project trip generation includes 364 truck trip-ends per day from the proposed buildings within the Project site including 1.97% 2-axle trucks, 28.02% 3-axle trucks, and 70.01% 4+-axle trucks.

3.5.3.1 Trip Length

Background

A technical deficiency inherent in calculating the projected vehicle emissions associated with any project is related to the estimation of trip length and vehicle miles traveled (VMT). VMT for a given project is calculated by the total number of vehicle trips to/from the Project x average trip length. This method of estimating VMT for use in calculating vehicle emissions likely results in the over-estimation and double-counting of emissions because, for a distribution warehouse center such as the Project, the land use is likely to attract (divert) existing vehicle trips that are already on the circulation system as opposed to generating new trips. In this regard, the Project would, to a large extent, redistribute existing mobile-source emissions rather than generate additional emissions within the Basin. As such, the estimation of the Project's vehicular-source emissions is likely overstated in that no credit for, or reduction in, emissions is assumed based on diversion of existing trips.

Provided below is a summary of the VMT recommendations of the SCAQMD and SCAG, followed by a description of the methodology used to calculate the VMT rates used in this GHGA.

SCAQMD Recommendation

In the last five years, the SCAQMD has provided numerous comments on the trip length for warehouse/distribution and business park land use projects (33). The SCAQMD asserts that the model-default trip length in CalEEMod™ and the URBan EMISsions (URBEMIS) 2007 model (version 9.2.4) would underestimate emissions. The SCAQMD asserts that for warehouse, distribution center, and business park land use projects, most of the heavy-duty trucks would be hauling consumer goods, often from the Ports of Long Beach and Los Angeles (POLA and POLB) and/or to destinations outside of California. The SCAQMD states that for this reason, the CalEEMod™ and the URBan EMISsions model default trip length (approximately 12.6 miles) would not be representative of activities at like facilities. The SCAQMD generally recommends the use of a 40-mile one-way trip length.

Southern California Association of Government (SCAG) Heavy Duty Truck Model

SCAG is comprised of six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 190 cities in Southern California, and is the organization charged with addressing and resolving short- and long-term regional policy issues. The SCAG region also

consists of 14 subregional entities recognized by the Regional Council as partners in the regional policy planning process. The SCAG region has more than 19 million residents and encompasses more than 38,000 square miles, representing the largest and most diverse region in the country.

SCAG maintains a regional transportation model. In its most recent (2008) transportation validation for the 2003 Regional Model, SCAG indicates the average internal truck trip length for the SCAG region is 5.92 miles for Light Duty Trucks, 13.06 miles for Medium Duty Trucks, and 24.11 miles for Heavy Duty Trucks.

Approach for Analysis of the Project

The SCAQMD approach identified above is deemed to be the most applicable for the Project. This same methodology is employed in analyses for similar projects in the City and is considered by the Lead Agency to be appropriate and accurate.

Two separate model runs were utilized in order to more accurately model emissions resulting from vehicle operations. The first run analyzed passenger car emissions, which incorporated a default trip length of 16.6 miles for passenger cars within San Bernardino County and a fleet mix of 100% Light-Duty-Auto vehicles (LDA). The second run analyzed truck emissions, which incorporated an average truck trip length of 40 miles and a fleet mix of: 1.97% of Light-Heavy-Duty (LHD), 28.02% of Medium-Heavy-Duty (MHD), and 70.01% of Heavy-Heavy-Duty (HHD) for warehousing uses. This proportional truck mix by axle type is based on information provided in the Project's traffic study.

3.5.4 Solid Waste

Industrial land uses will result in the generation and disposal of solid waste. A large percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the proposed Project were calculated by the CalEEMod™ model using default parameters.

3.5.5 Water Supply, Treatment and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. Unless otherwise noted, CalEEMod™ default parameters were used.

3.6 Emissions Summary

The annual GHG emissions associated with the operation of the proposed Project are estimated to be 9,585.76 $MTCO_2e$ per year as summarized in Table 3-1.

TABLE 3-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	41.79	0.01	0.00	41.99
Area	0.01	3.00E-05	0.00	0.01
Energy	230.33	0.01	2.24E-03	231.22
Mobile Sources (Passenger Cars)	907.85	0.02	0.00	908.32
Mobile Sources (Trucks)	7,949.81	0.28	0.00	7,956.73
Waste	48.78	2.88	0.00	120.86
Water Usage	264.04	1.94	0.05	326.63
Total CO_2E (All Sources)	**9,585.76**			
Screening Threshold (CO_2E)	**10,000**			
Threshold Exceeded?	**NO**			

3.7 GREENHOUSE GAS EMISSIONS FINDINGS AND RECOMMENDATIONS

GHG Impact #1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.

The City of Rialto does not have an adopted threshold of significance for GHG emissions. For CEQA purposes, the City has discretion to select an appropriate significance criterion, based on substantial evidence. The AQMD's adopted numerical threshold of 10,000 $MTCO_2e$ per year for industrial stationary source emissions is selected as the significance criterion. The AQMD-adopted industrial threshold was selected by the City because the proposed Project is analogous to an industrial use much more closely than any other land use such as commercial or residential in terms of its expected operating characteristics. The Project proposes a single industrial/warehouse building, characteristic of an industrial operation. Further, analysis of the Project's traffic generation is based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017 for industrial and warehouse uses. Also, 10,000 $MTCO_2e$ has been used as the significance threshold by many local government lead agencies for logistics projects throughout the SCAG region since the AQMD adopted this threshold for its own use. Further, to ensure that the threshold is conservative in its application, although the AQMD uses their adopted 10,000 $MTCO_2e$ threshold to determine the significance of stationary source emissions for industrial projects, the 10,000 $MTCO_2e$ threshold used in this analysis is applied to all sources of Project-related GHG emissions whether stationary source, mobile source, area source, or other.

Use of this threshold is also consistent with guidance provided in the CAPCOA *CEQA and Climate Change* handbook, as such the City has opted to use a non-zero threshold approach

based on Approach 2 of the handbook. Threshold 2.5 (Unit-Based Thresholds Based on Market Capture) establishes a numerical threshold based on capture of approximately 90 percent of emissions from future development. The latest threshold developed by SCAQMD using this method is 10,000 metric tons carbon dioxide equivalent ($MTCO_2E$) per year for industrial projects. This threshold is based on the review of 711 CEQA projects.

As shown on Table ES-1, the Project will result in approximately 9,585.76 $MTCO_2e$ per year; the proposed project would not exceed the SCAQMD/City's screening threshold of 10,000 $MTCO_2e$ per year. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change and no mitigation or further analysis is required.

GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

As shown above, the Project would be consistent with the City of Rialto's GHG Plan. Additionally, the Project's consistency with AB 32 and SB 32 are discussed below.

Scoping Plan

ARB's *Scoping Plan* identifies strategies to reduce California's greenhouse gas emissions in support of AB32 which requires the State to reduce its GHG emissions to 1990 levels by 2020. Many of the strategies identified in the Scoping Plan are not applicable at the project level, such as long-term technological improvements to reduce emissions from vehicles. Some measures are applicable and supported by the project, such as energy efficiency. Finally, while some measures are not directly applicable, the project would not conflict with their implementation. Reduction measures are grouped into 18 action categories, as follows:

1. **California Cap-and-Trade Program Linked to Western Climate Initiative Partner Jurisdictions.** Implement a broad-based California cap-and-trade program to provide a firm limit on emissions. Link the California cap–and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California.[5] Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.
2. **California Light-Duty Vehicle Greenhouse Gas Standards.** Implement adopted Pavley standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.
3. **Energy Efficiency.** Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).
4. **Renewables Portfolio Standards.** Achieve 33 percent renewable energy mix statewide.
5. **Low Carbon Fuel Standard.** Develop and adopt the Low Carbon Fuel Standard.

[5] California Air Resources Board. California GHG Emissions – Forecast (2002-2020). October 2010

6. **Regional Transportation-Related Greenhouse Gas Targets.** Develop regional greenhouse gas emissions reduction targets for passenger vehicles.
7. **Vehicle Efficiency Measures.** Implement light-duty vehicle efficiency measures.
8. **Goods Movement.** Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.
9. **Million Solar Roofs Program.** Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.
10. **Medium- and Heavy-Duty Vehicles.** Adopt medium- (MD) and heavy-duty (HD) vehicle efficiencies. Aerodynamic efficiency measures for HD trucks pulling trailers 53-feet or longer that include improvements in trailer aerodynamics and use of rolling resistance tires were adopted in 2008 and went into effect in 2010.[6] Future, yet to be determined improvements, includes hybridization of MD and HD trucks.
11. **Industrial Emissions.** Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
12. **High Speed Rail.** Support implementation of a high speed rail system.
13. **Green Building Strategy.** Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
14. **High Global Warming Potential Gases.** Adopt measures to reduce high warming global potential gases.
15. **Recycling and Waste.** Reduce methane emissions at landfills. Increase waste diversion, composting and other beneficial uses of organic materials, and mandate commercial recycling. Move toward zero-waste.
16. **Sustainable Forests.** Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The 2020 target for carbon sequestration is 5 million $MTCO_2E/YR$.
17. **Water.** Continue efficiency programs and use cleaner energy sources to move and treat water.
18. **Agriculture.** In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.

Table 3-2 summarizes the project's consistency with the State Scoping Plan. As summarized, the project will not conflict with any of the provisions of the Scoping Plan and in fact supports seven of the action categories through energy efficiency, water conservation, recycling, and landscaping.

TABLE 3-2: SCOPING PLAN CONSISTENCY SUMMARY

Action	Supporting Measures[7]	Consistency

[6] California Air Resources Board. Scoping Plan Measures Implementation Timeline. October 2010

[7] Supporting measures can be found at the following link: http://www.arb.ca.gov/cc/scopingplan/2013_update/appendix_b.pdf

Action	Supporting Measures[7]	Consistency
Cap-and-Trade Program	--	Not Applicable. These programs involve capping emissions from electricity generation, industrial facilities, and broad scoped fuels. Caps do not directly affect manufacturing projects.
Light-Duty Vehicle Standards	T-1	Not Applicable. This is a statewide measure establishing vehicle emissions standards.
Energy Efficiency	E-1	Consistent. The project will include a variety of building, water, and solid waste efficiencies consistent with 2016 CALGREEN requirements.
	E-2	
	CR-1	
	CR-2	
Renewables Portfolio Standard	E-3	Not Applicable. Establishes the minimum statewide renewable energy mix.
Low Carbon Fuel Standard	T-2	Not Applicable. Establishes reduced carbon intensity of transportation fuels.
Regional Transportation-Related Greenhouse Gas Targets	T-3	Not Applicable. This is a statewide measure and is not within the purview of this Project.
Vehicle Efficiency Measures	T-4	Not Applicable. Identifies measures such as minimum tire-fuel efficiency, lower friction oil, and reduction in air conditioning use.
Goods Movement	T-5	Not applicable. Identifies measures to improve goods movement efficiencies such as advanced combustion strategies, friction reduction, waste heat recovery, and electrification of accessories. While these measures are yet to be implemented and will be voluntary, the proposed Project would not interfere with their implementation.
	T-6	
Million Solar Roofs (MSR) Program	E-4	Consistent. The MSR program sets a goal for use of solar systems throughout the state as a whole. While the project currently does not include solar energy generation, the building roof structure will be designed to support solar panels in the future.
Medium- & Heavy-Duty Vehicles	T-7	Not applicable. MD and HD trucks and trailers working from the proposed warehouses will be subject to aerodynamic and hybridization requirements as established by ARB; no feature of the project would interfere with implementation of these requirements and programs.
	T-8	
Industrial Emissions	I-1	Not Applicable. These measures are applicable to large

Action	Supporting Measures[7]	Consistency
	I-2	industrial facilities (> 500,000 $MTCO_2E$/YR) and other intensive uses such as refineries.
	I-3	
	I-4	
	I-5	
High Speed Rail	T-9	Not Applicable. Supports increased mobility choice.
Green Building Strategy	GB-1	Consistent. The project will include a variety of building, water, and solid waste efficiencies consistent with 2016 CALGREEN requirements.
High Global Warming Potential Gases	H-1	Not Applicable. The proposed warehouses are not substantial sources of high GWP emissions and will comply with any future changes in air conditioning, fire protection suppressant, and other requirements.
	H-2	
	H-3	
	H-4	
	H-5	
	H-6	
	H-7	
Recycling and Waste	RW-1	Consistent. The project will be required recycle a minimum of 50 percent from construction activities and warehouse operations per State and City requirements.
	RW-2	
	RW-3	
Sustainable Forests	F-1	Consistent. The project will increase carbon sequestration by increasing on-site trees per the project landscaping plan.
Water	W-1	Consistent. The project will include use of low-flow fixtures and efficient landscaping per State requirements.
	W-2	
	W-3	
	W-4	
	W-5	
	W-6	
Agriculture	A-1	Not Applicable. The project is not an agricultural use.

SB 32

At the state level, Executive Orders S-3-05 and B-30-15 are orders from the State's Executive Branch for the purpose of reducing GHG emissions. The goal of Executive Order S-3-05 is to reduce GHG emissions to 1990 levels by 2020 was codified by the Legislature as the 2006 Global Warming Solutions Act (AB 32). The Project, as analyzed above, is consistent with AB 32. Therefore, the Project does not conflict with this component of Executive Order S-3-05. The Executive Orders also establish goals to reduce GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. However, studies have shown that, in order to meet the 2030 and 2050 targets, aggressive technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. In its Climate Change Scoping Plan, ARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail." In the First Scoping Plan Update, however, ARB generally described the type of activities required to achieve the 2050 target: "energy demand reduction through efficiency and activity changes; largescale electrification of on-road vehicles, buildings,

and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately."

Unlike the 2020 and 2030 reduction targets of AB 32 and SB 32, respectively the 2050 target of Executive Order S-3-05 has not been codified. Accordingly, the 2050 reduction target has not been the subject of any analysis by CARB. For example, CARB has not prepared an update to the aforementioned Scoping Plan that provides guidance to local agencies as to how they may seek to contribute to the achievement of the 2050 reduction target.

In 2017, the California Supreme Court examined the need to use the Executive Order S-3-05 2050 reduction target in Cleveland National Forest Foundation v. San Diego Association of Governments (2017) 3 Cal.5th 497 (Cleveland National). The case arose from SANDAG's adoption of its 2050 Regional Transportation Plan, which included its Sustainable Communities Strategy, as required by SB 375 (discussed above). On review, the Supreme Court held that SANDAG did not violate CEQA by not considering the Executive Order S-3-05 2050 reduction target.

As explained above, the 2050 reduction target of Executive Order S-3-05 has not been codified, unlike the 2020 and 2030 reduction targets of AB 32 and SB 32, respectively. Accordingly, the 2050 reduction target has not been the subject of any analysis by CARB. For example, CARB has not prepared an update to the aforementioned Scoping Plan that provides guidance to local agencies as to how they may seek to contribute to the achievement of the 2050 reduction target.

Further, the Project is much smaller in size and scope in comparison to the Regional Transportation Plan examined in *Cleveland National*. In that case, the California Supreme Court held that SANDAG did not violate CEQA by not considering the Executive Order S-3-05 2050 reduction target. Accordingly, there is no information presently available to assess the Project's consistency with regard to the 2050 target of Executive Order S-3-05.

The 2017 Scoping Plan builds on the 2008 Scoping Plan in order to achieve the 40 percent reduction from 1990 levels by 2030. Major elements of the 2017 Scoping Plan framework that will achieve the GHG reductions include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks. When adopted, this measure would apply to all trucks accessing the Project site, this may include existing trucks or new trucks purchased by the project proponent could be eligible for incentives that expedite the Project's implementation of ZEVs.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030). When adopted, this measure would apply to all fuel purchased and used by the Project in the state.
- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030. When adopted, this measure would apply when electricity is provided to the Project by a utility company.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks. When adopted, this measure

would apply to all trucks accessing the Project site, this may include existing trucks or new trucks that are part of the statewide goods movement sector.

- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030. When adopted, the Project would be required to comply with this measure and reduce SLPS accordingly.
- Continued implementation of SB 375. The Project is not within the purview of SB 375 and would therefore not conflict with this measure.
- Post-2020 Cap-and-Trade Program that includes declining caps. When adopted, the Project would be required to comply with the Cap-and-Trade Program if it generates emissions from sectors covered by Cap-and-Trade.
- 20 percent reduction in GHG emissions from refineries by 2030. When adopted, the Project would be required to comply with this measure if it were to utilize any fuel from refineries.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink. This is a statewide measure that would not apply to the Project.

As shown above, the Project would not conflict with any of the 2017 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project.

Further, recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030.

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5 CERTIFICATION

The contents of this greenhouse gas study report represent an accurate depiction of the greenhouse gas impacts associated with the proposed Baseline/Alder Warehouse Project. The information contained in this greenhouse gas report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 3.1:

CALEEMOD OPERATIONAL (PASSENGER CARS) EMISSIONS MODEL OUTPUTS

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APPENDIX 3.2:

CALEEMOD OPERATIONAL (TRUCKS) EMISSIONS MODEL OUTPUTS

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Baseline/Alder Warehouse

Mobile Source Health Risk Assessment

City of Rialto

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July 19, 2018

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LIST OF ABBREVIATED TERMS

(1)	Reference
µg	Microgram
AERMOD	Atmospheric Dispersion Modeling System
APS	Auxiliary Power System
AQMD	Air Quality Management District
ARB	Air Resources Board
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
DPM	Diesel Particulate Matter
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
HHD	Heavy Heavy-Duty
HI	Hazard Index
HRA	Health Risk Assessment
LHD	Light Heavy-Duty
MATES	Multiple Air Toxics Exposure Study
MEIR	Maximally Exposed Individual Receptor
MEISC	Maximally Exposed Individual School Child
MEIW	Maximally Exposed Individual Worker
MHD	Medium Heavy-Duty
NAD	North American Datum
OEHHA	Office of Environmental Health Hazard
PCE	Passenger Car Equivalent
PM_{10}	Particulate Matter 10 microns in diameter or less
Project	Baseline/Alder Warehouse
REL	Reference Exposure Level
RM	Recommended Measures
SCAQMD	South Coast Air Quality Management District
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
URF	Unit Risk Factor
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

This report evaluated the potential mobile source health risk impacts to sensitive receptors (residents and schools) and adjacent workers associated with the development of the proposed Project, more specifically, health risk impacts as a result of exposure to Toxic Air Contaminants (TACs) including diesel particulate matter (DPM) as a result of heavy-duty diesel trucks accessing the site. This section summarizes the significance criteria and Project mobile source health risks.

The results of the health risk assessment of lifetime cancer risk from Project-generated TAC emissions are provided in Table ES-1.

Residential Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is located approximately 51 feet north of the Project site. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 5.29 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.002, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent residences.

Worker Exposure Scenario:

The worker receptor land use with the greatest potential exposure to Project DPM source emissions is located immediately adjacent to the west of the Project site an existing industrial use. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact at this location is 0.21 in one million which is less than the threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be 0.0006, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent workers.

School Child Exposure Scenario:

There are no schools located within a ¼ mile of the Project site. As such, there would be no significant impacts that would occur to any schools in the vicinity of the Project.

TABLE ES-1: SUMMARY OF CANCER AND NON-CANCER RISKS

Time Period	Location	Maximum Lifetime Cancer Risk (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold
30 Year Exposure	Maximum Exposed Sensitive Receptor	5.29	10	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.21	10	NO
Time Period	**Location**	**Maximum Hazard Index**	**Significance Threshold**	**Exceeds Significance Threshold**
30 Year Exposure	Maximum Exposed Sensitive Receptor	0.002	1.0	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.0006	1.0	NO

1 INTRODUCTION

The purpose of this Health Risk Assessment (HRA) is to evaluate Project-related impacts to sensitive receptors (residential, schools) and adjacent workers as a result of heavy-duty diesel trucks accessing the site.

The South Coast Air Quality Management District (SCAQMD) typically issues a comment letter on the Notice of Preparation of a CEQA Document. Per the SCAQMD's typical comment letter, if a proposed Project is expected to generate/attract diesel trucks, which emit diesel particulate matter (DPM), preparation of a HRA is necessary. This document serves to meet the SCAQMD's request for preparation of a HRA. The mobile source HRA has been prepared in accordance with the document Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1) and is comprised of all relevant and appropriate procedures presented by the U.S. EPA, California Environmental Protection Agency and SCAQMD. Cancer risk is expressed in terms of expected incremental incidence per million population. The SCAQMD has established an incidence rate of ten (10) persons per million as the maximum acceptable incremental cancer risk due to DPM exposure. This threshold serves to determine whether or not a given project has a potentially significant development-specific and cumulative impact.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (2). In this report the AQMD clearly states (Page D-3):

"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

The SCAQMD has also established non-carcinogenic risk parameters for use in HRAs. Non-carcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. Within this analysis, non-carcinogenic exposures of less than 1.0 are considered less-than-significant.

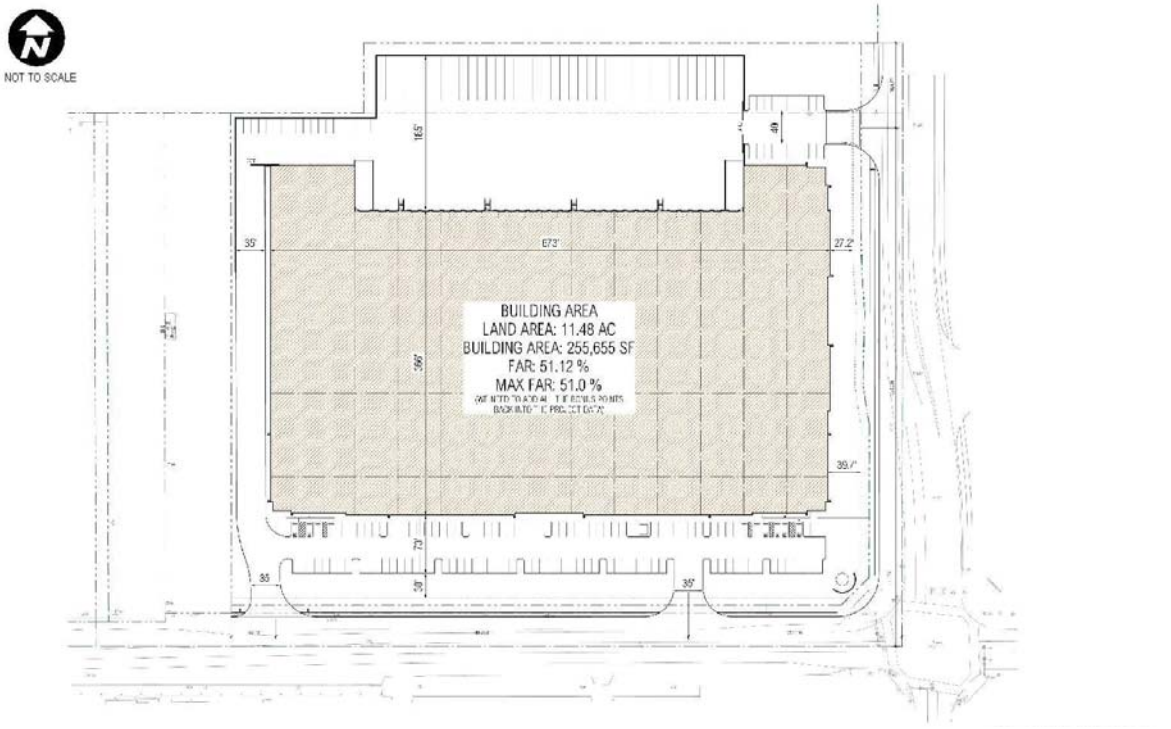
1.1 SITE LOCATION

The proposed Baseline/Alder Warehouse Project is located on the northwest corner of the intersection of Baseline Road and Alder Avenue in the City of Rialto.

1.2 PROJECT DESCRIPTION

It is our understanding that the Project is proposed to consist of up to 255,655 square feet (sf), one-story industrial/warehouse building on an approximately 11.48-acre site, as shown on Exhibit 1-A. For the purposes of this analysis, the Project is anticipated to be developed in a single phase with an Opening Year of 2020.

EXHIBIT 1-1: SITE PLAN



2 BACKGROUND

2.1 REGULATORY SETTING

ARB estimates that the average Californian is exposed to 1.2-1.8 µg/m^3 of DPM annually, this exposure results in an average cancer risk of 360-540 in one million for the average Californian exposed to DPM (3).

As noted above, this HRA is based on SCAQMD guidelines to produce conservative estimates of risk posed by exposure to DPM. The conservative nature of this analysis is due primarily to the following factors:

- The ARB-adopted diesel exhaust Unit Risk Factor (URF) of 300 in one million per µg/m3 is based upon the upper 95 percentile of estimated risk for each of the epidemiological studies utilized to develop the URF. Using the 95th percentile URF represents a very conservative (health-protective) risk posed by DPM.
- The risk estimates assume sensitive receptors will be subject to DPM for 24 hours a day, 350 days a year.
- The emissions derived assume that every truck accessing the project site will idle for 15 minutes under the unmitigated scenario, this is an overestimation of actual idling times and thus conservative.[1] It should be noted that ARB's anti-idling requirements impose a 5-minute maximum idling time and therefore the analysis conservatively overestimates DPM emissions from idling by a factor of 3.

2.2 EMISSIONS ESTIMATION

2.2.1 ON-SITE AND OFF-SITE TRUCK ACTIVITY

Vehicle DPM emissions were estimated using emission factors for particulate matter less than 10µm in diameter (PM_{10}) generated with the 2014 version of the Emission FACtor model (EMFAC) developed by the ARB. EMFAC 2014 is a mathematical model that was developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the ARB to project changes in future emissions from on-road mobile sources (4). The most recent version of this model, EMFAC 2014, incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

Several distinct emission processes are included in EMFAC 2014. Emission factors calculated using EMFAC 2014 are expressed in units of grams per vehicle miles traveled (g/VMT) or grams per idle-hour (g/idle-hr), depending on the emission process. The emission processes and corresponding emission factor units associated with diesel particulate exhaust for this Project are presented below.

[1] Although the Project is required to comply with ARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions should be estimated for 15 minutes of truck idling (personal communication, in person, with Jillian Wong, December 22, 2016), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc.

For this Project, annual average PM_{10} emission factors were generated by running EMFAC 2014 in EMFAC Mode for vehicles in the SCAQMD jurisdiction. The EMFAC Mode generates emission factors in terms of grams of pollutant emitted per vehicle activity and can calculate a matrix of emission factors at specific values of temperature, relative humidity, and vehicle speed. The model was run for speeds traveled in the vicinity of the Project. The vehicle travel speeds for each segment modeled are summarized below.

- Idling – on-site loading/unloading and truck gate
- 5 miles per hour – on-site vehicle movement including driving and maneuvering
- 25 miles per hour – off-site vehicle movement including driving and maneuvering.

Calculated emission factors are shown at Table 2-1. As a conservative measure, a 2020 EMFAC 2014 run was conducted and a static 2020 emissions factor data set was used for the entire duration of analysis herein (e.g., 30 years). Use of 2020 emission factors would overstate potential impacts since this approach assumes that emission factors remain "static" and do not change over time due to fleet turnover or cleaner technology with lower emissions that would incorporated after 2020. Additionally, based on EMFAC2014, Light-Heavy-Duty Trucks comprise of 43.15% diesel, Medium-Heavy-Duty Trucks comprise of 87.2% diesel, and Heavy-Heavy-Duty Trucks comprise of 99.15% diesel trucks and have been accounted for accordingly in the emissions factor generation.

The vehicle DPM exhaust emissions were calculated for running exhaust emissions. The running exhaust emissions were calculated by applying the running exhaust PM10 emission factor (g/VMT) from EMFAC over the total distance traveled. The following equation was used to estimate off-site emissions for each of the different vehicle classes comprising the mobile sources (4):

$$Emissions_{speedA}\ (g/s) = EF_{RunExhaust}\ (g/VMT) * Distance\ (VMT/trip) * Number\ of\ Trips\ (trips/day) \div seconds\ per\ day$$

Where:

$Emissions_{speedA}$ (g/s): Vehicle emissions at a given speed A;

$EF_{RunExhaust}$ (g/VMT): EMFAC running exhaust PM_{10} emission factor at speed A;

Distance (VMT/trip): Total distance traveled per trip.

Similar to off-site traffic, on-site vehicle running emissions were calculated by applying the running exhaust PM_{10} emission factor (g/VMT) from EMFAC and the total vehicle trip number over the length of the driving path using the same formula presented above for on-site emissions. In addition, on-site vehicle idling exhaust emissions were calculated by applying the idle exhaust PM_{10} emission factor (g/idle-hr) from EMFAC and the total truck trip over the total idle time (15 minutes). The following equation was used to estimate the on-site vehicle idling emissions for each of the different vehicle classes (4):

$$Emissions_{idle}\ (g/s) = EF_{idle}\ (g/hr) * Number\ of\ Trips\ (trips/day) * Idling\ Time\ (min/trip) \div 60\ minutes\ per\ hour \div seconds\ per\ day$$

Where:

$Emissions_{idle}$ (g/s): Vehicle emissions during idling;

EF_{idle} (g/s): EMFAC idle exhaust PM_{10} emission factor.

TABLE 2-1: 2020 WEIGHTED AVERAGE DPM EMISSIONS FACTORS

Speed	Weighted Average
0 (idling)	0.05410 (g/idle-hr)
5	0.0.4375 (g/s)
25	0.0.02645 (g/s)

Each roadway was modeled as a line source (made up of multiple adjacent volume sources). Due to the large number of volume sources modeled for this analysis, the corresponding coordinates of each volume source have not been included in this report but are included in Appendix "2.1". The DPM emission rate for each volume source was calculated by multiplying the emission factor (based on the average travel speed along the roadway) by the number of trips and the distance traveled along each roadway segment and dividing the result by the number of volume sources along that roadway, as illustrated on Table 2-2. The modeled emission sources are illustrated on Exhibit 2-A. The modeling domain is limited to the Project's primary truck route and includes off-site sources in the study area for approximately 0.24 mile to 1.5 miles. This modeling domain is consistent with and more conservative than using only a ¼ mile modeling domain which is supported by substantial evidence since several studies have shown that the greatest potential risks occur within a ¼ mile of the primary source of emissions (in the case of the Project this is the on-site idling, and on-site travel).

On-site truck idling was estimated to occur as trucks enter and travel through the facility. Although the Project is required to comply with CARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions should be estimated for 15 minutes of truck idling (5), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc. As such, this analysis estimated truck idling at 15 minutes, consistent with SCAQMD's recommendation.

Per the *Baseline/Alder Warehouse Traffic Study*, the Project is expected to generate a net total of approximately 910-rip-ends per day (actual vehicles) (6). The Project trip generation includes 364 truck trip-ends per day from the proposed Project site including 1.9% 2-axle trucks, 28.02% 3-axle trucks, and 70.01% 4+-axle trucks.

TABLE 2-2: DPM EMISSIONS FROM PROJECT TRUCKS

Truck Emission Rates						
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling	182			0.0541	2.46	2.849E-05
On-Site Travel	364	87.44	0.0437		3.83	4.427E-05
Off-Site Travel 100% Inbound	182	194.47	0.0265		5.14	5.954E-05
Off-Site Travel 100% Outbound	182	279.64	0.0265		7.40	8.562E-05

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2014. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

EXHIBIT 2-A: MODELED EMISSION SOURCES

2.3 EXPOSURE QUANTIFICATION

The analysis herein has been conducted in accordance with the guidelines in the Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1). SCAQMD recommends using the Environmental Protection Agency's (U.S. EPA's) AERMOD model. For purposes of this analysis, the model was used to calculate annual average particulate concentrations associated with site operations.

The model offers additional flexibility by allowing the user to assign an initial release height and vertical dispersion parameters for mobile sources representative of a roadway. For this HRA, the roadways were modeled as adjacent volume sources. Roadways were modeled using the U.S. EPA's haul route methodology for modeling of on-site and off-site truck movement. More specifically, the Haul Road Volume Source Calculator in AERMOD View has been utilized to determine the release height parameters. Based on the US EPA methodology, the Project's modeled sources would result in a release height of 3.49 meters, and an initial lateral dimension of 4.0 meters, and an initial vertical dimension of 3.25 meters.

SCAQMD required model parameters are presented in Table 2-3 (7). The model requires additional input parameters including emission data and local meteorology. Meteorological data from the SCAQMD's Fontana (SRA 34) was used to represent local weather conditions and prevailing winds (8).

TABLE 2-3: AERMOD MODEL PARAMETERS

Dispersion Coefficient (Urban/Rural)	Urban
Terrain (Flat/Elevated)	Elevated (Regulatory Default)
Averaging Time	1 year (5-year Meteorological Data Set)
Receptor Height	0 meters (Regulatory Default)

Universal Transverse Mercator (UTM) coordinates for World Geodetic System (WGS) 84 were used to locate the project boundaries, each volume source location, and receptor locations in the project vicinity. The AERMOD dispersion model summary output files for the proposed facility are presented in Appendix "2.1".

Modeled sensitive receptors were placed at residential and non-residential locations. Based on recommendations from SCAMD staff, a receptor grids with a maximum of 100 meters spacing were placed at residential, worker, and school locations to ensure that the maximum impacts are properly analyzed.

Receptors may be placed at applicable structure locations for residential and worker property and not the necessarily the boundaries of these uses. It should be noted that the primary purpose of receptor placement is focused on long-term exposure. For example, the HRA evaluates the potential health risks to residential and worker over a period of 30 or 25 years of exposure respectively. As such, even though it is unlikely to occur in practical terms (because the amount of time spent indoors), this study assumes that a resident or worker would be exposed over a long-period of time for 12 or 24-hours per day at the structure they reside or work.

Furthermore, worker receptors immediately adjacent to the Project site have been evaluated in the HRA. Any impacts to workers located further away from the Project site than the modeled worker receptors would have a lesser impact than what has already been disclosed in the HRA at the MEIW.

Discrete variants for daily breathing rates, exposure frequency, and exposure duration were obtained from relevant distribution profiles presented in the 2015 OEHHA Guidelines. Tables 2-4, and 2-5 summarize the Exposure Parameters for Residents and Offsite Worker scenarios based on 2015 OEHHA Guidelines. Appendix 2.2 includes the detailed risk calculation.

TABLE 2-4: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (30 YEAR RESIDENTIAL)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Fraction of Time at Home	Exposure Frequency (days/year)	Exposure Time (hours/day)
-0.25 to 0	361	10	0.25	0.85	350	24
0 to 2	1090	10	2	0.85	350	24
2 to 16	745	3	14	0.72	350	24
16 to 30	335	1	14	0.73	350	24

TABLE 2-5: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (25 YEAR WORKER)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Exposure Frequency (days/year)	Exposure Time (hours/day)
16 to 41	271	1	25	250	12

2.4 CARCINOGENIC CHEMICAL RISK

The SCAQMD CEQA Air Quality Handbook (1993) states that emissions of toxic air contaminants (TACs) are considered significant if a HRA shows an increased risk of greater than 10 in one million. Based on guidance from the SCAQMD in the document Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1), for purposes of this analysis, 10 in one million is used as the cancer risk threshold for the proposed Project.

Excess cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens over a specified exposure duration. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF). A risk level of 10 in one million implies a likelihood that up to 10 people, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of toxic air contaminants over a specified duration of time. As an example, the risk of dying from accidental

drowning is 1,000 in a million which is 100 times more than the SCAQMD's threshold of 10 in one million, the nearest comparison to 10 in one million is the 7 in one million lifetime chance that an individual would be struck by lightning.

Guidance from CARB and the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) recommends a refinement to the standard point estimate approach when alternate human body weights and breathing rates are utilized to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose. Once determined, contaminant dose is multiplied by the cancer potency factor (CPF) in units of inverse dose expressed in milligrams per kilogram per day (mg/kg/day)-1 to derive the cancer risk estimate. Therefore, to assess exposures, the following dose algorithm was utilized.

$$DOSEair = (Cair \times [BR/BW] \times A \times EF) \times (1 \times 10^{-6})$$

Where:

DOSEair = chronic daily intake (mg/kg/day)

Cair = concentration of contaminant in air (ug/m3)

[BR/BW] = daily breathing rate normalized to body weight (L/kg BW-day)

A = inhalation absorption factor

EF = exposure frequency (days/365 days)

BW = body weight (kg)

1×10^{-6} = conversion factors (ug to mg, L to m3)

$$RISKair = DOSEair \times CPF \times ED/AT$$

Where:

DOSEair = chronic daily intake (mg/kg/day)

CPF = cancer potency factor

ED = number of years within particular age group

AT = averaging time

2.5 NON-CARCINOGENIC EXPOSURES

An evaluation of the potential noncarcinogenic effects of chronic exposures was also conducted. Adverse health effects are evaluated by comparing a compound's annual concentration with its toxicity factor or Reference Exposure Level (REL). The REL for diesel particulates was obtained from OEHHA for this analysis. The chronic reference exposure level (REL) for DPM was

established by OEHHA as 5 µg/m^3 (OEHHA Toxicity Criteria Database, http://www.oehha.org/risk/chemicaldb/index.asp).

The non-cancer hazard index was calculated (consistent with SCAQMD methodology) as follows:

The relationship for the non-cancer health effects of DPM is given by the following equation:

$$HI_{DPM} = C_{DPM}/REL_{DPM}$$

Where:

HI_{DPM} = Hazard Index; an expression of the potential for non-cancer health effects.

C_{DPM} = Annual average DPM concentration (µg/m^3).

REL_{DPM} = Reference exposure level (REL) for DPM; the DPM concentration at which no adverse health effects are anticipated.

For purposes of this analysis the hazard index for the respiratory endpoint totaled less than one for all receptors in the project vicinity, and thus is less than significant.

2.6 POTENTIAL PROJECT-RELATED DPM SOURCE CANCER AND NON-CANCER RISKS[2]

Residential Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is located approximately 51 feet north of the Project site. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 5.29 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.002, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent residences. The nearest modeled receptors are illustrated on Exhibit 2-B.

Worker Exposure Scenario:

The worker receptor land use with the greatest potential exposure to Project DPM source emissions is located immediately adjacent to the west of the Project site an existing industrial use. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact at this location is 0.21 in one million which is less than the threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be 0.0006, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent workers. The nearest modeled receptors are illustrated on Exhibit 2-B.

2 SCAQMD guidance does not require assessment of the potential health risk to on-site workers. Excerpts from the document OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines—The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2003), also indicate that it is not necessary to examine the health effects to on-site workers unless required by RCRA (Resource Conservation and Recovery Act) / CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) or the worker resides on-site.

EXHIBIT 2-B: MODELED RECEPTORS

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3 REFERENCES

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4 CERTIFICATION

The contents of this health risk assessment represent an accurate depiction of the impacts to sensitive receptors associated with the proposed Baseline/Alder Warehouse Project. The information contained in this health risk assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

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PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
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ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June, 2013
Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
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Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 2.1:

AERMOD MODEL INPUT/OUTPUT

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APPENDIX 2.2:

RISK CALCULATIONS

APPENDIX B-1

Biological Resources – Plants

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Abronia villosa var. *aurita*	chaparral sand-verbena	None/None/1B.1	Chaparral, Coastal scrub, Desert dunes; sandy/annual herb/(Jan)Mar–Sep/245–5250	Not expected to occur. No suitable habitat present.
Atriplex parishii	Parish's brittlescale	None/None/1B.1	Chenopod scrub, Playas, Vernal pools; alkaline/annual herb/June–Oct/80–6235	Not expected to occur. No suitable habitat present.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/1B.2	Coastal bluff scrub, Coastal scrub; alkaline/annual herb/Apr–Oct/30–655	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable habitat present.
Berberis nevinii	Nevin's barberry	FE/SE/1B.1	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub; sandy or gravelly/perennial evergreen shrub/(Feb)Mar–June/225–2705	Not expected to occur. No suitable habitat present.
California macrophylla	round-leaved filaree	None/None/1B.2	Cismontane woodland, Valley and foothill grassland; clay/annual herb/Mar–May/45–3935	Not expected to occur. No suitable habitat present.
Calochortus weedii var. *intermedius*	intermediate mariposa lily	None/None/1B.2	Chaparral, Coastal scrub, Valley and foothill grassland; rocky, calcareous/perennial bulbiferous herb/May–July/340–2805	Not expected to occur. No suitable habitat present.
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1	Marshes and swamps (margins), Valley and foothill grassland (vernally mesic), Vernal pools/annual herb/May–Nov/0–1575	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable habitat present.
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2	Coastal dunes, Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/0–100	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable habitat present.
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/SE/1B.1	Coastal scrub (sandy), Valley and foothill grassland/annual herb/Apr–July/490–4005	Not expected to occur. No suitable habitat present.
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	None/None/2B.2	Marshes and swamps (freshwater)/annual vine (parasitic)/July–Oct/45–920	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable habitat present.
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2	Chaparral, Coastal scrub, Valley and foothill grassland; often clay /perennial herb/Apr–July/45–2590	Not expected to occur. No suitable habitat present.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/225–2655	Not expected to occur. No suitable habitat present.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1	Marshes and swamps (coastal salt), Playas, Vernal pools/annual herb/Feb–June/0–4005	Not expected to occur. No suitable habitat present.
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.1	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools; Mesic/annual herb/Apr–July/5–3970	Not expected to occur. No suitable habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Orcuttia californica	California Orcutt grass	FE/SE/1B.1	Vernal pools/annual herb/Apr–Aug/45–2165	Not expected to occur. No suitable habitat present.
Phacelia stellaris	Brand's star phacelia	None/None/1B.1	Coastal dunes, Coastal scrub/annual herb/Mar–June/0–1310	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable habitat present.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; sandy, gravelly/perennial herb/(July)Aug–Nov(Dec)/0–6890	Not expected to occur. No suitable habitat present.
Ribes divaricatum var. *parishii*	Parish's gooseberry	None/None/1A	Riparian woodland/perennial deciduous shrub/Feb–Apr/210–985	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable habitat present.
Scutellaria bolanderi ssp. *austromontana*	southern mountains skullcap	None/None/1B.2	Chaparral, Cismontane woodland, Lower montane coniferous forest; mesic/perennial rhizomatous herb/June–Aug/1390–6560	Not expected to occur. No suitable habitat present.
Senecio aphanactis	chaparral ragwort	None/None/2B.2	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/45–2625	Not expected to occur. No suitable habitat present.
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic /perennial herb/Mar–June/45–5020	Not expected to occur. No suitable habitat present.
Suaeda esteroa	estuary seablite	None/None/1B.2	Marshes and swamps (coastal salt)/perennial herb/(May)July–Oct(Jan)/0–15	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable habitat present.
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov/5–6695	Not expected to occur. No suitable habitat present.

Status Legend:
FE: Federally listed as endangered
FT: Federally listed as threatened
FC: Federal Candidate for listing
SE: State listed as endangered
ST: State listed as threatened
SR: State Rare
CRPR 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
CRPR 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
CRPR 2A: Plants Presumed Extirpated in California, But More Common Elsewhere
CRPR 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

APPENDIX B-2

Biological Resources – Wildlife

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			Amphibians	
Anaxyrus californicus	arroyo toad	FE/SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. No suitable aquatic habitat present on project site.
Rana draytonii	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. No suitable aquatic habitat present on project site.
Rana muscosa	mountain yellow-legged frog	FE/SE, WL	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. No suitable aquatic habitat present on project site.
Spea hammondii	western spadefoot	None/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Not expected to occur. No suitable aquatic habitat present on project site.
			Birds	
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/PSE, SSC	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not expected to occur. No suitable aquatic habitat present on project site.
Asio otus (nesting)	long-eared owl	None/SSC	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Not expected to occur. No suitable riparian habitat present on project site.
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Low potential to occur. Open areas and non-native grassland is present, but provides very little potential habitat on project site.
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to occur. No suitable nesting habitat present on project site.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. No suitable riparian habitat present on project site.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. No suitable riparian habitat present on project site.
Haliaeetus leucocephalus (nesting & wintering)	bald eagle	FDL, BCC/SE, FP	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	Not expected to occur. No suitable nesting habitat present on project site.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Laterallus jamaicensis coturniculus	California black rail	BCC/ST, FP	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	Not expected to occur. No suitable aquatic habitat present on project site.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. No suitable habitat present.
Setophaga petechia (nesting)	yellow warbler	BCC/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur. No suitable riparian habitat present on project site.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. No suitable riparian habitat present on project site.
Fish				
Catostomus santaanae	Santa Ana sucker	FT/None	Small, shallow, cool, clear streams less than 7 meters (23 feet) in width and a few centimeters to more than a meter (1.5 inches to more than 3 feet) in depth; substrates are generally coarse gravel, rubble, and boulder	Not expected to occur. No suitable aquatic habitat present on project site.
Gila orcuttii	arroyo chub	None/SSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. No suitable aquatic habitat present on project site.
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None/SSC	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur. No suitable aquatic habitat present on project site.
Siphateles bicolor mohavensis	Mohave tui chub	FE/SE, FP	Lacustrine ponds or pools; 4 feet min water depth; freshwater flow; mineralized and alkaline environment; habitat for aquatic invertebrate prey and egg attachment substrate; Ruppia maritima preferred for egg attachment and thermal refuge in summer months	Not expected to occur. No suitable aquatic habitat present on project site.
Insects				
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	FE/None	Delhi fine sandy soils and dunes, scrub and ruderal vegetation in the sand verbena series with <50% cover	Not expected to occur. No suitable habitat present on project site.
Mammals				
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/SSC	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Not expected to occur. No suitable scrub or chaparral habitat present on project site.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/SSC	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Not expected to occur. No suitable desert scrub or woodland habitat present on project site.
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE/SSC	Sparse scrub habitat, alluvial scrub/coastal scrub habitats on gravelly and sandy soils near river and stream terraces	Not expected to occur. No suitable alluvial fan habitat present on project site.
Dipodomys stephensi	Stephens' kangaroo rat	FE/ST	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Not expected to occur. No suitable habitat present on project site.
Eumops perotis californicus	western mastiff bat	None/SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Not expected to occur. No suitable habitat present on project site.
Lasiurus xanthinus	western yellow bat	None/SSC	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms	Not expected to occur. No suitable habitat present on project site.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Low potential to occur. Open areas and non-native grassland is present, but provides very little potential habitat on project site.
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Low potential to occur. Open areas and non-native grassland is present, but provides very little potential habitat on project site.
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings	Not expected to occur. No suitable desert scrub or woodland habitat present on project site.
Onychomys torridus ramona	southern grasshopper mouse	None/SSC	Grassland and sparse coastal scrub	Low potential to occur. Open areas and non-native grassland is present, but provides very little potential habitat on project site.
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. No suitable habitat present on project site.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None/SSC	Lower-elevation grassland, alluvial sage scrub, and coastal scrub	Not expected to occur. No suitable alluvial fan habitat present on project site.
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Not expected to occur. No suitable habitat present on project site.
			Reptiles	
Actinemys marmorata	western pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. No suitable aquatic habitat present on project site.
Anniella stebbinsi	southern California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and	Not expected to occur. No suitable sandy wash or dune habitat present on project site.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			moist sandy or loose, loamy soils	
Arizona elegans occidentalis	California glossy snake	None/SSC	Commonly occurs in desert regions throughout southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	Not expected to occur. No suitable sandy wash or dune habitat present on project site.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Not expected to occur. No suitable habitat present on project site.
Charina umbratica	southern rubber boa	None/ST	Montane oak–conifer and mixed-conifer forests, montane chaparral, wet meadows; usually in vicinity of streams or wet meadows	Not expected to occur. No suitable habitat present on project site.
Coleonyx variegatus abbotti	San Diego banded gecko	None/SSC	Rocky areas within coastal scrub and chaparral	Not expected to occur. No suitable habitat present on project site.
Crotalus ruber	red diamondback rattlesnake	None/SSC	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Not expected to occur. No suitable habitat present on project site.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Not expected to occur. No suitable habitat present on project site.
Thamnophis hammondii	two-striped gartersnake	None/SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur. No suitable habitat present on project site.

Status Legend:
FE: Federally Endangered
FT: Federally Threatened
PFE: Proposed Federally Endangered
PFT: Proposed Federally Threatened
FC: Federal Candidate
FDL: Federally Delisted
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
BLM: Bureau of Land Management Sensitive Species
USFS: U.S. Forest Service Sensitive Species
SSC: California Species of Special Concern
FP: California Fully Protected Species
WL: California Watch List Species
SE: State Endangered
ST: State Threatened
PSE: Proposed State Endangered
PST: Proposed State Threatened
SDL: State Delisted
SS: List Special Animals List, but no other status

APPENDIX C

Cultural Resources

CULTURAL RESOURCES REPORT FOR THE BASELINE/ALDER WAREHOUSE PROJECT

CITY OF RIALTO, SAN BERNARDINO COUNTY, CALIFORNIA

PREPARED FOR:

CITY OF RIALTO
Development Services Department, Planning Division
150 South Palm Avenue
Rialto, California 92376

PREPARED BY:

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DUDEK
38 North Marengo Avenue
Pasadena, California 91101

JULY 2018

NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Authors: Erica Nicolay, MA, and Liz Denniston, MA, RPA

Firm: Dudek

Project Proponent: City of Rialto

Report Date: March 2018

Report Title: Archaeological Survey Report for the Baseline/Alder Warehouse Project within the City of Rialto, San Bernardino County, California

Type of Study: Cultural Resources Inventory, Pedestrian Survey

New Resources: N/A

Updated Sites: N/A

USGS Quads: Fontana 7.5' T1N/R5W Section 32

Acreage: Approximately 9 acres

Permit Numbers: N/A

Keywords: California Environmental Quality Act (CEQA); City of Rialto; cultural resources inventory, pedestrian survey; Gabrielino/Tongva; negative results

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EXECUTIVE SUMMARY

Dudek was retained by CH Realty VIII/I Rialto Alder South LP to conduct a cultural resources study in support of the proposed Baseline/Alder Warehouse Project (project). This cultural resources study included the following components: (1) a California Historical Resources Information System (CHRIS) records search covering the proposed project site plus a 1-mile radius at the South Central Coast Information Center (SCCIC), (2) a review of the California Native American Heritage Commission's (NAHC's) Sacred Lands File, (3) an intensive pedestrian survey of the project site for cultural resources, and (4) and evaluation of three residential properties for historical significance.

This study is compliant with California Public Resources Code (PRC) Section 5024.1, Sections 21083.2 and 21084.1 of the California Environmental Quality Act (CEQA) (PRC Section 21000 et seq.), and Section 15064.5 of the CEQA Guidelines (14 CCR Section 15000 et seq.). PRC Section 5024.1 requires the identification and evaluation of historical resources that may be affected by a proposed project.

On February 13, 2018, Dudek completed a records search for the project site and surrounding 1-mile search buffer from the SCCIC. On February 22, 2018, a response letter was received via email from the NAHC stating that the results of the Sacred Lands File search failed to indicate the presence of Native American cultural resources in the immediate project site. The NAHC also provided a list of 22 Native American groups and individuals who may have knowledge of cultural resources in the project site. Letters were sent to each representative March 6, 2018. To date, four responses have been received, two of which state that they have no knowledge of cultural resources in the area, one of which stated that the project site is outside the tribe's ancestral territory, and one of which stated that the project site is relatively close to important cultural resources and recommends archaeological testing.

No cultural resources were identified within the project site as a result of the CHRIS records search. Three residential homes over 45 years of age were evaluated for historical significance and found not eligible for NRHP, CRHR, or City designation. No additional cultural resources were identified during the intensive-level survey of the project site. Archaeological sensitivity within the project site is considered low. No additional cultural work is recommended for the project beyond standard protection measures for unanticipated discoveries or archaeological resources and human remains (Section 7).

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C California Department of Parks and Recreation Series 523 Forms

1 INTRODUCTION

Dudek was retained by CH Realty VIII/I Rialto Alder South LP to conduct a cultural resources inventory in support of the proposed Baseline/Alder Warehouse Project (project). This cultural resources study included the following components: (1) a California Historical Resources Information System (CHRIS) records search covering the proposed project site plus a 1-mile radius at the South Central Coast Information Center (SCCIC), (2) a review of the California Native American Heritage Commission's (NAHC's) Sacred Lands File, (3) an intensive pedestrian survey of the project site for cultural resources, and (4) evaluation of three residential properties for historical significance.

This study is compliant with California Public Resources Code (PRC) Section 5024.1, Sections 21083.2 and 21084.1 of the California Environmental Quality Act (CEQA) (PRC Section 21000 et seq.), and Section 15064.5 of the CEQA Guidelines (14 CCR Section 15000 et seq.). PRC Section 5024.1 requires the identification and evaluation of historical resources that may be affected by a proposed project.

1.1 Project Location

The project site is located in the City of Rialto, California. The project site is approximately 10.48 acres and is bounded by vacant land, industrial/warehouse uses, and limited residential uses to the north, Alder Avenue and industrial/warehouse uses to the east, Baseline Road, municipal uses, residential uses to the south, and residential uses and industrial/warehouse uses to the west. The project site is composed of 12 parcels (Assessor's Parcel Numbers (APNs) 0204-201-10, 0240-201-12, 0240-201-13, 0240-201-14, 0240-201-15, 0240-201-18, 0240-201-38, 0240-201-42, 0240-201-44, 0240-201-45, 0240-201-46, and 0240-201-47). The project site is located within Section 32, Township 1 North, Range 5 West on the Fontana U.S. Geological Survey 7.5-minute quadrangle map (Figure 1 and Figure 2).

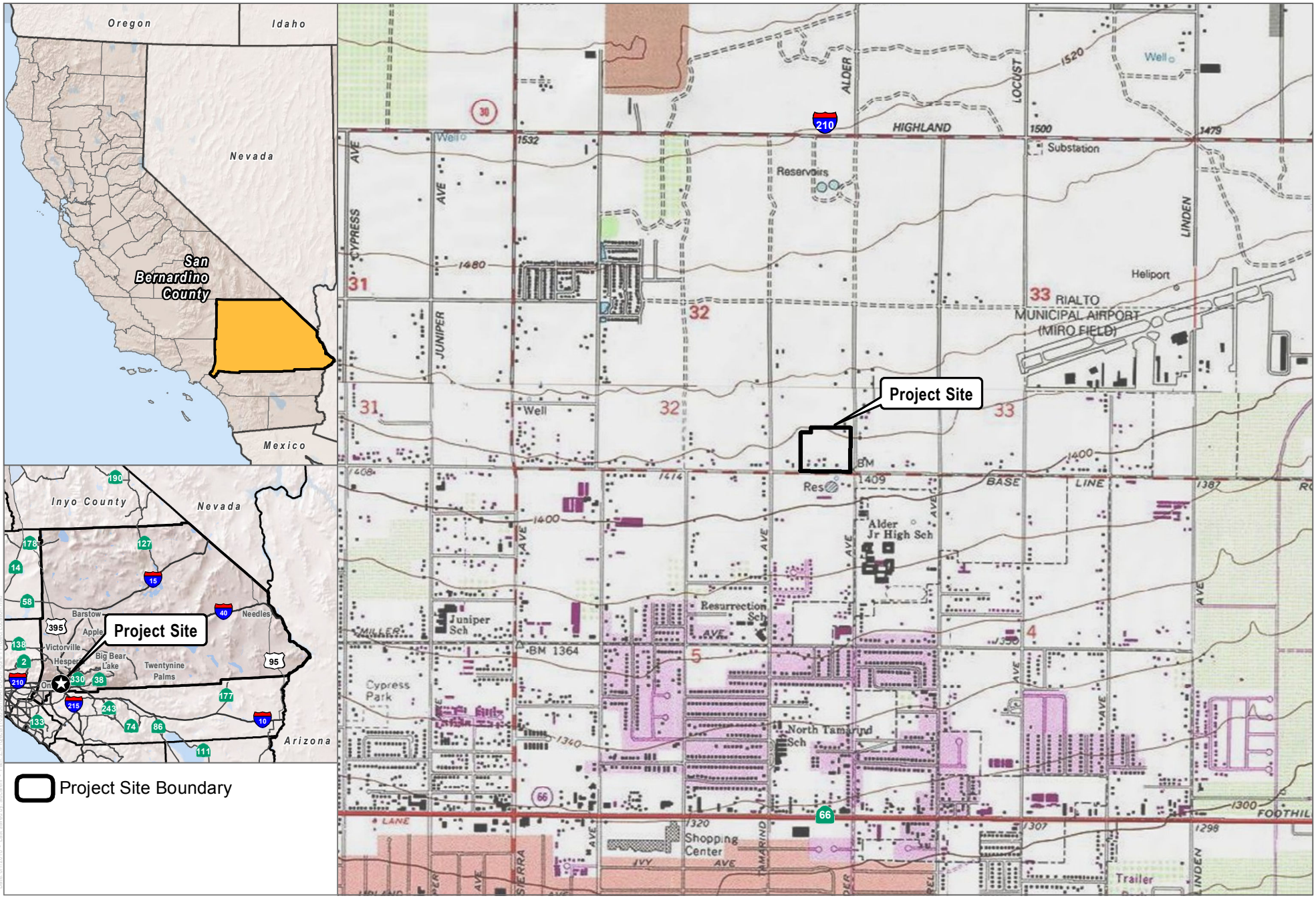
1.2 Project Description

The proposed project would include construction of a 255,174-square-foot (gross area, inclusive of mezzanine/office spaces), one-story industrial/warehouse building on an approximately 11.63-acre (gross) property. The industrial/warehouse building would be composed of approximately 252,568 square feet of warehouse space and 2,606 square feet of mezzanine space. The proposed project would also include approximately 60,000 square feet of landscaping, 134 passenger vehicle parking spaces, 28 loading docks, and 40 truck parking spaces. The project would not contain any cold storage space and would have a clear height of 36 feet.

The project would also include improvements to Baseline Road and Alder Avenue along the project's street frontage, including landscape, sidewalk, and parkway improvements. A variety of trees, shrubs, plants, and land covers would be planted within the project frontage's landscape setback area, within the landscape areas found around the proposed industrial/warehouse building, and throughout the project site.

1.3 Project Personnel

This report was co-authored by Dudek Archaeologist Erica Nicolay, MA and Dudek Architectural Historian Sarah Corder, MFA. This report was reviewed for quality assurance/quality control by Dudek Senior Architectural Historian and Archaeologist and Samantha Murray, MA, Registered Professional Archaeologist (RPA). All staff meet the Secretary of the Interior's Professional Qualifications Standards for Archaeology and Architectural History, respectively.



SOURCE: USGS 7.5-Minute Series Fontana Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Baseline Alder Warehouse

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SOURCE: DigitalGlobe 2016; Riverside County 2017

DUDEK

0 50 100 Feet

FIGURE 2

Project Site Plan

Baseline Alder Warehouse

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2 REGULATORY SETTING

2.1 Federal

While there is no federal nexus for this project, the subject property was evaluated in consideration of the National Register of Historic Places (NRHP) designation criteria and integrity requirements.

National Register of Historic Places

The NRHP is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service, under the U.S. Department of the Interior, the NRHP was authorized under the National Historic Preservation Act, as amended. Its listings encompass all National Historic Landmarks, as well as historic areas administered by the National Park Service.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in NRHP guidance, "How to Apply the National Register Criteria for Evaluation," as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1990). NRHP guidance further asserts that properties be completed at least 50 years ago to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration G) to be considered for listing.

2.2 State

California Register of Historical Resources

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" (PRC Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (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" (PRC 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 as follows. According to PRC 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.

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 50 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 (14 CCR 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

The following CEQA statutes (PRC Section 21000 et seq.) and CEQA Guidelines (14 CCR 15000 et seq.) are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."

- PRC 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 a historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC 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.
- PRC Sections 21083.2(b) and 21083.2(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 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" (PRC Section 21084.1; 14 CCR 15064.5(b)).

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" (14 CCR 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project does any of the following (14 CCR 15064.5(b)(2)):

(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 PRC 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.

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 would be 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 (PRC Sections 21083.2(a)–(c)).

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 (PRC Section 21083.2(g)):

(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 on non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); 14 CCR 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as a tribal cultural resource (PRC Sections 21074(c) and 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed in PRC Section 5097.98.

California Health and Safety Code Section 7050.5

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. California 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 can occur until the county coroner has examined the remains (Health and Safety Code Section 7050.5(b)). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the county coroner determines or has reason to believe the remains are those of a Native American, the county coroner must contact the NAHC within 24 hours (Health and Safety Code Section 7050.5(c)). The NAHC will notify the most likely descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the MLD by the NAHC. The MLD may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

2.3 Local

Ordinance Number 1545, Section 3, of the Rialto Municipal Code was adopted June 2014. The ordinance established the purpose, roles, and responsibilities of the Historic Preservation Commission, along with nomination and designation program for historic resources.

Chapter 2.20 Historic Preservation Commission

Chapter 2.20 Section 010 – Creation, Purpose, and Intent.

The city finds, determines and declares:

A. That the State Legislature of California, pursuant to Government Code Section 37361, has recognized the value of identifying protecting and preserving places buildings, structures and other objects of historical, aesthetic and cultural importance and has empowered cities to adopt regulations and incentives for the protection, enhancement, perpetuation and use of such places, buildings, structures and other objects.

B. That the city possesses many distinctive places, structures, neighborhoods, and urban design features (all herein referred to as "resources") that enhance its value as an attractive and delightful community in which to live and work.

C. That certain of these resources are of cultural, aesthetic or historical significance and value because of age, architectural style, aesthetic appeal or association with local history.

D. That by preserving these resources Rialto shall contribute to the livability and beauty of the community, stimulate economic revitalization, improve property values in the city, foster architectural creativity, increase neighborhood stability and conservation, foster public appreciation of and civic pride in the beauty of the city and the accomplishments of its past, reinforce the distinctive character of the community, add to the community's understanding of its history and connection with the life and values of the past, and ensure that Rialto's cultural, historical and architectural heritage will be imparted to future generations.

E. That shifts in population and in the economy changes in the way people live and changes in land use threaten to destroy these irreplaceable and desirable resources. Construction and alterations of inferior quality and appearance are also a threat to these resources.

F. That the adoption of reasonable and fair regulations is necessary as a means of recognition, documentation, preservation and maintenance of resources of cultural, aesthetic, or historical significance. Such regulation serves as a means to integrate the preservation of resources and the extraction of relevant data from such resources into public and private land management and development process, and to identify as early as possible and resolve conflicts between the

preservation of cultural resources and alternative land uses. This chapter is intended to carry out the goals and policies of the Rialto general plan.

Chapter 2.20 Section 060 – Nomination and Designation Program for Historic Resources.

The commission shall undertake to establish and maintain a list of nominated resources that have been identified during the survey. An individual who presents documentation equal to that collected in the survey may request that a resource be placed on the list. This list may include single structures or site, portions of structures, urban design features, man-made or natural landscape elements, or works of art. Districts may not be placed on the list. A nominated resource may be designated a landmark and a district may be designated a historic district by the city council after public hearings and a recommendation by the historic preservation commission.

A. Any one of the following findings may be used to determine a local landmark designation.
    1. It has character, interest or value as part of the development, heritage, or cultural characteristics of the city, state of California or the United States.
    2. It is the site of a documented historic event.
    3. It is strongly identified with a person or person who significantly contributed to the culture, history or development of the city.
    4. It is one of the few remaining examples in the city possessing distinguishing characteristics of an architectural type or specimen.
    5. It is notable work of an architect or master builder.
    6. It embodies elements of architectural design, detail, materials or craftsmanship.
    7. It has be unique location or singular physical characteristics representing an established and familiar visual feature in the city.
    8. It has unique design or detailing.
    9. It is a particularly good example of a period or style.
    10. It is located within a historic district, contributes to the overall feeling of the district, and which individually may lack significance.
B. Designation of historic resources and designation of districts shall take place in accordance with the procedures in this section.
    1. No nominated resource shall be altered, moved, demolished, subdivided or otherwise permanently changed until eligibility for designation has been determined or the designation process has been initiated in accordance with this section and a certificate of appropriateness, if applicable, has been secured.

2. Any person or group may request the designation of a historic resource, or ten percent of the property owners in a potential district may request the designation of a historic district by submitting an application for such designation to the commission on forms prescribed by the commission. The commission or city council may also initiate such proceedings on their own motion.
3. The commission shall have staff prepare a written report regarding the proposed designation including a physical description of the resource, reasons for its significance, criteria used to determine eligibility, and other appropriate data.
4. The commission shall schedule a public hearing as soon as feasible but not less than twenty-one days after the filing of the application. Notice shall be published in a newspaper of general circulation in Rialto not less than ten days before the date set for the commission hearing. The notice shall be filed with the city clerk and mailed to the applicant and owner.
5. The notice shall include the date, place time and purpose of the hearing and shall a given by first class mail to the applicants, owners or occupants of the improvement at least ten days prior to the date of the public hearing, using the name and address of such owners as shown on the latest equalized assessment rolls.
6. In the case of a proposed historic district, notice of the date, place, time and purpose of the hearing shall be given by first class mail to the applicant and owners of all properties within the proposed district at least ten days prior to the date of the public hearing, using the name and address of such owners as shown on the latest equalized assessment rolls, and shall be advertised in a newspaper of general circulation in Rialto.
7. At the conclusion of the public hearing for the designation of a local landmark or historic district, the commission shall recommend to the city council either approval, in whole in part, or disapproval, in whole or in part, of the proposed designation stating the findings of fact and the reasons for its recommendation based on the report and information brought out at the public hearing. This shall in no event occur more than thirty days from the date of the conclusion of the public hearing process.
8. Following receipt of such report, the city council shall within forty-five days consider, at a noticed public hearing, the designation of each property recommended for designation by the commission. Designation of historic resources and districts shall be by resolution of the city council.
9. Following such designation by the city council, the city clerk shall within thirty days cause to be recorded in the office of the county recorder notice that such property has been designated and placed on the city's register of local landmarks. Following the recordation of such notice, such property shall be subject to all the provisions of the Rialto historic preservation ordinance. If the city council decides not to designate a property, it may review the proposed designation again after one year, or sooner if there is substantial additional information or changes in the application.

10. The amendment or rescission of any designation shall be in the same manner and procedures as was followed in the original designation.

11. Failure to send any notice by mail to any property owner where the address of such owner is not a matter of public record shall not invalidate any proceedings in connection with the proposed designation.

C. Following designation, the provisions of Rialto's design guidelines shall apply to landmarks, and historic districts. The design guidelines shall contain approved recommendations for making exterior changes to local landmarks. Thereafter, any alteration, improvement, land division, change of use, demolition or moving of any historic resource or sign associated with a historic resource shall be subject to the review of the city in accordance with this chapter.

3 CULTURAL SETTING

3.1 Prehistoric Overview

Evidence for continuous human occupation in Southern California spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad period have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. Each of these reconstructions describes essentially similar trends in assemblage composition in more or less detail. However, given the direction of research and differential timing of archaeological study following intensive development in Riverside and San Bernardino Counties, chronology building in the Inland Empire must rely on data from neighboring regions to fill the gaps. To be more inclusive, this research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1769), and Ethnohistoric (post-AD 1769).

Paleoindian Period (pre-5500 BC)

Evidence for Paleoindian occupation in the region is tenuous. Our knowledge of associated cultural pattern(s) is informed by a relatively sparse body of data that has been collected from within an area extending from coastal San Diego, through the Mojave Desert, and beyond. One of the earliest dated archaeological assemblages in the region is located in coastal Southern California (though contemporaneous sites are present in the Channel Islands) derives from SDI-4669/W-12 in La Jolla. A human burial from SDI-4669 was radiocarbon dated to 9,590–9,920 years before present (95.4% probability) (Hector 2006). The burial is part of a larger site complex that contained more than 29 human burials associated with an assemblage that fits the Archaic profile (i.e., large amounts of ground stone, battered cobbles, and expedient flake tools). In contrast, typical Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of ground stone tools. Prime examples of this pattern are sites that were studied by Davis (1978) on Naval Air Weapons Station China Lake near Ridgecrest, California. These sites contained fluted and unfluted stemmed points and large numbers of formal flake tools (e.g., shaped scrapers, blades). Other typical Paleoindian sites include the Komodo site (MNO-679)—a multicomponent fluted point site, and MNO-680—a single component Great Basined Stemmed point site (Basgall et al. 2002). At MNO-679 and -680, ground stone tools were rare, whereas finely made projectile points were common.

Warren et al. (2004) claimed that a biface manufacturing tradition present at the Harris site complex (SDI-149) is representative of typical Paleoindian occupation in the San Diego region that possibly dates between 10,365 and 8200 BC (Warren et al. 2004). Termed San Dieguito (see also Rogers 1945), assemblages at the Harris site are qualitatively distinct from most others in region because the site has large

numbers of finely made bifaces (including projectile points), formal flake tools, a biface reduction trajectory, and relatively small amounts of processing tools (see also Warren 1968). Despite the unique assemblage composition, the definition of San Dieguito as a separate cultural tradition is hotly debated. Gallegos (1987) suggested that the San Dieguito pattern is simply an inland manifestation of a broader economic pattern. Gallegos's interpretation of San Dieguito has been widely accepted in recent years, in part because of the difficulty in distinguishing San Dieguito components from other assemblage constituents. In other words, it is easier to ignore San Dieguito as a distinct socioeconomic pattern than it is to draw it out of mixed assemblages

The large number of finished bifaces (i.e., projectile points and non-projectile blades), along with large numbers of formal flake tools at the Harris site complex, is very different than nearly all other assemblages throughout the region, regardless of age. Warren et al. (2004) made this point, tabulating basic assemblage constituents for key early Holocene sites. Producing finely made bifaces and formal flake tools implies that relatively large amounts of time were spent for tool manufacture. Such a strategy contrasts with the expedient flake-based tools and cobble-core reduction strategy that typifies non-San Dieguito Archaic sites. It can be inferred from the uniquely high degree of San Dieguito assemblage formality that the Harris site complex represents a distinct economic strategy from non-San Dieguito assemblages.

San Dieguito sites are rare in the inland valleys, with one possible candidate, RIV-2798/H, located on the shore of Lake Elsinore. Excavations at Locus B at RIV-2798/H produced a toolkit consisting predominantly of flaked stone tools, including crescents, points, and bifaces, and lesser amounts of ground stone tools, among other items (Grenda 1997). A calibrated and reservoir-corrected radiocarbon date from a shell produced a date of 6630 BC. Grenda (1997) suggested this site represents seasonal exploitation of lacustrine resources and small game and resembles coastal San Dieguito assemblages and spatial patterning.

If San Dieguito truly represents a distinct socioeconomic strategy from the non-San Dieguito Archaic processing regime, its rarity implies that it was not only short-lived, but that it was also not as economically successful as the Archaic strategy. Such a conclusion would fit with other trends in Southern California deserts, where hunting-related tools were replaced by processing tools during the early Holocene (Basgall and Hall 1990).

Archaic Period (8000 BC–AD 500)

The more than 2,500-year overlap between the presumed age of Paleoindian occupations and the Archaic period highlights the difficulty in defining a cultural chronology in Southern California. If San Dieguito is the only recognized Paleoindian component in the coastal Southern California, then the dominance of hunting tools implies that it derives from Great Basin adaptive strategies and is not necessarily a local adaptation. Warren et al. (2004) admitted as much, citing strong desert connections with San Dieguito. Thus, the Archaic pattern is the earliest local socioeconomic adaptation in the region (Hale 2001, 2009).

The Archaic pattern, which has also been termed the Millingstone Horizon (among others), is relatively easy to define with assemblages that consist primarily of processing tools, such as milling stones, handstones, battered cobbles, heavy crude scrapers, incipient flake-based tools, and cobble-core reduction. These assemblages occur in all environments across the region with little variability in tool composition. Low assemblage variability over time and space among Archaic sites has been equated with cultural conservatism (Basgall and Hall 1990; Byrd and Reddy 2002; Warren 1968; Warren et al. 2004). Despite enormous amounts of archaeological work at Archaic sites, little change in assemblage composition occurred until the bow and arrow was adopted around AD 500, as well as ceramics at approximately the same time (Griset 1996; Hale 2009). Even then, assemblage formality remained low. After the bow was adopted, small arrow points appear in large quantities and already low amounts of formal flake tools are replaced by increasing amounts of expedient flake tools. Similarly, shaped milling stones and handstones decreased in proportion relative to expedient, unshaped ground stone tools (Hale 2009). Thus, the terminus of the Archaic period is equally as hard to define as its beginning, because basic assemblage constituents and patterns of manufacturing investment remain stable, complemented only by the addition of the bow and ceramics.

Late Prehistoric Period (AD 500–1769)

The period of time following the Archaic period and before Ethnohistoric times (AD 1769) is commonly referred to as the Late Prehistoric period (Rogers 1945; Wallace 1955; Warren et al. 2004); however, several other subdivisions continue to be used to describe various shifts in assemblage composition. In general, this period is defined by the addition of arrow points and ceramics, as well as the widespread use of bedrock mortars. The fundamental Late Prehistoric assemblage is very similar to the Archaic pattern, but includes arrow points and large quantities of fine debitage from producing arrow points, ceramics, and cremations. The appearance of mortars and pestles is difficult to place in time, because most mortars are on bedrock surfaces. Some argue that the Ethnohistoric intensive acorn economy extends as far back as AD 500 (Bean and Shipek 1978). However, there is no substantial evidence that reliance on acorns, and the accompanying use of mortars and pestles, occurred before AD 1400. Milling stones and handstones persisted in higher frequencies than mortars and pestles until the last 500 years (Basgall and Hall 1990); even then, weighing the economic significance of milling stone–handstone versus mortar–pestle technology is tenuous due to incomplete information on archaeological assemblages.

3.2 Ethnographic Overview

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the

newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century (Bean and Shipek 1978; Boscana 1846; Harrington 1934; Laylander 2000; Sparkman 1908; White 1963). The principal intent of these researchers was to record the precontact and culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach (Lightfoot 2005, p. 32) by recording languages and oral histories within the region. Ethnographic research by Dubois, Kroeber, Harrington, Spier, and others during the early twentieth century seemed to indicate that traditional cultural practices and beliefs survived among local Native American communities.

It is important to note that even though there were many informants for these early ethnographies who were able to provide information from personal experiences about native life before the Europeans, a significantly large proportion of these informants were born after 1850 (Heizer and Nissen 1973); therefore, the documentation of precontact, aboriginal culture was being increasingly supplied by individuals born in California after considerable contact with Europeans. As Heizer (1978) stated, this is an important issue to note when examining these ethnographies, since considerable culture change had undoubtedly occurred by 1850 among the Native American survivors of California.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006, p. 34). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007).

Golla contended that one can interpret the amount of variability within specific language groups as being associated with the relative "time depth" of the speaking populations (Golla 2007, p. 80). A large amount of variation within the language of a group represents a greater time depth than a group's language with less internal diversity. One method that he has employed is by drawing comparisons with historically documented changes in Germanic and Romantic language groups. Golla observed that the "absolute chronology of the internal diversification within a language family" can be correlated with archaeological dates (2007, p. 71). This type of interpretation is modeled on concepts of genetic drift and gene flows that are associated with migration and population isolation in the biological sciences.

The tribes of this area have traditionally spoken Takic languages that may be assigned to the larger Uto–Aztecan family (Golla 2007, p. 74). These groups include the Gabrielino, Cahuilla, and Serrano. Golla interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from

Uto–Aztecan ca. 2600 BC–AD 1, which was later followed by the diversification within the Takic speaking tribes, occurring approximately 1500 BC–AD 1000 (Laylander 2000).

Gabrielino/Tongva

The name "Gabrielino" denotes those people who were administered by the Spanish from Mission San Gabriel Arcángel, which included people from the Gabrielino area proper as well as other social groups (Bean and Smith 1978, p. 538; Kroeber 1925, Plate 57). 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 contemporary 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, p. 12). This term is used in the remainder of this section to refer to the precontact inhabitants of the Los Angeles Basin and their descendants.

The Tongva established large, permanent villages along rivers and streams, and lived in sheltered areas along the coast. Tongva lands included the greater Los Angeles Basin and three Channel Islands—San Clemente, San Nicolas, and Santa Catalina—and stretched from the foothills of the San Gabriel Mountains to the Pacific Ocean. Archaeological sites composed of villages with various sized structures have been identified through the Los Angeles Basin. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978, p.540), but recent ethnohistoric work suggests a number approaching 10,000 seems more likely (O'Neil 2002). At least one Tongva village was located near Glendora: Ashuukshanga (also Azucsagna), located near the mouth of the San Gabriel River in present-day Azusa (McCawley 1996, p. 44). Within the permanent village sites, the Tongva constructed large, circular, domed houses made of willow poles thatched with tule, each of which could hold upwards of 50 people (Bean and Smith 1978). Other structures constructed throughout the villages probably served as sweathouses, menstrual huts, ceremonial enclosures, and communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Tongva villages (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, and deserts as well as riparian, estuarine, and open and rocky coastal eco-niches. Like most native Californians, acorns were the staple food (an established industry by the time of the early Intermediate Horizon). Acorns were supplemented by the roots, leaves, seeds, and fruits of a variety of flora (e.g., islay, cactus, yucca, sages, and agave). Freshwater and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978, p. 546; Kroeber 1925, pp. 631–632; McCawley 1996, pp. 119–123, 128–131).

The Tongva participated in an extensive exchange network, trading coastal goods for inland resources. They exported Santa Catalina Island steatite products, roots, seal and otter skins, fish and shellfish, red ochre, and lead ore to neighboring tribes, as well as to people as far away as the Colorado River. In exchange, they received ceramic goods, deerskin shirts, obsidian, acorns, and other items. This burgeoning trade was

facilitated by the use of craft specialists, a standard medium of exchange (Olivella bead currency), and the regular destruction of valuables in ceremonies, which maintained a high demand for these goods (McCawley 1996, pp. 112–115).

3.3 Historic Period Overview

Post-contact history for the State of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican–American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769–1822)

Spanish explorers made sailing expeditions along the coast of Southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríguez Cabrillo stopped in 1542 at present-day San Diego Bay. With his crew, Cabrillo explored the shorelines of present Catalina Island as well as San Pedro and Santa Monica bays. Much of the present-day California and Oregon coastline was mapped and recorded in the next half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica bays, giving each location its long-standing name. The Spanish crown laid claim to California based on the surveys conducted by Cabrillo and Vizcaíno (Bancroft 1885; Gumprecht 1999).

More than 200 years passed before Spain began the colonization and inland exploration of Alta California. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July 1769, while Portolá was exploring Southern California, Franciscan Friar Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823.

The Portolá expedition first reached the present-day boundaries of Los Angeles in August 1769, thereby becoming the first Europeans to visit the area. Father Crespi named "the campsite by the river Nuestra Señora la Reina de los Angeles de la Porciúncula" or "Our Lady the Queen of the Angeles of the

Porciúncula." Friar Junípero Serra returned to the valley 2 years later to establish a Catholic mission, the Mission San Gabriel Arcángel, on September 8, 1771 (Kyle 2002).

Mexican Period (1822–1848)

A major emphasis during the Spanish Period in California was the construction of missions and associated presidios to convert the Native American population to Christianity and integrated communal enterprise. Incentives were also provided to bring settlers to pueblos or towns, but just three pueblos were established during the Spanish Period, only two of which were successful and grew into California cities (San José and Los Angeles). Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955).

Extensive land grants were established in the interior during the Mexican period, in part to increase the population inland from the more settled coastal areas where the Spanish first concentrated their colonization efforts. Nine ranchos were granted between 1837 and 1846 in the future Orange County area (Middlebrook 2005). Among the first ranchos deeded within the future Orange County were Manuel Nieto's Rancho Las Bolsas (partially in future Los Angeles County), granted by Spanish Governor Pedro Fages in 1784, and the Rancho Santiago de Santa Ana, granted by Governor José Joaquín de Arrillaga to José Antonio Yorba and Juan Pablo Peralta in 1810. The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos.

During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary Southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of non-native inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

American Period (1848–Present)

War in 1846 between Mexico and the United States precipitated the Battle of Chino, a clash between resident *Californios* and Americans in the San Bernardino area. The Mexican–American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as U.S. territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the Southern

California economy through 1850s. The Gold Rush began in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho *vaqueros* drove large herds from Southern to Northern California to feed that region's burgeoning mining and commercial boom. The cattle boom ended for Southern California as neighboring states and territories drove herds to Northern California at reduced prices. Operation of the huge ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 2005).

3.4 City of Rialto Historic Context

The land that now makes up the City of Rialto (City) was originally part of Rancho San Bernardino, which was established by the San Gabriel Mission in the early nineteenth century. The rancho encompassed much of present day San Bernardino, Fontana, Rialto, Redlands, and Colton. After Mexico gained control of California, the missions were secularized, and what once was mission land was granted to private individuals. Jose del Carmen Lugo, a member of wealthy family, petitioned Governor Alvarado for a grant of the San Bernardino Rancho, where his family had been farming and grazing (Beattie 1933). The land was granted to the Lugo family on June 21, 1842, who continued grazing livestock in the area and built several adobes.

By 1851, the Lugo family sold eight leagues of their rancho for $75,000 to Mormon settlers who were attempting to create a new colony of the Latter-Day Saints. The colonists gave rise to the City of San Bernardino, though the area encompassed parts of present-day Rialto as well. Despite the fact that the colony boasted a high population and even created its own political institution separate from the City of Los Angeles, it was plagued by large debt, discontent among the settlers with church, and a growing disdain by the public for Mormons particularly after the Mormon Rebellion of the late 1850s (Lyman 1989; Masters 2015). Church leaders struggled to maintain religious fervor among many of the San Bernardino residents, and in fact, many settlers appeared to make the move to San Bernardino to facilitate their own separation with the church's strict policies (Lyman 1989). After the Mountain Meadows Massacre of 1857, the colony was completely alienated from non-Mormon communities of Southern California, and anti-Mormon hostility reached its peak. It was at this time that Brigham Young summoned the devout to return to Utah. In 1856, before the exodus of many Mormons, the area had 3,000 inhabitants, of which 84% were Mormon. However, 1,400 returned to Utah, while the remaining 1,600 decided to abandon the church and make a life for themselves in California. This return rate was much lower than many other Mormon settlements outside the State of Utah, indicating the growing disillusionment and discontent that the San Bernardino residents felt with the church (Adams 2004; Lyman 1989).

After the decline of the Mormon colony, the area developed slowly until 1887 when a new section of the Santa Fe Railroad was established through San Bernardino County. Like other parts of San Bernardino County, the construction of the railroad created a land speculation boom and a series of towns were established along the railroad's route. One such town that was established during this railroad boom period was Rialto, which was laid out by the Semi-Tropic Land and Water Development Company in 1887 at a cost

of $670,000. While much of the early development efforts included brush clearing and town planning, a reliable water source was also a necessary component of the successful development of Rialto. To provide a reliable water source, the Semi-Tropic Land and Water Company built a concrete-lined canal that provided water from Lytle Creek Canyon to Riverside Avenue in Rialto. The Semi-Tropic Land and Water Company was formed by a group of associates, including Sam Merrill, a successful businessperson and banker from Iowa who came to the area and settled in Rialto once it was developed. Merrill's residence was one of the numerous grand homes in the area and was constructed at a cost of $15,000. Merrill continued to live in Rialto and eventually there was a street named in his honor (Adams 2004).

In the early years, Rialto was a small town that was largely rooted in an agricultural based economic system based largely on citrus orchards that were located on the outskirts of the downtown core of the City. The earliest Sanborn map of Rialto dates to 1892 and shows a small town laid out in a grid pattern with a small collection of houses spaced throughout town. The town also included the following: blacksmith shop, school, cement pipe yard, lumberyard, drug store, merchandise store, railroad depot, and offices for the Semi-Tropic Land and Water Company. The largest building in town was identified on the Sanborn Map as the Semi-Tropic Hotel located on Riverside Avenue (Sanborn 1892a, 1892b).

Growth and development of Rialto continued throughout the nineteenth century and into the twentieth century. By 1907, Rialto established a Chamber of Commerce to support the growing town and its businesses. The 1907 Sanborn map shows an increase in residential buildings throughout the town to support the growing population. In addition to residential development, more defined commercial developed is indicated with new business types emerging along Riverside Avenue since 1892. New businesses included a bakery, livery, wagon shop, and barbershop. Other changes to the town seen on the 1907 Sanborn Map include the emergence of fruit packing houses that served to support the citrus industry that was prospering on the outskirts of the town (Sanborn 1907a, 1907b, 1907c). The growth and development continued over the next few years, and by the City's incorporation in 1911, there were 1,500 residents, 40 businesses, and a local newspaper (Adams 2004; City of Rialto 2016; Sanborn 1892a, 1892b, 1907a, 1907b, 1907c, 1911a, 1911b, 1911c, 1911d).

Rialto continued to grow throughout the 1910s with significant advances in transportation, including the transition of Foothill Boulevard to become part of the United States highway system as a section of Route 66 in 1913. Another advancement in transportation came the following year in 1914 when the San Bernardino Line of the Los Angeles Pacific Electric Railway was completed. However, disaster struck in the 1920s when a fire destroyed much of the downtown area (Adams 2004; City of Rialto 2016).

Like many other cities in California, World War II influenced Rialto's growth and development. During the war, a large ammunition dumpsite was put into operation in the City. Following the war, the ammunition dumpsite was taken over by rocket subsidiary of B.F. Goodrich. Wartime and post-war industrial growth sparked the need for additional residential buildings to support workers and the general post-war population

growth seen throughout Southern California. From the beginning until the end of the 1950s, the population of the City skyrocketed from 3,156 to 15,359. To handle this growth and development residential subdivisions began to replace large agricultural parcels and citrus groves outside the downtown City core. The City continued to grow throughout the late twentieth century and continues to grow today with the most current population being reported at over 100,000 (City of Rialto 2016).

3.5 Project Site Historic Context

Dudek consulted historic maps and aerial photographs to understand development of the project site and surrounding properties. Topographic maps were available from the following years: 1896, 1898, 1901, 1905, 1909, 1913, 1926, 1929, 1938, 1943, 1946, 1955, 1959, 1963, 1965, 1969, 1975, 1980, 1985, and 2012. Aerial images were available from the following years: 1938, 1948, 1959, 1966, 1980, 1994, 2002, 2005, 2009, 2010, 2012, and 2014 (NETR 2018a, 2018b). Additionally, aerials from 1953, 1958, 1963, and 1969 were available online from the University of California, Santa Barbara, map and imagery laboratory (Aerial Map Industries 1969; Fairchild Aerial Surveys 1958; Laval Company Inc. 1938; Pacific Air Industries 1963; Southwestern Aerial Surveys 1963; UCSB 2018; USGS 1987).

Topographic maps show that until the late 1930s, the entire project site was undeveloped and bisected from northwest to southeast by an established roadway. By 1938, Baseline Road and Alder Avenue are present along the south and eastern edges of the project site, appearing as dirt roads along the property lines of established citrus groves.

Historic aerials from 1938 show the project site and general vicinity as sparsely developed orchards. The area appears to have been subdivided by this point, and main roads appeared to have been laid out though at this point they were not paved. The 1948 historic aerials indicates that 2406 Baseline Road has been developed, and the extant residential structure is visible. The properties located at 2374 and 7196 Alder Avenue were still undeveloped. Additionally, there was one structure immediately east of 2406 Baseline Road and two buildings constructed east of 2374 Baseline Road. The undeveloped sections of the project site and the general vicinity were being utilized for agricultural purposes. In the 1953 Southwestern Aerial Services photograph, the building at 7196 Alder Avenue first appears, in roughly the same small footprint that persists through present. By the 1959 aerial photograph, the garage at 2406 Baseline Road has been constructed. The building that was located directly east of 2406 Baseline Road has a significant addition between 1953 and 1959; however, the two subject properties now extant at 2374 Baseline Road were not yet developed. The property located at 7196 Alder Avenue developed between 1948 and 1953. By 1959, areas to the south were more extensively developed with small residential subdivisions. Between 1959 and 1963, the covered water reservoir south of Baseline Road appears. In the 1963 aerial, the south-most residential building at 2374 Baseline Road appeared, followed in the 1966 aerial photograph by the north-most residential building on the 2374 Baseline Road property. No other changes are visible to the project site, though subdivisions to the south and east continued to grow as the area began to transition from agricultural land to residential land.

Historic aerials from 1980 indicate that the residential structure at 7196 Alder Avenue has been constructed. Along Baseline Road, five residential structures existed within the project site. The properties at 2406 and 2374 Baseline Road appear largely unchanged from the previous aerial, aside from apparent landscaping surrounding the properties. By 1980, the area to the south of Baseline Road and to the west of Alder Avenue had been almost completely developed into residential housing. The land to the north, east, and west remained sparsely developed agricultural land at this time. In 1987, the project site appeared as it did in 1980; however, residential subdivisions west of Palmetto Avenue, north of Foothill Freeway, and east of North Ayala Drive had grown greatly between 1980 and 1987. By the mid-2000s, much of the land behind 2406 and 2374 Baseline Road was being used as a storage or laydown yard. The home that existed between 2406 and 2374 Baseline Road is visible on the aerials until 2005, but is demolished prior to the 2009 aerial photograph. The concrete foundation is still present within the project site. It also appears that two other homes east of 2374 Baseline Road were demolished between 2005 and 2009 as well.

Residential development to the south had expanded during the end of the twentieth century, and by the early 2000s, all of the land south of Baseline Road was being used for residential purposes. Much of the land within the project site appears to have been graded and maintained, as there are no grasses within much of the properties. The structure at 7196 Alder Avenue appears unchanged from previous aerials at this time. Between 2009 and present, there have been no significant changes to the project site, no visible improvements to the properties at 2406 and 2374 Baseline Road or at 7196 Alder Avenue are visible. Much of the land surrounding the properties does not appear to have been well maintained as much of the property is overgrown with tall grasses.

Property 1, 2406 West Baseline Road, APN 0240-201-18

Property 1 is located at 2406 West Baseline Road and was constructed in 1947 (San Bernardino County Assessor). Historic aerial photographs of Property 1 show that prior to construction, the land was being used for agricultural purposes, and Baseline Road and Alder Avenue were still unpaved roads. Despite the construction of a residence on Property 1 in 1947, the surrounding landscape remained predominantly agricultural in nature. The first aerial photograph that shows the property from 1948, where only the simple, rectangular plan residential building is visible. By 1953, a detached garage has been constructed at the rear of the property. No additional development of the property was seen in aerial photography after mid-century (NETR 2018b; Southwestern Aerial Surveys 1953).

The only building permits on file with the City Clerk's office for the property was an electrical upgrade permit from 2002 (Permit 2002-0376). Observed alterations to the building include the following: replacement windows, replacement door, reroof, addition of an AC unit, and the addition of decorative, metal security screens on doors and windows.

The only ownership records for the property were identified through the San Bernardino County Assessor's Property Information Management System (PIMS). The assessor's system indicated the following people as owners of the property throughout its history:

- Lee Roy and Rachel Anderson, 1973–1978
- Paul, Paula and Charles Anderson, 1978–1990
- Joanne Hendricks, Shirley Anderson, Paula Anderson, Jauris Anderson, 1990–2002
- Emigdio and Christina Rodriguez, 2002–2018
- CH Realty VIII/I Rialto Alder South LP, 2018–present

Property 2, 2374 West Baseline Road, APNs 0240-201-15 and 0240-201-44

Property 2 is located at 2374 West Baseline Road and contains two buildings constructed in 1956 (Building 1) and 1962 (Building 2) (San Bernardino County Assessor). Today, Property 2 is a combination of two parcels with buildings on APN 0240-201-15. Archival research indicates that the two parcels were separate throughout much of the property's history. An aerial photograph from 1948 shows that there was a building constructed within the western portion of the property, on APN 0240-201-44. In 1959, this building receives a large addition and a detached garage. At this time the owners also cultivate a windbreak of trees surrounding the property on the west, north, and east sides that further distinguish it from the eastern lot. Building 1 is added to APN 0240-201-15 in 1959 and first appears in the 1963 aerial photograph. Building 2 was added to the property in 1962 according to the assessor, but does not appear in aerial imagery until 1966. By 1980, APN 0240-201-15 gained several outbuildings, including two small garages associated with the properties. The aerial from the 1994 and 2002 are of poor quality and changes to the properties during this tie are unclear, though it appears that all three buildings were still present. The once clearly demarcated tree lines outlining the western property (APN 0240-201-44) had matured, but also been removed in some places. By 1994, the trees continue to deteriorate until 2005. However, all three buildings remained standing until at least 2005. Between 2005 and 2009, the property directly west of Building 1 (APN 0240-201-44) was demolished, leaving an irregular plan cement patio and foundation, which is still present. By mid-2005, much of the north sections of both properties (APN 0240-201-44 and APN 0240-201-15) are being used as storage for vehicles, trailers, propane tanks, and metal shipping containers of some kind. However, the poor image quality of the aerial photographs makes it difficult to determine a great deal of specific information about the structure. (NETR 2018b; Southwestern Aerial Surveys 1953).

The following building permits were identified for the property: reroof in 1969 (Permit No. 27183), construction of 264-square-foot family room (Permit No. 24367), and upgrades to plumbing systems in 1985 (Permit No. 24047). It is unclear if these permits pertain to Building 1 or Building 2. Observed alterations to Building 1 include the following: replacement windows, replacement door, reroof, and boarded-up window openings. Observed alterations to Building 2 include the following: replacement windows, addition of security door, and boarded-up window openings.

The only information pertaining to the ownership of the property was identified through the San Bernardino County Assessor's PIMS. The assessor's system indicated the following people as owners of the property throughout its history:

- Sebastian and Eva McClellan, 1969–1980
- Washington and Evelyn Morris, 1980–2003
- Sylvia Borrego, 2003–2005
- RLB Management Services LLC, 2005–2013
- Lauro R. Borrego, 2013–2014
- Catalina Group Holdings Inc., 2014–2018

Property 3, 7196 Alder Avenue, APNs 0240-201-10

A review of historic maps and aerial photographs was conducted as part of the archival research effort for this property. All Sanborn maps for the City were reviewed, and the project site was not included on any of the maps. Historic aerial photographs were reviewed for the property from the years 1938 to the present. In 1938, most of the area was being used for agricultural purposes. Baseline Road and Alder Avenue are visible, though at this time they appear to be dirt roads. Property 3 was not built until 1948. Aerials from 1948, 1953, and 1957 indicate that a structure was built on the property, and there appeared to be a line of trees along the southern edge of the parcel; however, the scale of these aerials prevents any other characteristic features to be determined (Fairchild Aerial Survey 1958; NETR 2018b; Southwestern Aerial Services 1953). By 1963, the line of trees was gone; there does not appear to be any other significant changes to the project site or surrounding properties, which were still sparsely developed (Pacific Air Industries 1963). Review of historic aerials does not show any significant changes to Property 3 since its construction. However, the poor image quality of the aerial photographs makes it difficult to determine a great deal of specific information about the structure. (NETR 2018b).

Building permits for the property were requested from the City Clerk's office, and no building permits were available. Observed alterations to the building include the following: boarded up windows and partial removal of composition shingle roof.

The only information pertaining to the ownership of the property was found through the San Bernardino County Assessor's PIMS. The Assessor's system indicated the following people as owners of the property throughout its history:

- Howard and Lucille Williams, 1973–2017
- Choung Yik and Ying Ley, 2018

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4 BACKGROUND RESEARCH

4.1 Literature Review

On February 13, 2018, Dudek completed a search of the CHRIS at the SCCIC, located on the campus of California State University, Fullerton. This search included mapped prehistoric and historic archaeological resources and historic built-environment resources; Department of Parks and Recreation site records; technical reports; archival resources; and ethnographic references. Additional consulted sources included historical maps of the project site, the NRHP, the CRHR, the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and the Archaeological Determinations of Eligibility. The confidential records search results are also provided in Appendix A.

Previously Conducted Cultural Resource Studies

The SCCIC records indicate that 29 previous cultural resources technical investigations have been conducted within 1 mile of the project site between 1977 and 2016. Of these, two previous studies overlap with the project site. All 29 technical investigations are summarized in Table 1.

Table 1.Previously Technical Studies within 1-Mile of the Project Site

Report Number	Author	Year	Report Title	Proximity to Project Site
SB-00506	Hearn, Joseph E.	1977	Archaeological – Historical Resources Assessment of Ca. 6.77 Acres Located at the SW Corner of Rialto Airport at Miro Way and Linden Avenue in Rialto	Outside
SB-01501	Mason, Roger D.	1985	Cultural Resource Survey Report for the Etiwanda Pipeline and Power Plant [Environmental Impact Report] EIR	Outside
SB-02043	Sutton, Paula A.	1989	Archaeological Survey Report for the Proposed Foothill Freeway, Los Angeles and San Bernardino Counties, California	Outside
SB-02205	Swanson, Mark T.	1990	Cultural Resources Survey of a Ca. 200-Acre Tract at Art Scholl Memorial Airport/Miro Field, Rialto, San Bernardino County, California	Outside
SB-02285	Rolf, Stanton D.	1991	The Old Spanish Trail – Mormon Road In Las Vegas Valley, Nevada	Outside
SB-02403	Hatheway, Roger G.	1991	Determination of Eligibility Report for a Commercial Property Located at 364 North Arrowhead Avenue, San Bernardino, California	Outside
SB-02527	Hammond, Stephen R.	1989	Historic Property Survey Report for the Proposed Foothill Freeway	Outside

Table 1.Previously Technical Studies within 1-Mile of the Project Site

Report Number	Author	Year	Report Title	Proximity to Project Site
SB-02530	Gallup, Aaron A., Bonnie W. Parks, Denise O'Connor, and Stephen D. Mikesell	1989	Historical Architectural Survey Report and Historic Resource Evaluation Report for a Proposed Highway on New Alignment	Outside
SB-02621	Alexandrowicz, J. Steven, Anne Q. Duffield-Stoll, Jeanette A. Mckenna, Susan R. Alexandrowicz, Arthur A. Kuhner, and Eric Scott	1992	Cultural and Paleontological Resources Investigations within the North Fontana Infrastructure Area, City of Fontana, San Bernardino County, California	Outside
SB-03538	White, Laurie and Robert S. White	1995	Cultural Resources Investigation For the 3000 +/- Acre City of Rialto Airport Area Specific Plan, North Rialto, Ca. 29Pp	Within
SB-04016	Macko, Michael	1997	Historical, Archaeological and Paleontological Assessment of the Mid-Valley Sanitary Landfill Expansion, San Bernardino County, Ca. 39Pp	Outside
SB-04207	Hogan, Michael	2004	Historical/Archaeological Resources Survey Report: Fontana Auto Mall Overlay Zone, City of Fontana, San Bernardino County, Ca. 26Pp	Outside
SB-04208	Dice, Michael	2003	Records Search Results and Site Visit for Sprint Telcommunications Facility Sb56Xc804B (Rialto Municipal Airport), 1451 North Linden Ave, Rialto, San Bernardino County, Ca. 8Pp	Outside
SB-04258	Marvin, Judith and Deborah Mclean	2002	Historic Property Survey Report for the Citrus Ave/Interstate 10 (No. 54-0538) Interchange Project, San Bernardino County, Ca. 36Pp	Outside
SB-04261	Mckenna, Jeanette A.	2004	A Phase I Cultural Resources Investigation of the Colton Joint Unified School District Middle School No. 5 in the City of Rialto, San Bernardino County, Ca. 40Pp	Outside
SB-04870	Bonner, Wayne H. and Marnie Aislin-Kay	2006	Cultural Resources Records Search Results and Site Visit for T-Mobile USA Facility Candidate Ie04880H (Baseline Motors), 2430 West Baseline Road, Rialto, San Bernardino County, California.	Within
SB-04872	Smallwood, Josh	2005	Historical/Archaeological Resources Survey Report: Fontana Promenade Specific Plan and EIR, City Of Fontana, San Bernardino County, California.	Outside
SB-06914	Bonner, Wayne H. and Sarah A. Williams	2011	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate Ie24143-A (Blessed John Xxiii), 17434 Miller Avenue, Fontana, San Bernardino County, California.	Outside

Table 1.Previously Technical Studies within 1-Mile of the Project Site

Report Number	Author	Year	Report Title	Proximity to Project Site
SB-06966	Dice, Michael	2006	Phase I Cultural Resource Assessment and Paleontological Records Review Renaissance Specific Plan Project, Rialto, San Bernardino County, California.	Within
SB-06981	Clark, Jennifer	2011	Request for Section 106 Review for the Collocation on an Existing 72.5-Foot-High Monopalm and the Expansion on the Existing Leased Space to be Located at the Crown Castle Site Known as Highland No. 880207, Located at 16733 South Highland Avenue In Fontana, San Bernardino County, California	Outside
SB-06985	Tang, Bai "Tom", Deirdre Encarnacion, and Daniel Ballester	2011	Historical/Archaeological Resources Survey Report: Ayala Drive Widening Project, City of Rialto, San Bernardino County, California.	Outside
SB-06986	Glover, Amy and Sherri Gust	2010	Phase I Resources Assessment Report for the Falcon Ridge Substation Project in the Cities Of Fontana and Rialto, San Bernardino County, California.	Outside
SB-07086	Crawford, Kathleen	2011	Direct Ape Historic Architectural Assessment for T-Mobile USA Candidate Ie24143-A (Blessed John Xxiii), 17434 Miller Avenue, Fontana, San Bernardino County, California.	Outside
SB-07517	SAIC	1999	Site Survey Report for Derp-Fuds Site No. J09Ca057200, Rialto Ammunition Storage Point.	Outside
SB-07814	Perez, Don	2014	Cultural Resource Survey: Bull Outdoor Equipment/Clv 5458, 2479-2483 West Walnut Avenue, Rialto, San Bernardino County, California 92376.	Outside
SB-07867	Fulton, Phil	2014	Cultural Resource Assessment Class I Inventory: Verizon Wireless Services Alder-New Candidate Facility, City of Fontana, County of San Bernardino, California.	Outside
SB-08190	McKenna, Jeanette A.	2015	Cultural Resources Investigations of the Proposed Project Area Located at Baseline Road and Laurel Avenue, Assessor Parcel No. 0240-241-52, Rialto, San Bernardino County, California	Outside
SB-08191	Kramer, Julie E.	2015	Cultural Resources Survey for a Proposed Mini Truck Stop Development on Afton Canyon Road, San Bernardino County, California	Outside
SB-08261	McKenna, Jeanette A.	2016	Cultural Resources Investigations of the Proposed Alta Survey Project Area, Located on Alder Avenue, APNs 0240-201-32, -34, and -35 (6.6 Acres), in the City of Rialto, San Bernardino County, California	Outside

Previously Recorded Cultural Resources

The SCCIC records indicate that no cultural resources have been previously recorded within the project site. However, 16 resources have been recorded within 1 mile of the project site. These resources include six historic built-environment resources, four historic refuse scatters, two concrete foundations, and four historic sites with refuse scatters and associated historic structural features. All 16 resources are summarized in Table 2.

Table 2. Previously Recorded Cultural Resources within 1-Mile of the Project Site

Primary Number	Trinomial	Period	NRHP/CRHP Status	Description	Recorded By/Year	Proximity to Project Site
P-36-006781	CA-SBR-006781H	Historic	Not evaluated	Foundation remains of small cobble and cement mortar construction	1990 (Mark Swanson, Research Associates)	Outside
P-36-010658	CA-SBR-010658H	Historic	Found ineligible through survey evaluation	Concrete foundation of a small residence	2002 (Richard Shepard, Chambers); 2003 (Richard Shepard, Chambers)	Outside
P-36-010659	CA-SBR-010659H	Historic	Found ineligible through survey evaluation	Sparse, widely-dispersed historic refuse scatter	2002 (Richard Shepard, Chambers Group); 2003 (Chambers Group)	Outside
P-36-010660	CA-SBR-010660H	Historic	Found ineligible through survey evaluation	Sparse historic refuse scatter and associated concrete slab	2002 (Richard Shepard, Chambers Group); 2003 (Chambers Group)	Outside
P-36-010908	CA-SBR-010908H	Historic	Found ineligible through survey evaluation	Small concrete slab foundation, concrete irrigation standpipe, and a sparse scatter of historic refuse	2003 (Roger Mason, Chambers Group)	Outside
P-36-021564	CA-SBR-013869H	Historic	Not evaluated	Widely dispersed historic refuse deposit with associated historical structural remains.	2009 (R Nixon, K Maeyama, URS)	Outside
P-36-021612	—	Historic	Found ineligible through survey evaluation	1816–1830 Baseline Road, Rialto, California, 92376; Three vernacular bungalows	2008 (Jeremy Hollins, URS)	Outside

Table 2. Previously Recorded Cultural Resources within 1-Mile of the Project Site

Primary Number	Trinomial	Period	NRHP/CRHP Status	Description	Recorded By/Year	Proximity to Project Site
P-36-021613	—	Historic	Found ineligible through survey evaluation	1352 Alder Avenue, Rialto, California 92376; Two residences: vernacular bungalow and a mid-century Contemporary style single-family home	2008 (Jeremy Hollins, URS)	Outside
P-36-021614	—	Historic	Found ineligible through survey evaluation	1478 Alder Avenue, Rialto, CA, 92376; Vernacular Craftsman style residence	2008 (Jeremy Hollins, URS)	Outside
P-36-021615	—	Historic	Found ineligible through survey evaluation	Art Scholl Municipal Airport	2008 (Jeremy Hollins, URS)	Outside
P-36-024867	—	Historic	Found ineligible through survey evaluation	Blessed John the XXIII Church	2011 (Kathleen Crawford, Crawford Historic Services)	Outside
P-36-029057	CA-SBR-029057H	Historic	Found ineligible through survey evaluation	Santa Cruz Property-8.45-acre vacant property covered in dry grasses and scatters of debris	2015 (Jeanette McKenna, McKenna et al)	Outside
P-36-029447	CA-SBR-029447H	Historic	Not Evaluated	Historic site with structural remains, concrete foundations, and a dispersed historic refuse deposit	2015 (S. Andrews, ASM)	Outside
P-36-029913	—	Historic	Found ineligible through survey evaluation	White Homestead-1446 Alder Avenue, Rialto, California 92376; Clapboarded sided residence	2016 (Jeanette A. McKenna, McKenna et al.)	Outside
P-36-060479	—	Historic	Not evaluated	Historic refuse scatter	1990 (Swanson & Laska Research Associates)	Outside

4.2 Native American Coordination

On February 21, 2018, Dudek requested a search of the Sacred Lands Files from the NAHC. A response letter was received via email from the NAHC on February 22, 2018, stating that the results of the Sacred

Lands File search failed to indicate the presence of Native American cultural resources in the immediate project site. The NAHC also provided a list of 20 Native American groups and individuals who may have knowledge of cultural resources in the project site. Letters were sent to each of the 20 representative March 6, 2018. This coordination was conducted for informational purposes only and does not constitute formal government-to-government consultation. To date, four responses have been received: two stated that they have no knowledge of cultural resources in the area, one stated that the project site is outside the tribe's ancestral territory, and one stated that the project site is relatively close to important cultural resources and recommends archaeological testing (Table 3). Documentation of coordination with Native American groups and individuals is provided in Appendix B.

Table 3. Native American Response Summary

Tribal Affiliation	Representative	Date; Form of Response	Summary
Cahuilla Band of Indians	Bobby Ray Esparza, Cultural Coordinator	03.15.2018; email	Mr. Esparza stated that the tribe does not have knowledge of cultural resources within the area and does not have any comments regarding the project at this time, though they requested to be notified of any updated or changes with the project.
Agua Caliente Band of Cahuilla Indians	Larry Fossum, on behalf of Patricia Garcia Plotkin, Director of Historic Preservation	03.15.2018; email	Mr. Fossum stated that the project site is outside of the Tribe's Traditional Use Area.
San Manuel Band of Mission Indians	Jessica Mauck, Cultural Resource Analyst	03.22.2018; email	Ms. Mauck stated that the project site is within traditional Serrano territory and approximately 2 miles southwest of a known village. Though the village has been heavily impacted by development, inadvertent discoveries of cultural resources, including human remains have occurred in the vicinity. Ms. Mauck requested that archaeological testing take place within the site.
Augustine Band of Cahuilla Indians	Amanda Vance, Tribal Chairperson	04.09.2018; regular mail	At this time, the tribe is unaware of specific cultural resources that may be affected by the proposed project. The tribe requested immediate notification upon discovery of cultural resources during construction

4.3 Building Development Research

City of Rialto Public Records Center

Dudek accessed the City's Public Document portal on March 26, 2018, to review any available building permits or documents pertaining to the construction history of the property. In addition to a review of the information from the online portal, Dudek also submitted a public records request to the City on March 26,

2018, and sent a follow-up request on April 5, 2018. The records request included any additional building permits and architectural drawings that may not be available through the standard online building permit system used by the City. The information obtained from the portal was used in the preparation of the historic context.

San Bernardino County Tax Assessors Office

Dudek accessed the San Bernardino County Tax Assessor's online PIMS on March 26, 2018. The available reports from PIMS provided detailed property information that included dates of construction and ownership history. The information from the PIMS was used in the preparation of the historic context.

Aerial Photograph and Historic Map Review

A review of historic maps and aerial photographs was conducted as part of the archival research effort for the project. Sanborn Fire Insurance Company Maps were prepared for the City until 1932; however, they failed to provide any information related to the project site, as it did not develop until much later in the twentieth century. Topographic maps are available from 1896 to the present (NETR 2018a). Historic aerials from 1938, 1963, and 2002 were available from the University of California, Santa Barbara's, online Map & Imagery Laboratory (UCSB 2018; Fairchild Aerial Survey 1958; Laval Company Inc. 1938; Pacific Air Industries 1963; USGS 1987). Additionally, Dudek viewed historic aerials from 1948, 1959, 1966, 1980, 1994, 2002, 2005, 2009, 2010, and 2012 (NETR 2018b).

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5 CULTURAL RESOURCES SURVEY

5.1 Field Methodology

A qualified Dudek cultural resources specialist conducted a reconnaissance-level survey of the project site on March 15, 2018. The survey was conducted using standard archaeological procedures and techniques. All field practices met the Secretary of Interior's standards and guidelines for a cultural resources inventory. Pedestrian transects were spaced at 15-meter intervals. Ground disturbances such as burrows, cut banks, and drainages were visually inspected for exposed subsurface materials and to record locational information. No artifacts were collected during the surveys. Location-specific photographs were taken using an Apple 3rd Generation IPad equipped with 8-megapixel resolution and georeferenced PDF maps of the project site. All field notes, photographs, and records related to the current study are on file at Dudek's Pasadena, California, office.

In addition to the archaeology survey, a pedestrian survey of the project site on March 15, 2018, for historic age built environment resources. During the survey, all buildings and structures within the project site constructed over 45 years ago were surveyed and recorded. The built environment component of the survey entailed documenting each building with notes and photographs, specifically noting character-defining features, spatial relationships, and any observed alterations. The survey area was photographed using a digital camera. All field notes, photographs, and records related to the current study are on file at the Dudek Pasadena, California, office.

5.2 Field Survey

The project area encompasses 12 parcels (APN 0240-20-110, 0240-20-112, 0240-20-113, 0240-20-114, 0240-20-115, 0240-20-118, 0240-20-138, 0240-20-142, 0240-20-144, 0240-20-145, 0240-20-146, 0240-20-147) at the northeast intersection of Baseline Road and Alder Avenue that total approximately 10.48 acres. The majority of the project site is covered with grasses, and the ground visibility was approximately 25%. Soils within the project site were dark grey-brown loam with large angular gravels and small granitic cobbles. Modern disturbances are visible throughout the project site, including modern trash, grading disturbances, and development. Two parcels (APN 0240-201-15 and 0240-201-44) could not be surveyed for archaeological resources due to limited access and the presence of large guard dogs. These parcels were partially paved, and there did not appear to be any cultural resources within the area. No cultural constituents were observed during the field survey. Three single family residences over 45 years of age were identified on Property 1 (APN 0240-201-18) and Property 2 (APN 0240-201-15 and 0240-201-44). California Department of Parks and Recreation Series 523 Forms were prepared for all built environment resources and are provided in Appendix C.

Property 1, 2406 West Baseline Road, APN 0240-201-18

Property 1 a vernacular, single-family residence built in 1947 facing onto West Baseline Road. The one-story residence is roughly rectangular in plan and clad in stucco. The residence features a hipped roof covered with composition shingles. The main (south) elevation features an integral porch on the left (western) side that is supported with a single wooden post. The main entry is slightly offset to the west and is sheltered beneath the main roofline of the house. The integral porch is accessed from the south and from the west by concrete walkways and two sets of concrete steps. Fenestration is irregular and includes a horizontal sliding window with metal security bars, the metal security door that provides the primary point of entrance to the home, and a horizontal sliding window with metal security bars (Figure 3). The remaining elevations also have irregular fenestration and feature horizontal sliding windows with metal security bars. There is an exterior end brick and stucco chimney located on the west elevation. There is a small hipped roof garage located to the northwest of the main house that is accessed via a concrete driveway running along the west elevation of the main house. Observed alterations to the building include the following: replacement windows, replacement door, reroof, addition of an AC unit, and the addition of decorative, and metal security screens on doors and windows.

Figure 3. Main elevation of 2406 West Baseline Road, view to north, Image No.: IMG_5365.

Property 2, 2374 West Baseline Road, APNs 0240-201-15 and 0240-201-44

Property 2 encompasses two parcels, APN 0240-201-15 and 0240-201-44, and appears to be used as a residential and commercial property. While there was limited access to the site due to safety concerns, from the public right-of-way, it appears that there are two residential buildings (Building 1 and Building 2) and multiple temporary structures and shipping crates to the north of the residential properties. There are also multiple dumpsters and heavy equipment located to the rear of the residential buildings, which indicates some type of commercial salvage operations taking place at the site.

Building 1 is a vernacular, single-family residence built in 1956 facing onto West Baseline Road. The one-story residence is irregular in plan and clad in stucco. The residence features a hipped roof covered in composition shingles. The main (south) elevation contains an entry door offset to the west. The main entrance is sheltered beneath the roof awning and accessed via a set of concrete steps. A concrete walkway provides access to the main entrance from the street. The center of the main elevation is depressed into the house, and the western side of the elevation projects approximately 2 feet, whereas the eastern side of the elevation projects approximately 4 feet. There is a stone façade along the bottom of the main elevation. Fenestration across the main elevation is irregular and includes one horizontal sliding door, one wooden door that provides the primary point of entrance to the home, and a horizontal sliding door (Figure 4). The remaining elevations also have irregular fenestration and feature horizontal sliding windows. There is a second entry door offset to the south on the western elevation.

Figure 4. Main elevation of Building 1, view to northwest, Image No.: IMG_5347.

Building 2 is a vernacular, single-family residence built in 1962 facing Building 1. The one-story residence is roughly rectangular in plan and clad in stucco. The residence features a flat roof covered in composition shingles. The main (south) elevation contains an entry door slightly offset to the east. The main entrance is sheltered beneath a flat roof awning and accessed via one concrete steps. A concrete walkway provides access to the main entrance from the alley, which runs north from West Baseline Road. The eastern third of the main elevation projects approximately 3 feet from the main wall. Fenestration is irregular and includes two horizontal sliding windows with wooden borders, the metal security door that provides the primary point of entrance to the home, and a horizontal sliding window wooded borders (Figure 5). The remaining elevations also have irregular fenestration and feature horizontal sliding windows. There is a second entry door offset to the south on the western elevation.

Figure 5. Main elevation of Building 2, view to northwest, Image No.: IMG_5310.

Property 3, 7196 Alder Avenue, APNs 0240-201-10

Property 3 a vernacular, single-family residence built in 1948 facing onto Alder Avenue. The one-story residence is roughly rectangular in plan and clad in stucco. The residence features a side gabled roof covered with composition shingles. The main (east) elevation contains a projecting porch covered with a shed roof that runs along the entire elevation and is supported by four wooden posts. The main entry is offset to the south and is sheltered beneath the shed roof. There is no apparent walkway from the street to the porch. Fenestration is irregular and includes a four-over-four-over-four casement window, a six-paneled wooden door, two four-by-

four-by-four casement window, and one boarded up window opening (Figure 6). The remaining elevations also have irregular fenestration and features several boarded up window openings. There is a secondary entrance to the residence from the west (rear) elevation. The door is sheltered by a shed roof, which is supported by two wooden posts. The door is wood and contains one window with two panes on top and one wooden panel on the bottom.

Figure 6. Main elevation of 7196 Alder Avenue, view to northwest, Image No.: IMG_5455.

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6 SIGNIFICANCE EVALUATIONS

The property significance evaluation was prepared by Dudek architectural historian Sarah Corder, MFA, who meets the Secretary of the Interior's Professional Qualification Standards for architectural history. The evaluation considers NRHP, CRHR, and City significance criteria and integrity requirements.

For a property to be listed in or determined eligible for listing in the NRHP, it must be demonstrated to possess integrity and to meet at least one of four criteria. The CRHR was designed to reflect the same criteria and integrity as those identified for the NRHP. Therefore, the NRHP and CRHR significance evaluations are presented together.

Property 1, 2406 West Baseline Road, APN 0240-201-18

NRHP and CRHR Significance Evaluation

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The building was constructed in 1947 as a modest, vernacular residence. At its time of construction, the general area was sparsely populated and was characterized mainly by agricultural fields. No significant historical associations were found throughout the course of research. Due to a lack of identified significant associations with events important to history, the subject property does not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with significant persons. Due to a lack of identified significant associations with important persons in history, the subject property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Constructed in 1947 as a vernacular, single-family residence the subject property does not possess any character defining features that would associate it with a particular style of architecture. Archival building permit research also failed to provide information regarding the original builder or architect, but it is not likely to be the work of a master. Furthermore the building has been altered over the years, including replacement windows, replacement door, reroof, addition of an AC unit, and the addition of decorative, metal security screens on doors and windows. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not likely to yield information important to understanding prehistory or history. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion D/4.

Integrity Discussion

Integrity is defined in NRHP guidance, How to Apply the National Register Criteria, as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1990). The seven aspects of integrity are location, design, setting, materials, workmanship, feeling, and association. The property's location and setting have remained unchanged since its original construction, always located on a small, rural parcel and functioning as a single-family residence. However, alterations to the residences, as discussed under Criterion C/3, compromised the integrity of materials, design, workmanship, feeling, and association.

In summary, the subject property fails to retain the requisite integrity, has no historical associations, and lacks architectural merit. For these reasons, it is also ineligible under all City designation criteria.

Property 2, 2374 West Baseline Road, APN 0240-201-15 and 0240-201-44

NRHP and CRHR Significance Evaluation

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

This property consists of two modest, vernacular residences that were constructed in 1962. These buildings were constructed in a sparsely developed area that was used primarily for agricultural throughout much of the twentieth century. Many of the nearby homes are similar in style. No significant historical associations were found throughout the course of research. Due to a lack of identified significant associations with events important to history, the subject property does not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with significant persons. Due to a lack of identified significant associations with important persons in history, the subject property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Constructed in 1962 as a vernacular, single-family residences the subject properties do not possess any character defining features that would associate it with a particular style of architecture. Archival building

permit research also failed to provide information regarding the original builder or architect, but it is not likely to be the work of a master. Additionally, many of the windows of both buildings have been replaced over the years. Because of the lack of interesting, significant, or distinguishable components, the subject properties do not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not likely to yield, information important to understanding prehistory or history. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion D/4.

Integrity Discussion

The property's location and setting have remained unchanged since its original construction, always located on a small, rural parcel and functioning as a single-family residence. However, significant alterations to the north, south, and west elevations, as discussed under Criterion C/3, compromised the integrity of materials, design, workmanship, feeling, and association.

In summary, the subject property fails to retain the requisite integrity, has no historical associations, and lacks architectural merit. For these reasons, it is also ineligible under all City designation criteria.

Property 3, 7196 Alder Avenue, APN 0240-201-10

NRHP and CRHR Significance Evaluation

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The building was constructed in 1948 as a modest, vernacular residence. At its time of construction, the general area was sparsely populated and was characterized mainly by agricultural fields. No significant historical associations were found throughout the course of research. Due to a lack of identified significant associations with events important to history, the subject property does not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with significant persons. Due to a lack of identified significant associations with important persons in history, the subject property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Constructed in 1948 as a vernacular, single-family residence, the subject property does not possess any character defining features that would associate it with a particular style of architecture. Archival building permit research also failed to provide information regarding the original builder or architect, but it is not likely to be the work of a master. Furthermore, the building has deteriorated significantly over the years, evidenced by the dilapidated state of the house, boarded up windows, and apparent water damage to the structure. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not likely to yield, information important to understanding prehistory or history. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion D/4.

Integrity Discussion

The property's location and setting have remained unchanged since its original construction, always located on a small, rural parcel and functioning as a single-family residence. However, the entire property has significantly deteriorated, as discussed under Criterion C/3, compromising the integrity of materials, design, workmanship, feeling, and association.

In summary, the subject property fails to retain the requisite integrity, has no historical associations, and lacks architectural merit. For these reasons, it is also ineligible under all City designation criteria.

7 FINDINGS AND RECOMMENDATIONS

No archaeological resources were identified within the project site as a result of the CHRIS records search, Native American coordination, or survey. Although archaeological sensitivity within the project site is considered low, it is always possible that intact archaeological deposits are present at subsurface levels. For these reasons, the project site should be treated as potentially sensitive for archaeological resources. Management recommendations to reduce potential impacts to unanticipated archaeological resources and human remains during construction activities are provided below.

The three residential properties within the project site were evaluated for historical significance and found not eligible under all NRHP, CRHR, and City designation criteria. Therefore, these properties are not considered historical resources for the purposes of CEQA.

This study finds that the proposed project will have a less than significant impact on historical resources under CEQA.

Unanticipated Discovery of Archaeological Resources

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, 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, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); California Public Resources Code Section 21082), the archaeologist may simply 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.

Unanticipated Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be immediately notified 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 2 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, he or she 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.

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APPENDIX A

SCCIC Records Search Results (CONFIDENTIAL)

APPENDIX B

Native American Coordination Documentation

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

February 22, 2018

Erica Nicolay
Dudek

Sent by E-mail: enicolay@dudek.com

RE: Proposed Baseline/ Alder Warehouse (#10935) Project, City of Rialto; Devore and Fontana USGS Quadrangles, San Bernardino County, California

Dear Ms. Nicolay:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst
(916) 373-3714

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Native American Heritage Commission
Native American Contact List
San Bernardino County
2/22/2018

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
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Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Los Coyotes Band of Mission Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712
Chapparosa@msn.com

Los Coyotes Band of Mission Indians
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Warner Springs, CA, 92086
Phone: (760) 782 - 0712
Fax: (760) 782-2730

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Pauma Band of Luiseno Indians - Pauma & Yuima Reservation
Temet Aguilar, Chairperson
P.O. Box 369 — Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 1289
Fax: (760) 742-3422

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Baseline Alder Warehouse Project, San Bernardino County.

Native American Heritage Commission
Native American Contact List
San Bernardino County
2/22/2018

Ramona Band of Cahuilla Mission Indians
John Gomez, Environmental Coordinator
P. O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
jgomez@ramonatribe.com

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramonatribe.com

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838 — Kitanemuk
Newhall, CA, 91322 — Serrano
Phone: (760) 885 - 0955 — Tataviam
tsen2u@hotmail.com

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov

Santa Rosa Band of Mission Indians
(951) 659-2700Steven Estrada, Chairperson
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228

Serrano Nation of Mission Indians
Goldie Walker, Chairperson
P.O. Box 343 — Serrano
Patton, CA, 92369
Phone: (909) 528 - 9027

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92583 — Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198

Soboba Band of Luiseno Indians
Carrie Garcia, Cultural Resources Manager
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92583 — Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
carrieg@soboba-nsn.gov

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
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San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
P.O. Box 1160 — Cahuilla
Thermal, CA, 92274
Phone: (760) 399 - 0022
Fax: (760) 397-8146
mmirelez@tmdci.org

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Baseline Alder Warehouse Project, San Bernardino County.

APPENDIX C

California Department of Parks and Recreation Series 523 Forms

State of California ♿ The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI #

PRIMARY RECORD

Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

Page 1 **of** 5 ***Resource Name or #** (Assigned by recorder) 2406 West Baseline Road

***P2. Location:** □ **Not for Publication** ■ **Unrestricted**

***a. County** San Bernardino **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Fontana **Date** 1967 PR 1980 **T** 1S ; **R** 5W; __ □ **of** __ □ **of Sec** 5; San Bernardino **B.M.**

c. Address 2406 West Baseline Road City Rialto Zip 92376

d. UTM: (Give more than one for large and/or linear resources) Zone 11S, 461200.64 m E/ 3775727.76 m N

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)

APN: 0240-201-18. The subject property is located on West Baseline Road between Alder Avenue and Tamarind Avenue.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The subject property is a vernacular, single-family residence built in 1947 facing onto West Baseline Road. The one-story residence is roughly rectangular in plan and clad in stucco. The residence features a hipped roof covered with composition shingles. The main (south) elevation features an integral porch on the left (western) side that is supported with a single wooden post. The main entry is slightly offset to the west and is sheltered beneath the main roofline of the house. The integral porch is accessed from the south and from the west by concrete walkways and two sets of concrete steps. Fenestration is irregular and includes a horizontal sliding window with metal security bars, the metal security door that provides the primary point of entrance to the home, and a horizontal sliding window with metal security bars (See Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP2

P5a. Photograph or Drawing

-

***P4. Resources Present:** ■ Building ■ Structure □ Object □ Site □ District □ Element of District □ Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) Main elevation, view to north, IMG_5365.)

***P6. Date Constructed/Age and Source:** ■ Historic □ Prehistoric □ Both
1947

***P7. Owner and Address:**
CH Realty VIII/I Rialto Alder South
3819 Maple Avenue
Dallas, TX 75219

***P8. Recorded by:** (Name, affiliation, and address) Sarah Corder, Dudek
38 N Marengo Ave.
Pasadena, CA 91101

***P9. Date Recorded:** 3/15/2018

***P10. Survey Type:** (Describe)
Intensive pedestrian

***P11. Report Citation**: (Cite survey report and other sources, or enter "none.")
Corder, Kaiser, and Murray. 2018. *Cultural Resources Assessment for Baseline/Alder Warehouse Project, City of Rialto, San Bernardino County, California*

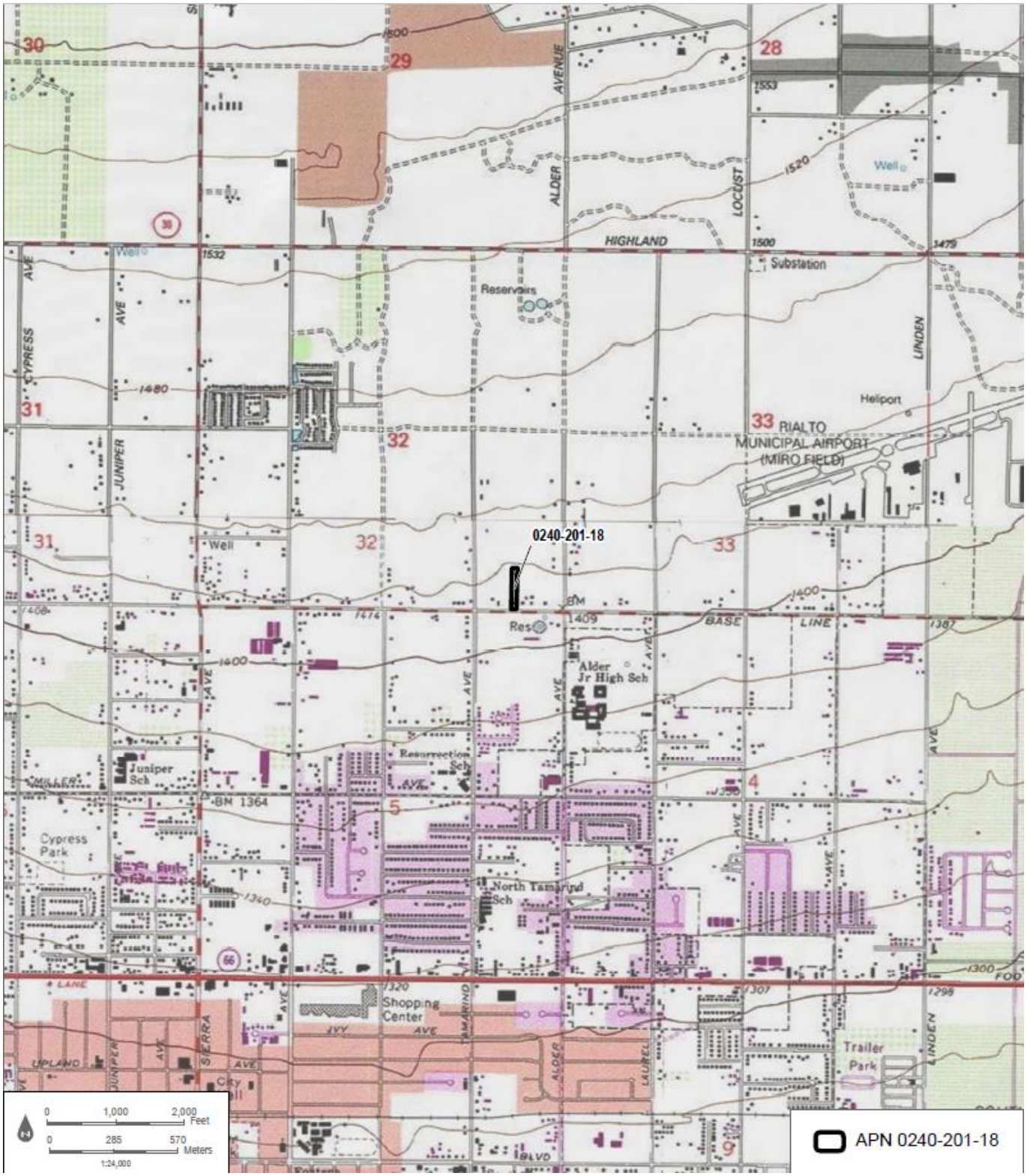
***Attachments:** □NONE ■Location Map ■Continuation Sheet ■Building, Structure, and Object Record
□Archaeological Record □District Record □Linear Feature Record □Milling Station Record □Rock Art Record □Artifact Record
□Photograph Record □ Other (List): _

State of California ◆ Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

 ***Resource Name or #** (Assigned by recorder) 2406 West Baseline Road
***Map Name:** Fontana 7.5 Minute Quadrangle ***Scale:** 1:24,000 ***Date of map:** 1967 PR1980



BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** 2406 West Baseline Road ***NRHP Status Code** 6Z
Page 3 **of** 5

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: Single Family Residence B4. Present Use: Single Family Residence
***B5. Architectural Style:** Vernacular
***B6. Construction History:** (Construction date, alterations, and date of alterations)

The subject property is located at 2406 West Baseline Road and was constructed in 1947 (San Bernardino County Assessor). Historic aerial photographs of Property 1 show that prior to construction, the land was being used for agricultural purposes, and Baseline Road and Alder Avenue were still unpaved roads. Despite the construction of a residence on Property 1 in 1947, the surrounding landscape remained predominantly agricultural in nature. The first aerial photograph that shows the property from 1948, where only the simple, rectangular plan residential building is visible. By 1953, a detached garage has been constructed at the rear of the property. No additional development of the property was seen in aerial photography after mid-century (NETR 2018b; Southwestern Aerial Surveys 1953).

The only building permits on file with the City Clerk's office for the property was an electrical upgrade permit from 2002 (Permit 2002-0376). Observed alterations to the building include the following: replacement windows, replacement door, reroof, addition of an AC unit, and the addition of decorative, metal security screens on doors and windows.

***B7. Moved?** ■**No** □**Yes** □**Unknown** **Date:** _____ **Original Location:** _____
***B8. Related Features:**

B9a. Architect: None noted
b. Builder: _____
***B10. Significance: Theme** n/a **Area** n/a

Period of Significance n/a **Property Type** Residential **Applicable Criteria** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

(See Continuation Sheet)

B11. Additional Resource Attributes: (List attributes and codes) n/a
***B12. References:** See Continuation Sheet

B13. Remarks:

***B14. Evaluator:** Sarah Corder, Dudek
***Date of Evaluation:** March 15, 2018

(This space reserved for official comments.)

***P3a. Description:** (continued)

The remaining elevations also have irregular fenestration and feature horizontal sliding windows with metal security bars. There is an exterior end brick and stucco chimney located on the west elevation. There is a small hipped roof detached garage located to the northwest of the main house that is accessed via a concrete driveway running along the west elevation of the main house.

***B10. Significance:**

The subject property is located at 2406 West Baseline Road and was constructed in 1947 (San Bernardino County Assessor). Historic aerial photographs of Property 1 show that prior to construction, the land was being used for agricultural purposes, and Baseline Road and Alder Avenue were still unpaved roads. Despite the construction of a residence on Property 1 in 1947, the surrounding landscape remained predominantly agricultural in nature. The first aerial photograph that shows the property from 1948, where only the simple, rectangular plan residential building is visible. By 1953, a detached garage has been constructed at the rear of the property. No additional development of the property was seen in aerial photography after mid-century (NETR 2018b; Southwestern Aerial Surveys 1953).

The only ownership records for the property were identified through the San Bernardino County Assessor's Property Information Management System (PIMS). The assessor's system indicated the following people as owners of the property throughout its history:

- Lee Roy and Rachel Anderson, 1973–1978
- Paul, Paula and Charles Anderson, 1978–1990
- Joanne Hendricks, Shirley Anderson, Paula Anderson, Jauris Anderson, 1990–2002
- Emigdio and Christina Rodriguez, 2002–2018
- CH Realty VIII/I Rialto Alder South LP, 2018–present

Significance Evaluation

NRHP/CRHR Criteria

Criterion A/1: Properties that are associated with events that have made a significant contribution to the broad patterns of our history.

The building was constructed in 1947 as a modest, vernacular residence. At its time of construction, the general area was sparsely populated and was characterized mainly by agricultural fields. No significant historical associations were found throughout the course of research. Due to a lack of identified significant associations with events important to history, the subject property does not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: Properties that are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with significant persons. Due to a lack of identified significant associations with important persons in history, the subject property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: Properties that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that

possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Constructed in 1947 as a vernacular, single-family residence the subject property does not possess any character defining features that would associate it with a particular style of architecture. Archival building permit research also failed to provide information regarding the original builder or architect, but it is not likely to be the work of a master. Furthermore the building has been altered over the years, including replacement windows, replacement door, reroof, addition of an AC unit, and the addition of decorative, metal security screens on doors and windows. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: Properties that have yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not likely to yield information important to understanding prehistory or history. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion D/4.

Integrity Discussion

The property's location and setting have remained unchanged since its original construction, always located on a small, rural parcel and functioning as a single-family residence. However, alterations to the residences, as discussed under Criterion C/3, compromised the integrity of materials, design, workmanship, feeling, and association. In summary, the subject property fails to retain the requisite integrity, has no historical associations, and lacks architectural merit.

***B12. References:**

NETR (Nationwide Environmental Title Research LLC). 2018a. Historic Topographic Maps: 1896, 1898, 1901, 1905, 1909, 1913, 1926, 1929, 1938, 1943, 1946, 1955, 1959, 1963, 1965, 1969, 1975, 1980, 1985, and 2012. Accessed June 7, 2018. https://www.historicaerials.com/viewer.

NETR. 2018b. Historic Aerial Photographs: 1938, 1948, 1959, 1966, 1980, 1994, 2002, 2005, 2009, 2010, 2012, and 2014. Accessed June 7, 2018. https://www.historicaerials.com/viewer.

Southwestern Aerial Surveys. 1953. Imagery Report: Flight AXL-1953B, Frame AXL-34K-44. Copyright UC Regents. Accessed July 2018. http://mil.library.ucsb.edu/apcatalog/report/report.php?filed_by=AXL-1953B.

State of California ♿ The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI #

PRIMARY RECORD

Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

Page 1 **of** 7 ***Resource Name or #** (Assigned by recorder) 2374 West Baseline Road

***a. County** San Bernardino **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Fontana **Date** 1967 PR 1980 **T** 1S ; **R** 5W; ☐ **of** ☐ **of Sec** 5; San Bernardino **B.M.**
c. Address 2374 West Baseline Road City Rialto Zip 92376
d. UTM: (Give more than one for large and/or linear resources) Zone 11S, 461260.38 m E/ 3775725.47 m N
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
APN: 0240-201-15 and 0240-201-44. The subject property is located on West Baseline Road between Alder Avenue and Tamarind Avenue.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The subject property encompasses two parcels, APN 0240-201-15 and 0240-201-44, and appears to be used as a residential and commercial property. There are two structures on the property. Building 1 is a vernacular, single family residence built in 1956 clad in stucco and featuring a hipped roof. Building 2 is a vernacular, single family residence built in 1962 clad in stucco featuring a composition roof. There are also multiple dumpsters and heavy equipment located to the rear of the residential buildings, which indicates some type of commercial salvage operations taking place at the site. (See Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP2

***P4. Resources Present:** ■ Building ■ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photograph or Drawing

-

P5b. Description of Photo: (view, date, accession #) Main elevation of Building 1, view to northwest (IMG_5347.)

***P6. Date Constructed/Age and Source:** ■ Historic ☐ Prehistoric ☐ Both
1963

***P7. Owner and Address:**
CH Realty VIII/I Rialto Alder South
3819 Maple Avenue, Texas 75219

***P8. Recorded by:** (Name, affiliation, and address) Sarah Corder, Dudek
38 N Marengo Ave.
Pasadena, CA 91101

***P9. Date Recorded:** 3/15/2018

***P10. Survey Type:** (Describe)
Intensive pedestrian

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
Corder, Kaiser, and Murray. 2018. *Cultural Resources Assessment for Baseline/Alder Warehouse Project, City of Rialto, San Bernardino County, California*

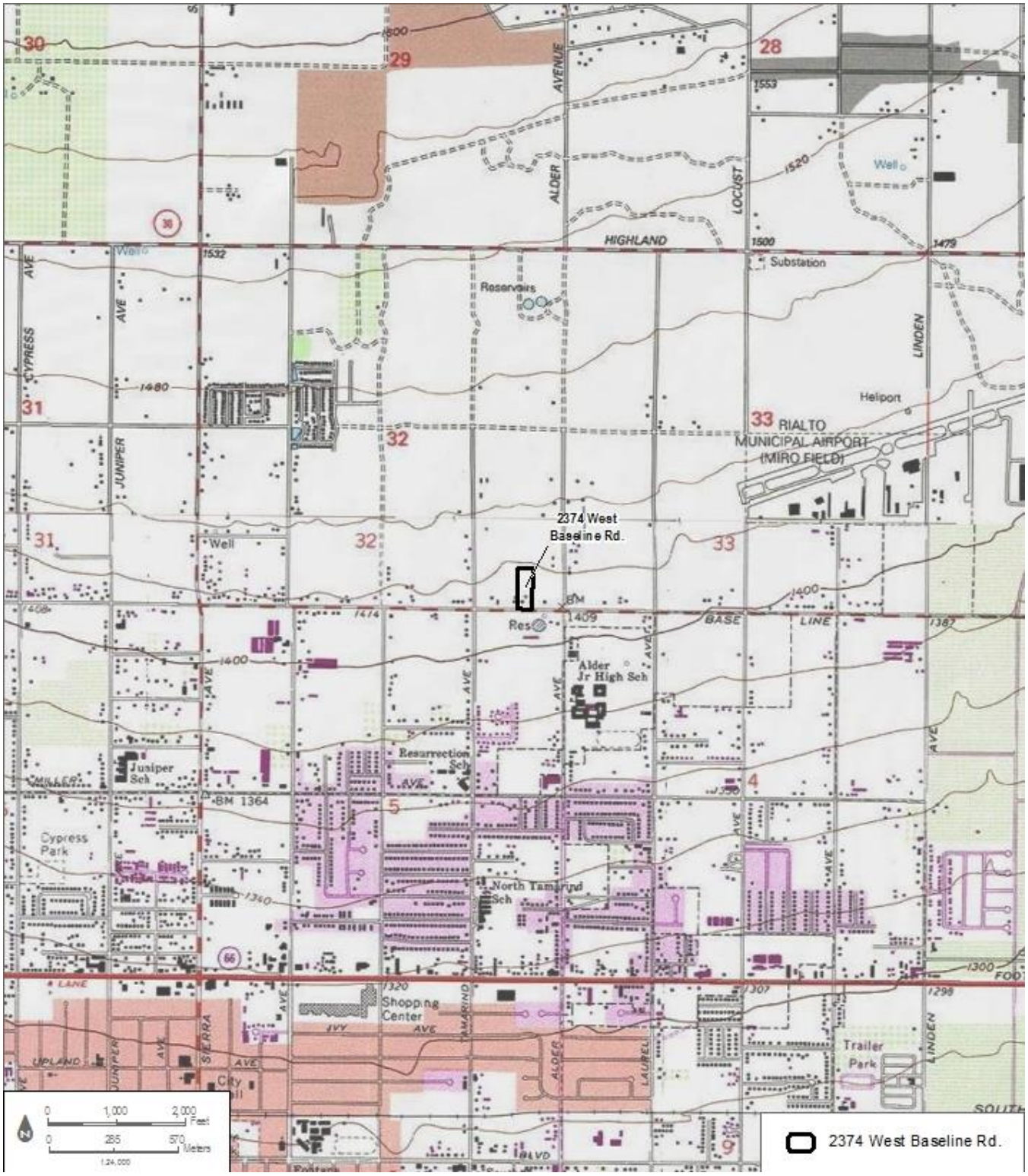
***Attachments:** ☐NONE ■Location Map ■Continuation Sheet ■Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record
☐Photograph Record ☐ Other (List):

State of California ♁ Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 2 **of** 7 ***Resource Name or #** (Assigned by recorder) 2374 West Baseline Road
***Map Name:** Fontana 7.5 Minute Quadrangle ***Scale:** 1:24,000 ***Date of map:** 1967 PR 1980



BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** 2374 West Baseline Road ***NRHP Status Code** 6Z
Page 3 **of** 7

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: Home B4. Present Use: None
***B5. Architectural Style:** Vernacular
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The following building permits were identified for the property: reroof in 1969 (Permit No. 27183), construction of 264-square-foot family room (Permit No. 24367), and upgrades to plumbing systems in 1985 (Permit No. 24047). It is unclear if these permits pertain to Building 1 or Building 2. Observed alterations to Building 1 include the following: replacement windows, replacement door, reroof, and boarded-up window openings. Observed alterations to Building 2 include the following: replacement windows, addition of security door, and boarded-up window openings.

***B7. Moved?** ■**No** □**Yes** □**Unknown** **Date:** **Original Location:**
***B8. Related Features:**

B9a. Architect: None noted
b. Builder:
***B10. Significance: Theme** n/a **Area** n/a

Period of Significance n/a **Property Type** Residential **Applicable Criteria** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

(See Continuation Sheet).

B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:** See Continuation Sheet

B13. Remarks:

***B14. Evaluator:** Sarah Corder, Dudek
***Date of Evaluation:** March 15, 2018

(This space reserved for official comments.)

***P3a. Description:** (continued)

Building 1 is a vernacular, single-family residence built in 1956 facing onto West Baseline Road. The one-story residence is irregular in plan and clad in stucco. The residence features a hipped roof covered in composition shingles. The main (south) elevation contains an entry door offset to the west. The main entrance is sheltered beneath the roof awning and accessed via a set of concrete steps. A concrete walkway provides access to the main entrance from the street. The center of the main elevation is depressed into the house, and the western side of the elevation projects approximately 2 feet, whereas the eastern side of the elevation projects approximately 4 feet. There is a stone façade along the bottom of the main elevation. Fenestration across the main elevation is irregular and includes one horizontal sliding door, one wooden door that provides the primary point of entrance to the home, and a horizontal sliding door (Figure 1). The remaining elevations also have irregular fenestration and feature horizontal sliding windows. There is a second entry door offset to the south on the western elevation.

Figure 1. Main elevation of Building 1, view to northwest, Image No.: IMG_5347.

Building 2 is a vernacular, single-family residence built in 1962 facing Building 1. The one-story residence is roughly rectangular in plan and clad in stucco. The residence features a flat roof covered in composition shingles. The main (south) elevation contains an entry door slightly offset to the east. The main entrance is sheltered beneath a flat roof awning and accessed via one concrete steps. A concrete walkway provides access to the main entrance from the alley, which runs north from West Baseline Road. The eastern third of the main elevation projects approximately 3 feet from the main wall. Fenestration is irregular and includes two horizontal sliding windows with wooden borders, the metal security door that provides the primary point of entrance to the home, and a horizontal sliding window wooded borders (Figure 2).

The remaining elevations also have irregular fenestration and feature horizontal sliding windows. There is a second entry door offset to the south on the western elevation.

Figure 2. Main elevation of Building 2, view to northwest, Image No.: IMG_5310.

***B10 Significance:**

The subject property contains two buildings constructed in 1956 (Building 1) and 1962 (Building 2) (San Bernardino County Assessor). Today, Property 2 is a combination of two parcels with buildings on APN 0240-201-15. Archival research indicates that the two parcels were separate throughout much of the property's history. An aerial photograph from 1948 shows that there was a building constructed within the western portion of the property, on APN 0240-201-44. In 1959, this building receives a large addition and a detached garage. At this time the owners also cultivate a windbreak of trees surrounding the property on the west, north, and east sides that further distinguish it from the eastern lot. Building 1 is added to APN 0240-201-15 in 1959 and first appears in the 1963 aerial photograph. Building 2 was added to the property in 1962 according to the assessor, but does not appear in aerial imagery until 1966. By 1980, APN 0240-201-15 gained several outbuildings, including two small garages associated with the properties. The aerial from the 1994 and 2002 are of poor quality and changes to the properties during this tie are unclear, though it appears that all three buildings were still present. The once clearly demarcated tree lines outlining the western property (APN 0240-201-44) had matured, but also been removed in some places. By 1994, the trees continue to deteriorate until 2005. However, all three buildings remained standing until at least 2005. Between 2005 and 2009, the property directly west of Building 1 (APN 0240-201-44) was demolished, leaving an irregular plan cement patio and foundation, which is still present. By mid-2005, much of the north sections of both properties (APN 0240-201-44 and APN 0240-201-15) are being used as storage for vehicles, trailers, propane tanks, and metal shipping containers of some kind. However, the poor image quality of the aerial photographs makes it difficult to determine a great deal of specific information about the structure. (NETR 2018b; Southwestern Aerial Surveys 1953).

The only information pertaining to the ownership of the property was identified through the San Bernardino County Assessor's PIMS. The assessor's system indicated the following people as owners of the property throughout its history:

- Sebastian and Eva McClellan, 1969–1980
- Washington and Evelyn Morris, 1980–2003
- Sylvia Borrego, 2003–2005

Significance Evaluation

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

This property consists of two modest, vernacular residences that were constructed in 1962. These buildings were constructed in a sparsely developed area that was used primarily for agricultural throughout much of the twentieth century. Many of the nearby homes are similar in style. No significant historical associations were found throughout the course of research. Due to a lack of identified significant associations with events important to history, the subject property does not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with significant persons. Due to a lack of identified significant associations with important persons in history, the subject property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Constructed in 1962 as a vernacular, single-family residences the subject properties do not possess any character defining features that would associate it with a particular style of architecture. Archival building permit research also failed to provide information regarding the original builder or architect, but it is not likely to be the work of a master. Additionally, many of the windows of both buildings have been replaced over the years. Because of the lack of interesting, significant, or distinguishable components, the subject properties do not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not likely to yield, information important to understanding prehistory or history. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion D/4.

Integrity Discussion

The property's location and setting have remained unchanged since its original construction, always located on a small, rural parcel and functioning as a single-family residence. However, significant alterations to the north, south, and west elevations, as discussed under Criterion C/3, compromised the integrity of materials, design, workmanship, feeling, and association. In summary, the subject property fails

to retain the requisite integrity, has no historical associations, and lacks architectural merit.

***B12. References:**

NETR (Nationwide Environmental Title Research LLC). 2018a. Historic Topographic Maps: 1896, 1898, 1901, 1905, 1909, 1913, 1926, 1929, 1938, 1943, 1946, 1955, 1959, 1963, 1965, 1969, 1975, 1980, 1985, and 2012. Accessed June 7, 2018. https://www.historicaerials.com/viewer.

NETR. 2018b. Historic Aerial Photographs: 1938, 1948, 1959, 1966, 1980, 1994, 2002, 2005, 2009, 2010, 2012, and 2014. Accessed June 7, 2018. https://www.historicaerials.com/viewer.

Southwestern Aerial Surveys. 1953. Imagery Report: Flight AXL-1953B, Frame AXL-34K-44. Copyright UC Regents. Accessed July 2018. http://mil.library.ucsb.edu/apcatalog/report/report.php?filed_by=AXL-1953B.

State of California ♿ The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI #

PRIMARY RECORD

Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

Page 1 **of** 5 ***Resource Name or #** (Assigned by recorder) 7196 Alder Avenue

***P2. Location:** □ **Not for Publication** ■ **Unrestricted**

***a. County** San Bernardino **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Fontana **Date** 1967 PR 1980 **T** 1S ; **R** 5W; __ □ **of** __ □ **of Sec** 5; San Bernardino **B.M.**

c. Address 7196 Alder Avenue City Rialto Zip 92376

d. UTM: (Give more than one for large and/or linear resources) Zone 11S, 461357.09 m E/ 3775900.06 m N

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)

APN: 0240-201-10. The subject property is located on Alder Avenue just north of the intersection with West Baseline Road.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The subject property is a vernacular, single-family residence built in 1948 facing onto Alder Avenue. The one-story residence is roughly rectangular in plan and clad in stucco. The residence features a side gabled roof covered with composition shingles. The main (east) elevation contains a projecting porch covered with a shed roof that runs along the entire elevation and is supported by four wooden posts. The main entry is offset to the south and is sheltered beneath the shed roof. There is no apparent walkway from the street to the porch. Fenestration is irregular and includes a four-over-four-over-four casement window, a six-paneled wooden door, two four-by-four-by-four casement window, and one boarded up window opening (See Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP2

P5a. Photograph or Drawing

-

***P4. Resources Present:** ■ Building ■ Structure □ Object ■ Site □ District □ Element of District □ Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) Main elevation of Building 2, view to northwest, (IMG 5455.)

***P6. Date Constructed/Age and Source:** ■ Historic □ Prehistoric □ Both 1948

***P7. Owner and Address:**
YIK CHOUNG F & LEY YING F LIV TR 8
509 Rosemarie Drive
Arcadia, CA 91007

***P8. Recorded by:** (Name, affiliation, and address) Sarah Corder, Dudek
38 N Marengo Ave.
Pasadena, CA 91101

***P9. Date Recorded:** 3/15/2018

***P10. Survey Type:** (Describe)
Intensive pedestrian

***P11. Report Citation**: (Cite survey report and other sources, or enter "none.")
Corder, Kaiser, and Murray. 2018. *Cultural Resources Assessment for Baseline/Alder Warehouse Project, City of Rialto, San Bernardino County, California*

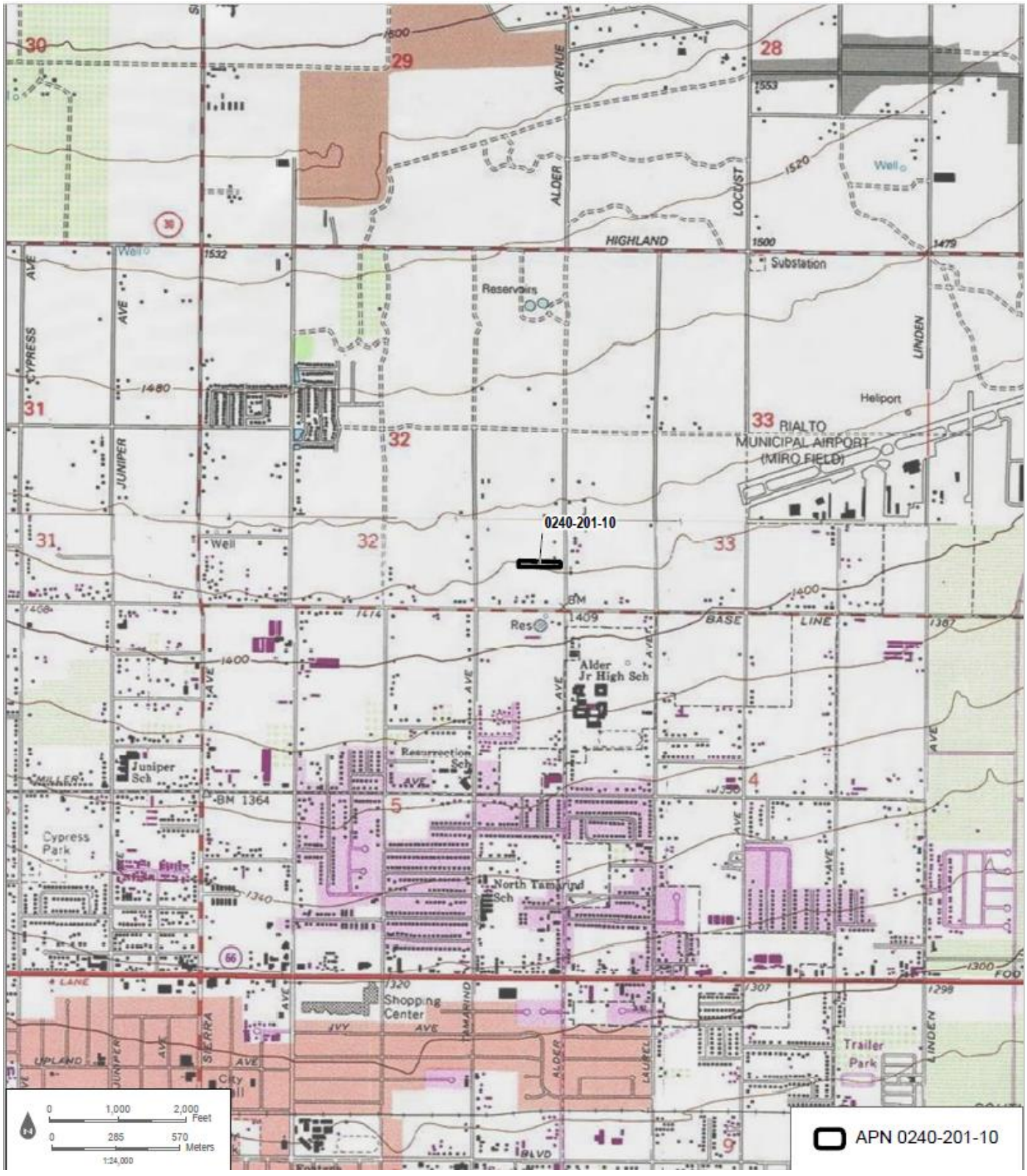
***Attachments:** □NONE ■Location Map ■Continuation Sheet ■Building, Structure, and Object Record
□Archaeological Record □District Record □Linear Feature Record □Milling Station Record □Rock Art Record □Artifact Record
□Photograph Record □ Other (List):

State of California ♁ Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 2 **of** 5 ***Resource Name or #** (Assigned by recorder) 7196 Alder Avenue
***Map Name:** Fontana 7.5 Minute Quadrangle ***Scale:** 1:24,000 ***Date of map:** 1967 PR 1980



BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** 7196 Alder Avenue ***NRHP Status Code** 6Z
Page 3 **of** 5

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: Home B4. Present Use: None
***B5. Architectural Style:** Vernacular
***B6. Construction History:** (Construction date, alterations, and date of alterations)

Building permits for the property were requested from the City Clerk's office, and no building permits were available. Observed alterations to the building include the following: boarded up windows and partial removal of composition shingle roof.

***B7. Moved?** ■No □Yes □Unknown **Date:** **Original Location:**
***B8. Related Features:**

B9a. Architect: None noted
b. Builder:
***B10. Significance: Theme** n/a **Area** n/a

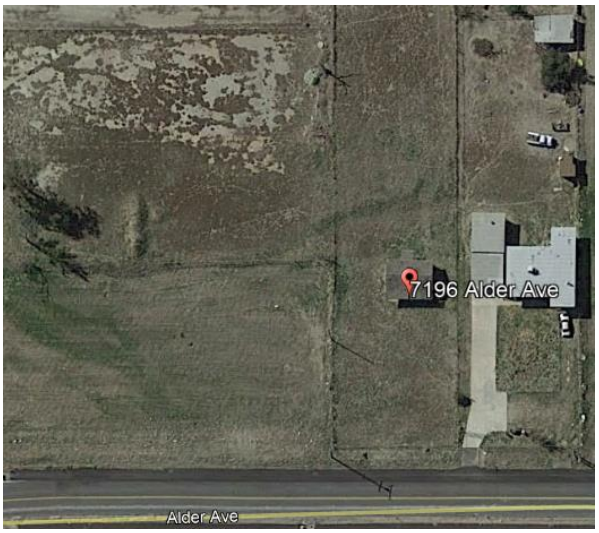
Period of Significance n/a **Property Type** Residential **Applicable Criteria** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

A review of historic maps and aerial photographs was conducted as part of the archival research effort for this property. All Sanborn maps for the City were reviewed, and the project site was not included on any of the maps. Historic aerial photographs were reviewed for the property from the years 1938 to the present. In 1938, most of the area was being used for agricultural purposes. Baseline Road and Alder Avenue are visible, though at this time they appear to be dirt roads. Property 3 was not built until 1948. Aerials from 1948, 1953, and 1957 indicate that a structure was built on the property, and there appeared to be a line of trees along the southern edge of the parcel; however, the scale of these aerials prevents any other characteristic features to be determined (Fairchild Aerial Survey 1958; NETR 2018b; Southwestern Aerial Services 1953). By 1963, the line of trees was gone; there does not appear to be any other significant changes to the project site or surrounding properties, which were still sparsely developed (Pacific Air Industries 1963) (See Continuation Sheet).

B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:** See Continuation Sheet

B13. Remarks:

***B14. Evaluator:** Sarah Corder, Dudek
***Date of Evaluation:** March 15, 2018



(This space reserved for official comments.)

***P3a. Description:** (continued)
The remaining elevations also have irregular fenestration and features several boarded up window openings. There is a secondary entrance to the residence from the west (rear) elevation. The door is sheltered by a shed roof, which is supported by two wooden posts. The door is wood and contains one window with two panes on top and one wooden panel on the bottom.

***B10. Significance:**
Review of historic aerials does not show any significant changes to the subject property since its construction. However, the poor image quality of the aerial photographs makes it difficult to determine a great deal of specific information about the structure. (NETR 2018b).

The only information pertaining to the ownership of the property was found through the San Bernardino County Assessor's PIMS. The Assessor's system indicated the following people as owners of the property throughout its history:

- Howard and Lucille Williams, 1973–2017
- Choung Yik and Ying Ley, 2018

Significance Evaluation
NRHP/CRHR Criteria

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The building was constructed in 1948 as a modest, vernacular residence. At its time of construction, the general area was sparsely populated and was characterized mainly by agricultural fields. No significant historical associations were found throughout the course of research. Due to a lack of identified significant associations with events important to history, the subject property does not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with significant persons. Due to a lack of identified significant associations with important persons in history, the subject property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Constructed in 1948 as a vernacular, single-family residence, the subject property does not possess any character defining features that would associate it with a particular style of architecture. Archival building permit research also failed to provide information regarding the original builder or architect, but it is not likely to be the work of a master. Furthermore, the building has deteriorated significantly over the years, evidenced by the dilapidated state of the house, boarded up windows, and apparent water damage to the structure. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not likely to yield, information important to understanding prehistory or history. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion D/4.

Integrity Discussion

The property's location and setting have remained unchanged since its original construction, always located on a small, rural parcel and functioning as a single-family residence. However, the entire property has significantly deteriorated, as discussed under Criterion C/3, compromising the integrity of materials, design, workmanship, feeling, and association. In summary, the subject property fails to retain the requisite integrity, has no historical associations, and lacks architectural merit.

***B12. References:**

Fairchild Aerial Surveys. 1958. Imagery Report: Flight C-23023, Frame 205V-108. Copyright UC Regents. Accessed at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/.

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APPENDIX D

Geotechnical and Soils

Geotechnical Engineering Report

Baseline & Alder Warehouse Building

Rialto, California

January 19, 2018

Terracon Project No. 60175245

Prepared for:

CH Realty/Acquistions VIII, L.L.C.
Dallas TX

Prepared by:

Terracon Consultants, Inc.
Tustin, California

terracon.com

Terracon

Environmental ■ Facilities ■ Geotechnical ■ Materials

January 19, 2018

Terracon

CH Realty/Acquistions VIII, L.L.C.
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C/O Weil, Gotshal & Manges, L.L.P.
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Attn: Mr. Matt Gibson
E: mgibson@crowholdings.com

C/O Annemargeret Connolly
E: Annemargaret.connolly@weil.com

Re: Geotechnical Engineering Report
Baseline & Alder Warehouse Building
Northwest Corner of Baseline Road and Alder Avenue
Rialto, California
Terracon Project No. 60175245

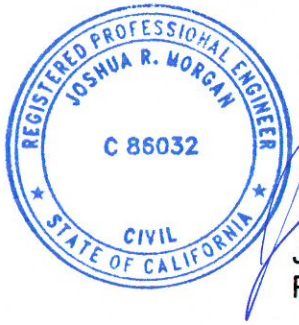
Dear Mr. Matt Gibson:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. These services were performed in general accordance with our proposal number P60175245, dated December 6, 2017.

This geotechnical engineering report presents the results of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slab, and pavements for the proposed development.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.



Trevor M. Lillis, G.I.T.
Staff Geologist

Joshua R. Morgan, P.E.
Project Engineer

APR Review by F. Fred Buhamdan, P.E.

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EXECUTIVE SUMMARY

A geotechnical exploration has been performed for the proposed project that will be located at the northwest corner of Baseline Road and Alder Avenue in the City of Rialto within San Bernardino County, California. Terracon's geotechnical scope of work included the advancement of eighteen (18) test borings to approximate depths ranging between 5 and 30½ feet below the ground surface (bgs). Four (4) of these borings were utilized for percolation testing.

Based on the information obtained from our subsurface exploration, the site is considered suitable for development of the proposed project provided the recommendations included within this report are implemented during the design and construction phases of the project. The following geotechnical considerations were identified:

- The subsurface materials generally consisted of medium dense to very dense sand with varying amounts of silt and gravel to the maximum depth explored at 30½ feet bgs. Groundwater was not encountered in any of the borings. Auger refusal was encountered in multiple borings at depths ranging from approximately 7 feet to 26 feet below existing ground surface on a very dense cobble layer.
- In order to provide a uniform bearing stratum, the near surface soils should be over excavated beneath proposed foundations to a minimum depth of 1 foot below the bottom of footings or 3 feet below the existing ground, whichever is greater, and replaced with engineered fill comprised approved on-site soils.
- Floor slabs may be supported on 1 foot of engineered fill extending below the bottom of slabs.
- Light (automobile) parking and driveway areas – 3" AC over 4" Class II AB or 5" PCC; Truck driveways and Delivery areas – 4" AC over 5" Class II AB or 6" PCC. All pavements should be supported on a minimum of 10 inches of scarified, moisture conditioned, and compacted materials.
- The 2016 California Building Code (CBC) seismic site classification for this site is C.
- Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during construction.

This geotechnical executive summary should be used in conjunction with the entire report for design and/or construction purposes. It should be recognized that specific details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled General Comments should be read for an understanding of the report limitations.

GEOTECHNICAL ENGINEERING REPORT
BASELINE AND ALDER WAREHOUSE
RIALTO, CALIFORNIA

Terracon Project No. 60175245

January 19, 2018

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services performed for the proposed business center to be located at the northwest corner of Baseline Road and Alder Avenue in Rialto, California. The Site Location Plan (Exhibit A-1) is included in Appendix A of this report. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- earthwork
- seismic considerations
- floor slab design and construction
- groundwater conditions
- foundation design and construction
- pavement design and construction
- infiltration systems

Our geotechnical engineering scope of work for this project included the advancement of eighteen (18) borings to approximate depths ranging from 5 to 30 ½ feet below existing site grades. Four (4) of these borings were utilized for percolation testing.

Logs of the borings along with the Exploration Location Diagrams are included in Appendix A of this report. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included in Appendix B of this report. Descriptions of the field exploration and laboratory testing are included in their respective appendices.

2.0 PROJECT INFORMATION

2.1 Project Description

ITEM	DESCRIPTION
Structures	The project will include construction of a rear-load distribution warehouse building with a footprint area of approximately 270,000 SF.
Construction	The building will consist of concrete tilt-up construction with a 32 feet minimum clear height supported on a concrete foundations system.
Finished floor elevation	Assumed within one foot of existing grade.
Maximum loads	Columns: 60 to 120 kips Walls: 3 to 4 klf Slabs: 150 psf max

ITEM	DESCRIPTION
Grading	Minimal cut/fill – assumed to be less than one foot
Paving	New pavements will be constructed onsite for loading docks, truck courts, trailer stalls, and auto parking areas.
Traffic Loading	Passenger car parking and driveway areas: Traffic Index of 5.5 Truck loading areas and driveways: Traffic Index of 7.0
Below Grade Structures	Not anticipated

2.2 Site Location

ITEM	DESCRIPTION
Location	This project site encompasses an approximate area of 12½ acres located at the northwest corner of Baseline Road and Alder Avenue, Rialto, California.
Existing improvements	The project site is partially occupied by several residential structures. However, the majority of the site area is undeveloped.
Current ground cover	The majority of the ground surface is currently covered with soils except for some asphalt pavements associated with the existing residences.
Existing topography	The project site is relatively level.

3.0 SUBSURFACE CONDITIONS

3.1 Site Geology

The site is situated within the eastern Transverse Ranges Geomorphic Province in Southern California. Geologic structures within the Transverse Ranges Province trend mostly east west, in contrast to the prevailing northwest trend elsewhere in the state. The Transverse Range Province contains the highest peaks composed of pre-Phanerozoic rocks south of the Sierra Nevada, four of the eight islands off the southern California coast, and is both bounded and transected by several major fault zones.[1,2] The surface geology at the site is characterized as alluvium deposits of recent Quaternary age[3].

3.2 Typical Subsurface Profile

Specific conditions encountered at the boring locations are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Details for the borings can be

[1] Harden, D. R., "*California Geology, Second Edition*," Pearson Prentice Hall, 2004.

[2] Norris, R. M. and Webb, R. W., *"Geology of California, Second Edition,"* John Wiley & Sons, Inc., 1990.

[3] Geologic Map of California – Olaf P. Jenkins Edition – San Bernardino Sheet, Compilation by Thomas H. Rogers, 1967.

found on the boring logs included in Appendix A. Based on the results of the borings, subsurface conditions on the project site can be generalized as medium dense to very dense sand with variable amounts of silt and gravel. Auger refusal was encountered in multiple borings at depths ranging from approximately 7 feet to 26 feet below existing ground surface on a very dense cobble layer.

Laboratory tests were conducted on selected soil samples and the test results are presented in Appendix B and on the boring logs. Atterberg limits test results indicated that on-site soils exhibit non-plastic behavior. Moisture density relationship testing indicated that onsite soils have a maximum dry density of 126.0 pcf with an optimum moisture content of 8.1%. R-value test results indicate near surface soils have an R-value of 69.

3.3 Groundwater

Groundwater was not observed in the test borings at the time of field exploration. These observations represent groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations.

Based on review of nearby groundwater data the depth to groundwater is anticipated to be greater than 200 feet bgs.[4]

3.4 Seismic Considerations

3.4.1 CBC Seismic Site Class and Parameters

DESCRIPTION	VALUE
2016 California Building Code Site Classification (CBC) [1]	C
Site Latitude	N 34.12250°
Site Longitude	W 117.42025°
S_s Spectral Acceleration for a Short Period	1.686g
S_1 Spectral Acceleration for a 1-Second Period	0.735g
F_a Site Coefficient for a Short Period	1.00
F_v Site Coefficient for a 1-Second Period	1.30

[1] Note: The 2016 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100 foot soil profile determination. Borings were extended to a maximum depth of 30 feet, and this seismic site class definition considers that similar or denser soils continue below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.

[4] Groundwater elevation was obtained from a monitoring well (site code: 341211N1174212W001) located at distance of about 500 feet south of the project site (http://www.water.ca.gov/waterdatalibrary/).

3.4.2 Faulting and Estimated Ground Motions

The site is located in Southern California, which is a seismically active area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. As calculated using the USGS Unified Hazard Tool, the San Jacinto (San Bernardino) fault is considered to have the most significant effect at the site from a design standpoint. The fault is located approximately 6.58 kilometers from the site and has a maximum credible earthquake magnitude of 8.04.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-10) standard, the peak ground acceleration (PGA_M) at the project site is expected to be 0.662g. Based on the USGS Unified Hazard Tool, the project site has a mean magnitude of 7.51. Furthermore, the site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.[5]

3.4.3 Liquefaction Potential

Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The California Geologic Survey (CGS) and County of San Bernardino Geologic Hazard maps have designated certain areas within Southern California as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table. The project site is not located within a liquefaction hazard zone as designated by county maps. Based on the county hazard maps and the subsurface conditions encountered at the project site, we conclude that the potential for liquefaction at the site is considered low. Other geologic hazards related to liquefaction, such as lateral spreading, are therefore also considered low.

3.5 Percolation Test Results

Four (4) in-situ percolation tests (falling head borehole permeability) were performed to approximate depths of 5 and 10 feet bgs. A 2-inch thick layer of gravel was placed in the bottom of each boring after the borings were drilled to investigate the soil profile. A 3-inch diameter perforated pipe was installed on top of the gravel layer in each boring. Gravel was used to backfill between the perforated pipes and the boring sidewall. The borings were then filled with water for a presoak period. Testing began after the entire amount of water added to the borings had infiltrated into the ground. At the beginning of each test, the pipes were refilled with water and readings were taken at standardized time intervals. Percolation rates are provided in the following table:

[5] California Department of Conservation Division of Mines and Geology (CDMG), *"Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, Southern Region"*, CDMG Compact Disc 2000-003, 2000.

TEST RESULTS				
Test Location (depth, feet bgs)	**Soil Classification**	**Slowest Measured Percolation Rate (in/hr)**	**Correlated Infiltration Rate* (in/hr)**	**Water Head (in)**
Perc-1 (1-5 ft)	Silty Sand with Gravel	108	4.5	46
Perc-2 (3-10 ft)	Poorly Graded Sand with Silt	350	9.8	73
Perc-3 (1-5 ft)	Silty Sand with Gravel	120	5.2	45
Perc-4 (6-10 ft)	Silty Sand with Gravel	216	9.2	45

*If the proposed infiltration systems will mainly rely on vertical downward seepage, the correlated infiltration rates should be used. The correlated infiltration rates were calculated using the Porchet Method.

The field test results are not intended to be design rates. They represent the result of our tests, at the depths and locations indicated, as described above. The design rate should be determined by the designer by applying an appropriate factor of safety. The designer should take into consideration the variability of presence of the fill materials and the native soils when selecting appropriate design rates. With time, the bottoms of infiltration systems tend to plug with organics, sediments, and other debris. Long term maintenance will likely be required to remove these deleterious materials to help reduce decreases in actual percolation rates.

If the proposed infiltration systems will mainly rely on vertical downward seepage, the correlated infiltration rates should be used.

The percolation test was performed with clear water, whereas the storm water will likely not be clear, but may contain organics, fines, and grease/oil. The presence of these deleterious materials will tend to decrease the rate that water percolates from the infiltration systems. Design of the storm water infiltration systems should account for the presence of these materials and should incorporate structures/devices to remove these deleterious materials.

Based on the soils encountered in our borings, we expect the percolation rates of the soils could be different than measured in the field due to variations in fines and gravel content. The design elevation and size of the proposed infiltration system should account for this expected variability in infiltration rates.

Due to the variable amounts of silt and clay in the sand material throughout the site and the disparity between percolation rates, infiltration testing should be performed after construction of the infiltration system to verify the design infiltration rates. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of the infiltration areas. The actual infiltration rate may vary from the values reported here. Infiltration systems should be located a minimum of 10 feet from any existing or proposed foundation system.

3.6 Corrosion Potential

Results of soluble sulfate testing indicate that ASTM Type I/II Portland cement may be used for all concrete on and below grade. Foundation concrete may be designed for negligible sulfate exposure in accordance with the provisions of the ACI Design Manual, Section 318, Chapter 19.

Laboratory test results indicate the on-site soils have a pH ranging from 7.6 to 7.9, a resistivity ranging between 15,520 and 17,460 ohm-centimeters, a water soluble sulfate content of 0.01%, Red-Ox potential ranging from +703 and +709 mV, negligible sulfides, and a chloride content of 50 mg/kg as shown on the attached Results of Corrosivity Analysis sheet. These values should be used to evaluate corrosive potential of the on-site soils to underground ferrous metals.

Refer to the Results of Corrosivity Analysis sheet in Appendix B for the complete results of the Corrosivity testing conducted in conjunction with this geotechnical exploration.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings provided our geotechnical engineering recommendations presented in this report are implemented during the design and construction of this project.

In order to provide a uniform bearing stratum for the proposed structure, the near surface soils should be over excavated beneath proposed foundations to a minimum depth of 1 foot below the bottom of footings or 3 feet below the existing ground, whichever is greater, and replaced with engineered fill comprised of approved on-site soils. Floor slabs may be supported on 1 foot of engineered fill extending below the bottom of slabs.

Auger refusal was encountered on cobbles in multiple borings at depths ranging from 7 to 26 feet bgs. Excavation penetrating the very dense soils and cobble materials may require the use of specialized heavy-duty equipment such as jack hammers or large excavators, to facilitate break-up and removal.

Geotechnical engineering recommendations for foundation systems and other earth connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing (which are presented in Appendices A and B), engineering analyses, and our current understanding of the proposed project.

4.2 Earthwork

The following paragraph present recommendations for site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for the design and construction of earth supported elements including, foundations, slabs, and pavements, are contingent upon following the recommendations outlined in this section. All grading for the proposed building should incorporate the limits of the building plus a minimum lateral distance of 1 foot beyond the perimeter footings.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

4.2.1 Site Preparation

Strip and remove existing pavement, existing vegetation, and other deleterious materials from proposed building and pavement areas. This should include the removal of all buried concrete slabs, and buried footings that may exist within the area of the proposed construction. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

It is our understanding the existing buildings, foundation, and pavements will be removed prior to the new proposed construction. Any existing building, foundations, or various construction demolition debris should be completely removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.

We recommend stripping topsoil to depths that expose soils with less than 3 percent organics and no roots having a diameter greater than 1/4 inch. While the depth of the unsuitable soils should be expected to vary, the thickness of the top soil layer may be estimated to range between 6 and 12 inches for construction budgeting purposes. The thickness of the top soil layer was not determined during our field exploration. Therefore, the actual depth of stripping should be verified by engineering observations made during the grading operations at the project. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

Stripped materials consisting of vegetation and organic materials should be wasted from the site, or used to revegetate landscaped areas or exposed slopes after completion of grading operations. If it is necessary to dispose of organic materials on site, they should be placed in non-structural areas, and in fill sections not exceeding 5 feet in height.

The site should be initially graded to create a relatively level surface to receive fill, and provide for a relatively uniform thickness of fill beneath proposed building structures.

Although underground facilities such as septic tanks, cesspools, basements, and utilities were not observed during the site reconnaissance, such features could be encountered during construction. If underground facilities are encountered, such features should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.

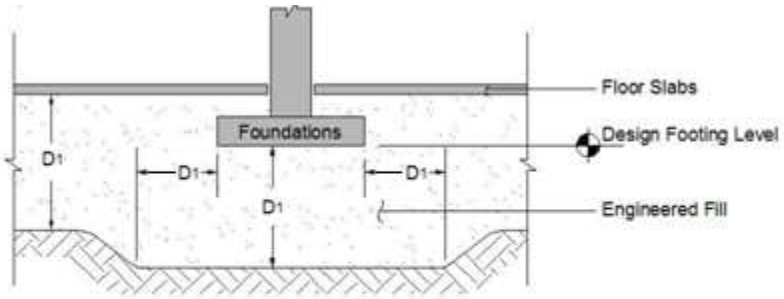
4.2.2 Subgrade Preparation

In order to provide a uniform bearing stratum, foundations and floor slabs should bear on engineered fill as follows:

Foundation Type	Depth Of Fill
Columns and Walls	1 foot beneath the bottom of footings or 3 feet below existing grades.
Floor Slabs	A minimum depth of 1 foot below the bottom of slab on grade.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 10 inches, moisture conditioned, and compacted per the compaction requirements in Section 4.2.4.

The over-excavation should then be backfilled up to the footing base elevation with engineered fill placed in lifts of 8 inches or less in loose thickness and should be moisture conditioned and compacted following the recommendations in section 4.2.4 of this report. The limits of required over-excavation and engineered fill beneath foundations are shown in the following figure.



OVER-EXCAVATION / BACKFILL DETAIL

D_1 - 1 foot depth of overexcavation beneath foundations/floor slabs and lateral extent beyond edge of foundations

Care should be taken to prevent wetting or drying of the bearing materials during construction. Wet, dry, or loose/disturbed material in the bottom of the footing excavations should be removed before foundation concrete is placed. Place a lean concrete mud-mat over the bearing soils if the excavations must remain open for an extended period of time.

Subsequent to clearing, grubbing, and removal of topsoil, subgrade soils beneath pavements should be scarified, moisture conditioned, and compacted to a minimum depth of 10 inches. The moisture content and compaction of subgrade soils should be maintained until slab or pavement construction.

4.2.3 Fill Materials and Placement

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than three inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer. The on-site soils and fill materials are considered suitable for use as engineered fill on the project, provided they are screened to have a maximum nominal particle size of 3 inches.

Clean onsite soils or approved imported materials may be used as fill material for the following:

- general site grading
- foundation areas
- interior floor slab areas
- foundation backfill
- pavement areas
- exterior slab areas

Imported soils if required to raise grades, should conform to low volume change materials as indicated below:

Gradation	Percent Finer by Weight (ASTM C 136)
3”	100
No. 4 Sieve	50-100
No. 200 Sieve	10-40

- Liquid Limit ..... 30 (max)
- Plasticity Index ..... 15 (max)
- Maximum expansive index* ..... 20 (max)

*ASTM D 4829

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed eight inches loose thickness.

4.2.4 Compaction Requirements

Recommended compaction and moisture content criteria for engineered fill materials are as follows:

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
On-site granular or approved imported fill soils:			
Beneath foundations:	90%	0%	+4%
Beneath slabs:	90%	0%	+4%
Beneath asphalt pavements:	95%	0%	+4%
Beneath concrete pavements:	95%	0%	+4%
Utility trenches*:	90%	0%	+4%
Miscellaneous backfill:	90%	0%	+4%
Exposed soils at bottom of excavation:	90%	0%	+4%
Aggregate base (beneath asphalt pavements):	95%	0%	+4%

*Upper 12 inches within pavements and structural areas should be compacted to a minimum of 95%.

4.2.5 Grading and Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Planters and other surface features which could retain water in areas adjacent to the building or pavements should be sealed or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet from perimeter walls.

Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration. We recommend a minimum horizontal setback distance of 10 feet from the perimeter of any building and the high-water elevation of the nearest storm-water retention basin.

Roof drainage should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler systems and landscaped irrigation should not be installed within 5 feet of foundation walls.

4.2.6 Exterior Slab Design and Construction

Exterior slabs-on-grade, exterior architectural features, and utilities founded on, or in backfill may experience some movement due to the volume change of the backfill. To reduce the potential for damage caused by movement, we recommend:

- minimizing moisture increases in the backfill;
- controlling moisture-density during placement of backfill;

- using designs which allow vertical movement between the exterior features and adjoining structural elements;
- placing effective control joints on relatively close centers.

4.2.7 Construction Considerations

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. Auger refusal was encountered on cobbles in multiple borings at depths ranging from 7 to 26 feet bgs. Excavation penetrating the very dense soils and cobble materials may require the use of specialized heavy-duty equipment such as jack hammers or large excavators, to facilitate break-up and removal. Consideration should be given to obtaining a unit price for difficult excavation in the contract documents for the project.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable; however, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and moisture conditioning.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, backfilling of excavations to the completed subgrade.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork may require additional mitigative measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

The individual contractor(s) is responsible for designing and constructing stable, temporary excavations as required to maintain stability of both the excavation sides and bottom.

Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

4.3 Foundations

DESCRIPTION	RECOMENDATION
Foundation Type	Conventional Shallow Spread Footings
Bearing Material	Engineered fill extending to a minimum of 3 feet bgs or 1 foot below the bottom of foundations, whichever is greater.
Allowable Bearing Pressure	3,000 psf
Minimum Dimensions	Walls: 18 inches; Columns: 24 inches
Minimum Embedment Depth Below Finished Grade	18 inches
Estimated Static Settlement	1 inch
Estimated Differential Static Settlement	½ inch in 40 feet.

Finished grade is defined as the lowest adjacent grade within five feet of the foundation for perimeter (or exterior) footings. The allowable foundation bearing pressures apply to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.

Footings, foundations, and masonry walls should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. The use of joints at openings or other discontinuities in masonry walls is recommended.

Foundation excavations should be observed by the geotechnical engineer. If the soil conditions encountered differ significantly from those presented in this report, supplemental recommendations may be required.

4.4 Floor Slab

DESCRIPTION	VALUE
Interior floor system	Slab-on-grade concrete.
Floor slab support	A minimum of 1 foot of engineered fill composed of onsite granular soils

DESCRIPTION	VALUE
Modulus of subgrade reaction	200 pounds per square inch per inch (psi/in) (The modulus was obtained based on 12 inches of engineered fill, and estimates obtained from NAVFAC 7.1 design charts). This value is for a small loaded area (1 Sq. ft or less) such as for forklift wheel loads or point loads and should be adjusted for larger loaded areas.

In areas of exposed concrete, control joints should be saw cut into the slab after concrete placement in accordance with ACI Design Manual, Section 302.1R-37 8.3.12 (tooled control joints are not recommended). Additionally, dowels should be placed at the location of proposed construction joints. To control the width of cracking (should it occur) continuous slab reinforcement may be considered in exposed concrete slabs.

The use of a vapor retarder or barrier should be considered beneath concrete slabs on grade that will be covered with moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture to prevent moisture migration. When conditions warrant the use of a vapor retarder, the slab designer and slab contractor should refer to ACI 302 and ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder/barrier.

4.5 Lateral Earth Pressures

For onsite soils or imported granular fill materials above any free water surface, recommended equivalent fluid pressures for foundation elements are:

ITEM	VALUE[1]
Active Case	34 psf/ft
Passive Case	425 psf/ft[2]
At-Rest Case	53 psf/ft
Surcharge Pressure	0.28*(Surcharge)
Coefficient of friction	0.40[3]

[1] Note: The values are based on granular engineered fill materials used as backfill.
[2] Note: Ignore passive pressure in the upper 18 inches because of soil disturbance.
[3] Note: Reduce to 0.30 when used in conjunction with passive pressure.

The lateral earth pressures herein do not include any factor of safety and are not applicable for submerged soils/hydrostatic loading. Additional recommendations may be necessary if such conditions are to be included in the design.

Fill against foundation and retaining walls should be compacted to densities recommended in the Earthwork section of this report. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors

4.6 Pavements

4.6.1 Design Recommendations

A design R-Value of 50, which is the maximum allowable value for subgrade based Caltrans method, was used to calculate the Asphalt Concrete (AC) pavement thickness sections and a modulus of subgrade reaction was estimated in calculating the Portland Cement Concrete (PCC) pavement sections. These values considered on-site granular soils used in the upper 10 inches of subgrade beneath the pavements.

Assuming the pavement subgrades will be prepared as recommended within this report, the following pavement sections should be considered minimums for this project for the traffic indices assumed in the table below. As more specific traffic information becomes available, we should be contacted to reevaluate the pavement calculations.

	Recommended Pavement Section Thickness (inches)*	
	Light (Automobile) Parking and Driveways Assumed TI = 5.5	**Truck Loading Areas Assumed TI = 7.0**
Section I Portland Cement Concrete**	5.0” PCC over 10” of scarified, moisture conditioned, and compacted granular materials	6.5” PCC over 10” of scarified, moisture conditioned, and compacted granular materials
Section II Asphaltic Concrete	3” AC over 4” Class II Aggregate Base over 10” of scarified, moisture conditioned, and compacted granular materials	4” AC over 5” Class II Aggregate Base over 10” of scarified, moisture conditioned, and compacted granular materials

* All materials should meet the CALTRANS Standard Specifications for Highway Construction.

** Plain Jointed Concrete with a minimum flexural strength of 600 psi.

These pavement sections are considered minimal sections based upon the expected traffic and the existing subgrade conditions; however, they are expected to function with periodic maintenance and overlays if good drainage is provided and maintained.

All concrete for rigid pavements should have a minimum flexural strength of 600 psi (4,500 psi compressive strength), and be placed with a maximum slump of four inches. Proper joint spacing will also be required to prevent excessive slab curling and shrinkage cracking. All joints should be sealed to prevent entry of foreign material and dowelled where necessary for load transfer.

It is our experience that asphalt pavement sections will suffer severe distresses and shoving in tight turning radius areas. It is our recommendation that Portland Cement Concrete pavement

should be used for such areas. Asphalt concrete sections must be thickened to 8 inches at transitions with concrete.

Preventative maintenance should be planned and provided for through an on-going pavement management program in order to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment.

Preventative maintenance consists of both localized maintenance (e.g. crack sealing and patching) and global maintenance (e.g. surface sealing). Preventative maintenance is usually the first priority when implementing a planned pavement maintenance program and provides the highest return on investment for pavements.

4.6.2 Construction Considerations

Materials and construction of pavements for the project should be in accordance with the requirements and specifications of the State of California Department of Transportation, or other approved local governing specifications.

Base course or pavement materials should not be placed when the surface is wet. Surface drainage should be provided away from the edge of paved areas to minimize lateral moisture transmission into the subgrade.

5.0 GENERAL COMMENTS

A geotechnical firm should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. A geotechnical firm also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

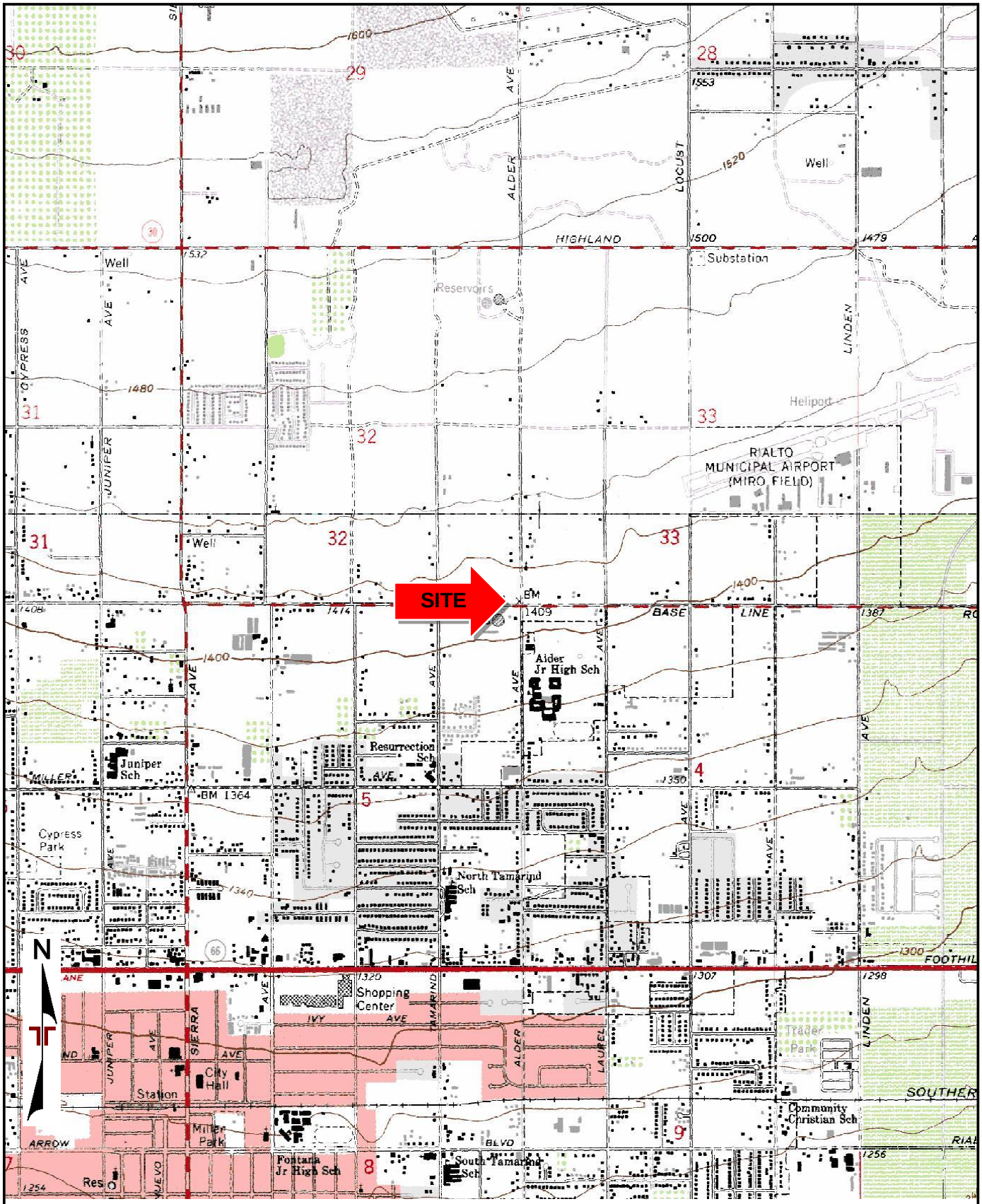
The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between explorations, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or

prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

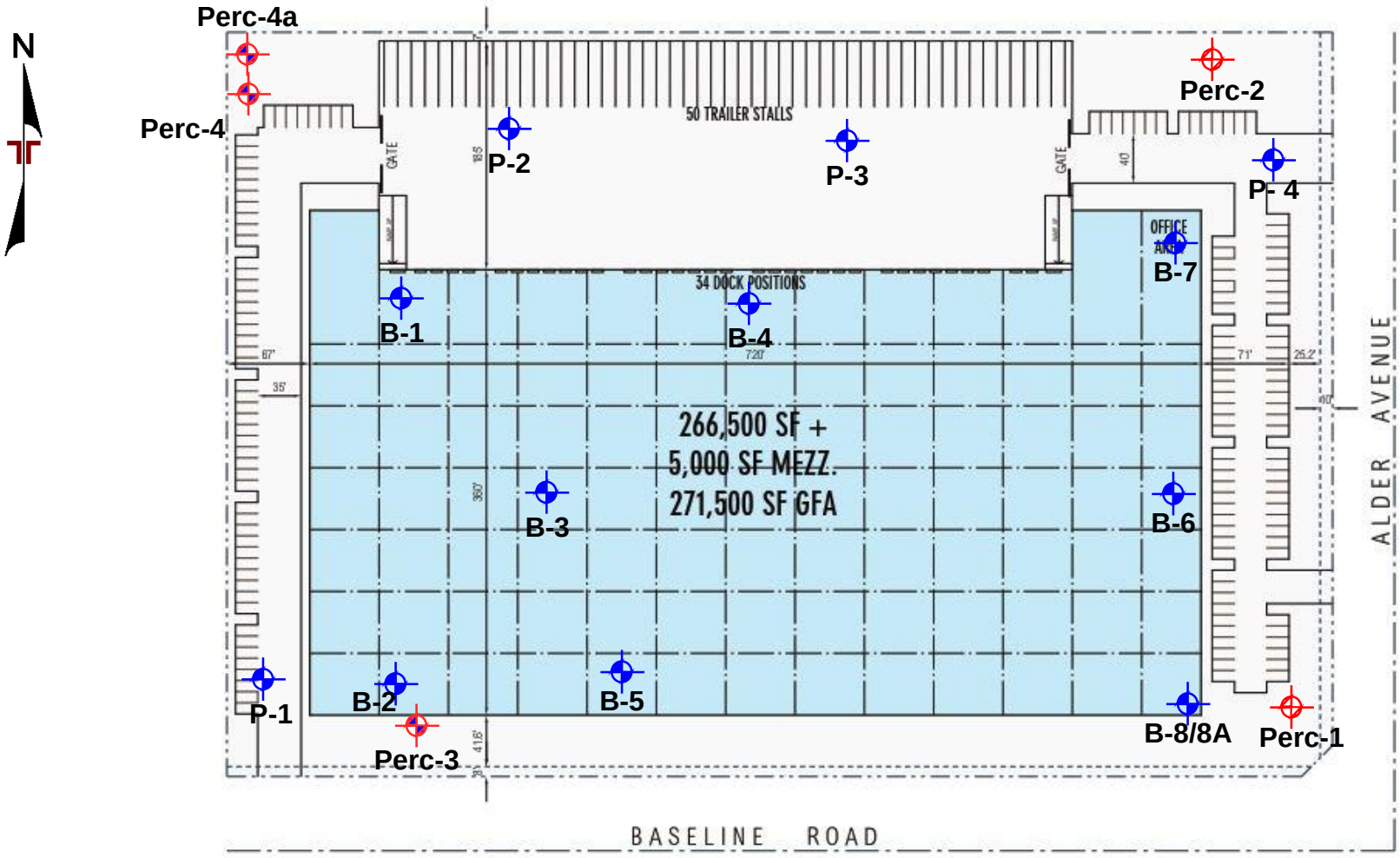
This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A
FIELD EXPLORATION



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: DEVORE, CA (1/1/1996) and FONTANA, CA (1/1/1980).

Project Manager: JM	Project No. 60175245	Terracon	SITE LOCATION	Exhibit
Drawn by: DTB	Scale: 1"=2,000'	1421 Edinger Ave Ste C Tustin, CA 92780-6287	Baseline & Alder Warehouse NWC of Baseline Road & Alder Avenue Rialto, CA	A-1
Checked by: JM	File Name: A-1			
Approved by: FB	Date: 12/2017			



LEGEND

B-1	SOIL BORING APPROXIMATE LOCATION
Perc-1	PERCOLATION TEST APPROXIMATE LOCATION

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	JM
Drawn by:	OF
Checked by:	JM
Approved by:	FB
Project No.	60175245
Scale:	1in≈140ft
File Name:	A-2
Date:	01/2018

Terracon
Consulting Engineers & Scientists
1421 Edinger Avenue Ste C Tustin, California 92780
PH. (949) 261-0051 FAX. (949) 261-6110

BORING AND TEST LOCATION PLAN

Baseline & Alder Warehouse
NWC of Baseline Road & Alder Avenue
Rialto, CA

Exhibit
A-2

Field Exploration Description

Field exploration program included the advancement of eighteen (18) test borings to approximate depths ranging between 5 to 30½ feet below existing site grades. The field program was performed at the site on December 21, 2017. The drilled test borings were advanced with a truck-mounted B-61 drill rig utilizing 8-inch diameter hollow-stem auger.

The borings were located in the field by using the proposed site plan, and handheld GPS equipment. The accuracy of boring locations should only be assumed to the level implied by the method used.

Continuous lithologic logs of the borings were recorded by the field engineer during the drilling operations. Groundwater was not encountered at the time of drilling. At selected intervals, samples of the subsurface materials were taken by driving split-spoon or ring-barrel samplers. Bulk samples of subsurface materials were also obtained. Groundwater conditions were evaluated in the borings at the time of site exploration.

Penetration resistance measurements were obtained by driving the split-spoon and ring-barrel samplers into the subsurface materials with a 140-pound automatic hammer falling 30 inches. The penetration resistance value is a useful index in estimating the consistency or relative density of materials encountered.

An automatic hammer was used to advance the split-barrel sampler in the borings performed on this site. A significantly greater efficiency is achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. This higher efficiency has an appreciable effect on the SPT-N value. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

The samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further examination, testing, and classification. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The borings were backfilled with auger cuttings prior to the drill crew leaving the site.

BORING LOG NO. B-1

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1225° Longitude: -117.4212°

Approximate Surface Elev: 1417 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	SILTY SAND WITH GRAVEL (SM), brown										NP	14
2.5	1414.5+/-											
	POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan, medium dense				12-8-9 N=17							
		5			8-14-20				1	127		
	dense				8-18-21 N=39							
	very dense	10			39-50/0"				3			
11.5	1405.5+/-											
	Auger Refusal at 11.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:
Auger refusal on cobble layer.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-21-2017 | Boring Completed: 12-21-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-4

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-2

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1216° Longitude: -117.4212°

Approximate Surface Elev: 1412 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan, medium dense										NP	11
						10-17-17				2	128		
			5			8-8-10 N=18							
		very dense				21-50/0"				2	128		
		dense	10			12-17-20 N=37							11
	11.5	1400.5+/-											
		Auger Refusal at 11.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:
Auger refusal on cobble layer

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-21-2017 | Boring Completed: 12-21-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-5

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-3

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1221° Longitude: -117.4208°

Approximate Surface Elev: 1414 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
SILTY SAND (SM), tan												NP	15
2.5	1411.5+/-												
POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan, medium dense						10-8-6 N=14							
			5			10-13-18							
						15-24-31				2	125		
dense			10			16-38-37				2	128		
very dense			15			20-26-35 N=61							
			20			17-50/6"							
			25										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-21-2017 | Boring Completed: 12-21-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-6

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-3

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1221° Longitude: -117.4208°

Approximate Surface Elev: 1414 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan, medium dense *(continued)*				50/5"							
	30.4	1383.5+/-	30			50/5"							
		Boring Terminated at 30.4 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-21-2017 | Boring Completed: 12-21-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-7

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-4

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1225° Longitude: -117.4202°

Approximate Surface Elev: 1415 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan, medium dense											NP	11
						26-30-28				1			
	very dense		5			12-31-22 N=53							
	medium dense					18-25-26				2			
	very dense		10			18-21-41 N=62							
15.0	1400+/-												
	SILTY SAND (SM), trace gravel, brown, dense		15			5-11-19 N=30						NP	16
						11-28-11 N=39							
19.5	1395.5+/-												
	Auger Refusal at 19.5 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:
Auger refusal on cobble layer

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-21-2017 | Boring Completed: 12-21-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-8

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-5

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1216° Longitude: -117.4206°

Approximate Surface Elev: 1411 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND WITH GRAVEL (SM), brown, medium dense										NP	15
	5.0	1406+/-				5-6-8 N=14				2			
		POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan, medium dense	5			16-15-23				1		NP	
		dense				12-18-17 N=35							
			10			32-50/6"							
			15			15-21-25 N=46							
			20			13-21-20 N=41							
	21.5	1389.5+/-											
		Boring Terminated at 21.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-21-2017 | Boring Completed: 12-21-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-9

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-6

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1221° Longitude: -117.419°

Approximate Surface Elev: 1414 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	SILTY SAND WITH GRAVEL (SM), brown									NP	20
2.5	1411.5+/-										
	POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan, medium dense			6-11-10 N=21							
	dense	5		14-24-35				1	132		
	very dense			14-26-37 N=63							
10.0	1404+/-	10		50/6"				1			
	SILTY SAND (SM), trace gravel, tan, very dense										
15.0	1399+/-	15		24-31-37 N=68							
	SILTY SAND WITH GRAVEL (SM), tan, very dense										
19.5	1394.5+/-			29-23-29 N=52							
	Auger Refusal at 19.5 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:
Auger refusal on cobble layer

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-10

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-7

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1226° Longitude: -117.419°

Approximate Surface Elev: 1419 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
SILTY SAND WITH GRAVEL (SM), brown												NP	13
2.5	1416.5+/-												
POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, brown, medium dense						13-15-18				2	118		
very dense			5			13-19-47 N=66							10
dense						12-31-41				2	122		
			10			13-13-24 N=37							
very dense			15			16-35-46 N=81							
			20			17-43-36 N=79							
			25										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-11

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-7

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1226° Longitude: -117.419°

Approximate Surface Elev: 1419 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	26.0	1393+/-				34-50/6"							

Auger Refusal at 26 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:
Auger refusal on cobble layer

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-12

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-8

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1216° Longitude: -117.419°

Approximate Surface Elev: 1412 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan, medium dense										NP	10
						18-28-28				1	131		
			5			12-13-13 N=26							
		very dense				42-50/6"				2	131		
	9.0	1403+/-											
		Auger Refusal at 9 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:
Auger refusal on cobble layer

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-13

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. B-8A

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1216° Longitude: -117.419°

Approximate Surface Elev: 1412 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan											
		very dense	5										
	10.0	1402+/-	10			14-18-36 N=54							
		SILTY SAND (SM), trace gravel, tan, very dense											
			15			25-50/6"							
		dense	20			10-20-29 N=49						NP	19
	21.5	1390.5+/-											
		Boring Terminated at 21.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-14

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. P-1

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1217° Longitude: -117.4216°

Approximate Surface Elev: 1413 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), trace gravel, tan											
	5.0	1408+/-	5										
		Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-15

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. P-2

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1229° Longitude: -117.4209°

Approximate Surface Elev: 1418 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND WITH GRAVEL (SM), brown											
	5.0	1413+/-	5										
		Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-21-2017 | Boring Completed: 12-21-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-16

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. P-3

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1228° Longitude: -117.42°

Approximate Surface Elev: 1418 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND WITH GRAVEL (SM), brown											
	5.0	1413+/-	5										
		Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-21-2017 | Boring Completed: 12-21-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-17

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. P-4

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1228° Longitude: -117.4188°

Approximate Surface Elev: 1420 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND WITH GRAVEL (SM), brown											
	5.0	1415+/-	5										
		Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-18

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. Perc-1

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1216° Longitude: -117.4187°

Approximate Surface Elev: 1411 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND WITH GRAVEL (SM), brown, medium dense											
	5.0	1406+/-	5			10-11-9 N=20							
		Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-19

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. Perc-2

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.123° Longitude: -117.4189°

Approximate Surface Elev: 1421 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, tan, dense											
						7-18-19 N=37							
			5										
						14-16-15 N=31							
	10.0	1411+/-	10										
		Boring Terminated at 10 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-20

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. Perc-3

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.1215° Longitude: -117.4211°

Approximate Surface Elev: 1411 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND WITH GRAVEL (SM), brown, medium dense											
	5.0	1406+/-	5			10-12-13 N=25							
		Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-21

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. Perc-4

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.123° Longitude: -117.4216°

Approximate Surface Elev: 1421 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND WITH GRAVEL (SM), tan, medium dense											
						5-10-15 N=25							
	7.0	1414+/-	5										
		Auger Refusal at 7 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:
Auger refusal on cobble layer

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-22

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

BORING LOG NO. Perc-4A

PROJECT: Baseline & Alder Warehouse

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

LOCATION See Exhibit A-2

Latitude: 34.123° Longitude: -117.4216°

Approximate Surface Elev: 1421 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
			5										
10.0	1411+/-		10			10-22-32 N=54							

SILTY SAND WITH GRAVEL (SM), brown, very dense

Boring Terminated at 10 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.
Elevations were estimated using Google Earth.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
1421 Edinger Ave Ste C
Tustin, CA

Boring Started: 12-20-2017 | Boring Completed: 12-20-2017

Drill Rig: B-61 | Driller: CalPac Drilling

Project No.: 60175245 | Exhibit: A-23

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/15/18

APPENDIX B

LABORATORY TESTING

Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in accordance with the Unified Soil Classification System (USCS) described in Appendix A. At that time, the field descriptions were confirmed or modified as necessary and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials.

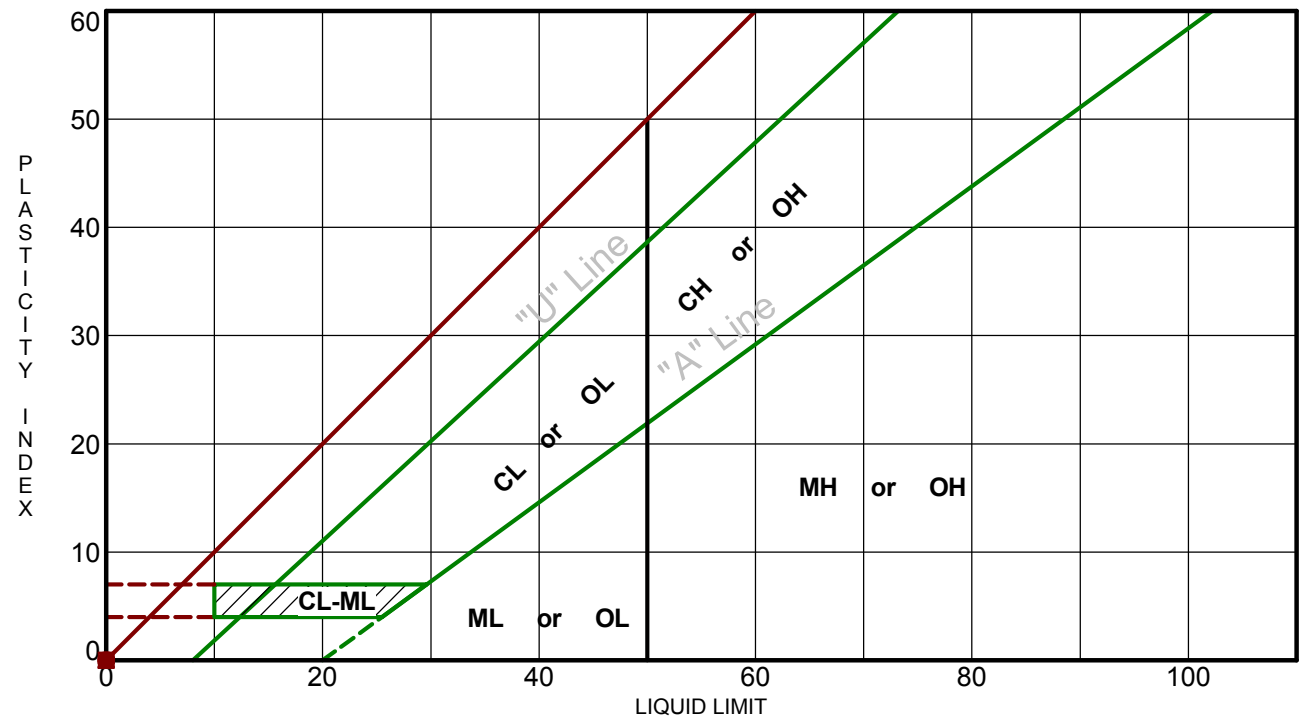
Laboratory tests were conducted on selected soil samples and the test results are presented in this appendix. The laboratory test results were used for the geotechnical engineering analyses, and the development of foundation and earthwork recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local or other accepted standards.

Selected soil samples obtained from the site were tested for the following engineering properties:

- ASTM D7263 Dry Density
- ASTM D4318 Atterberg Limits
- ASTM D1557 Modified Proctor
- ASTM D2216 Moisture Content
- Chemical Corrosion Analysis
- CT301 R-Value Test

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
B-1	0 - 2.5	NP	NP	NP	14	SM	SILTY SAND
B-2	0 - 2.5	NP	NP	NP	11	SP-SM	POORLY GRADED SAND WITH SILT
B-3	0 - 2.5	NP	NP	NP	15	SM	SILTY SAND
B-4	0 - 2.5	NP	NP	NP	11	SP-SM	POORLY GRADED SAND WITH SILT
B-4	15 - 16.5	NP	NP	NP	16	SM	SILTY SAND
B-5	0 - 2.5	NP	NP	NP	15	SM	SILTY SAND
B-5	5 - 6.5	NP	NP	NP		SP-SM	POORLY GRADED SAND WITH SILT
B-6	0 - 2.5	NP	NP	NP	20	SM	SILTY SAND
B-7	0 - 2.5	NP	NP	NP	13	SM	SILTY SAND
B-8	0 - 2.5	NP	NP	NP	10	SP-SM	POORLY GRADED SAND WITH SILT
B-8A	20 - 21.5	NP	NP	NP	19	SM	SILTY SAND

PROJECT: Baseline & Alder Warehouse

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

Terracon
1421 Edinger Ave Ste C
Tustin, CA

PROJECT NUMBER: 60175245

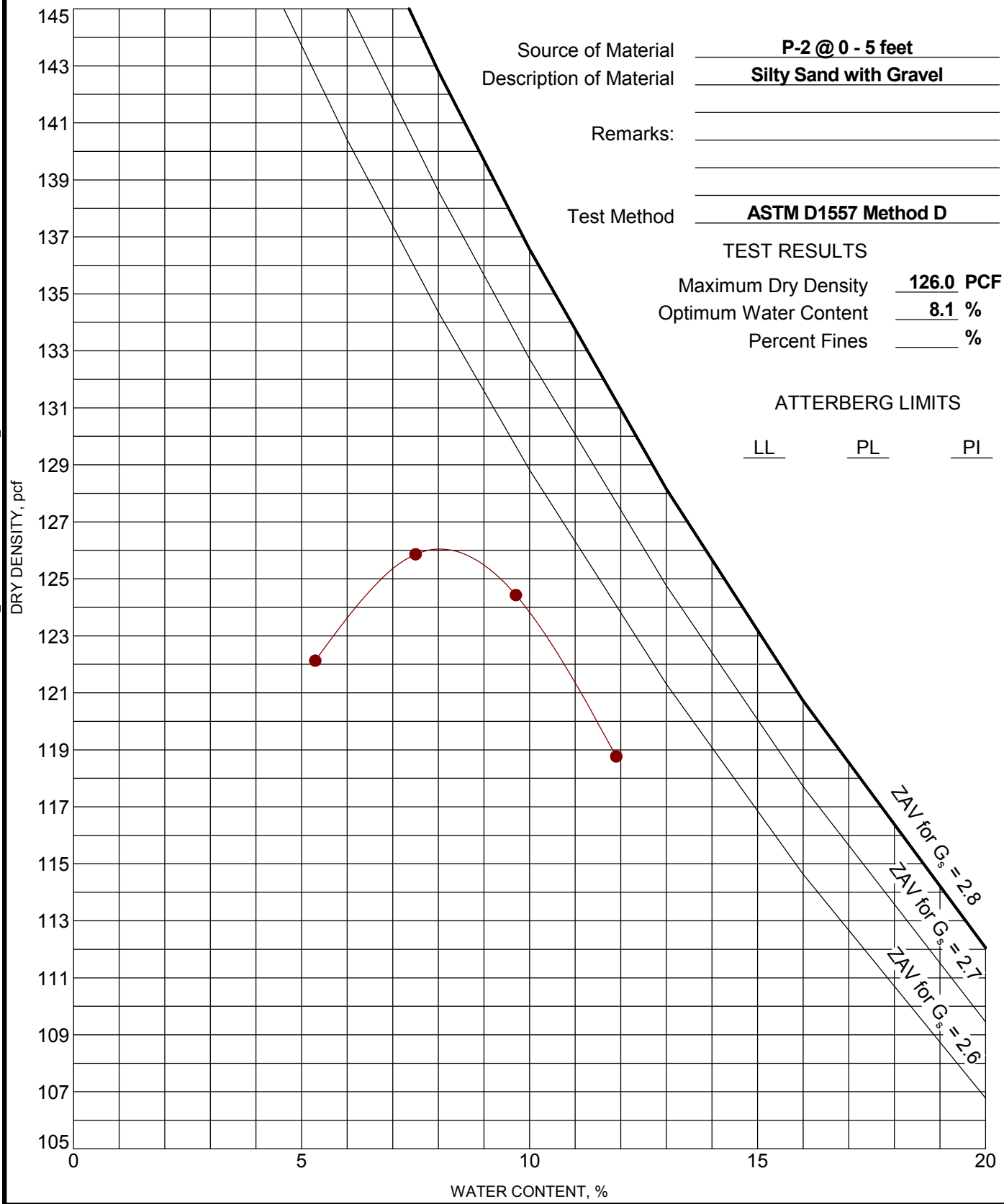
CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

EXHIBIT: B-2

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/11/18

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **P-2 @ 0 - 5 feet**

Description of Material: **Silty Sand with Gravel**

Remarks:

Test Method: **ASTM D1557 Method D**

TEST RESULTS

Maximum Dry Density	**126.0**	**PCF**
Optimum Water Content	**8.1**	**%**
Percent Fines		**%**

ATTERBERG LIMITS

LL	PL	PI

PROJECT: Baseline & Alder Warehouse

SITE: NWC of Baseline Road & Alder Avenue
Rialto, CA

Terracon
1421 Edinger Ave Ste C
Tustin, CA

PROJECT NUMBER: 60175245

CLIENT: CH Realty/Acquisitions VIII, L.L.C.
Dallas, TX

EXHIBIT: B-3

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V1 60175245 CHR BASELINE & A_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 1/11/18

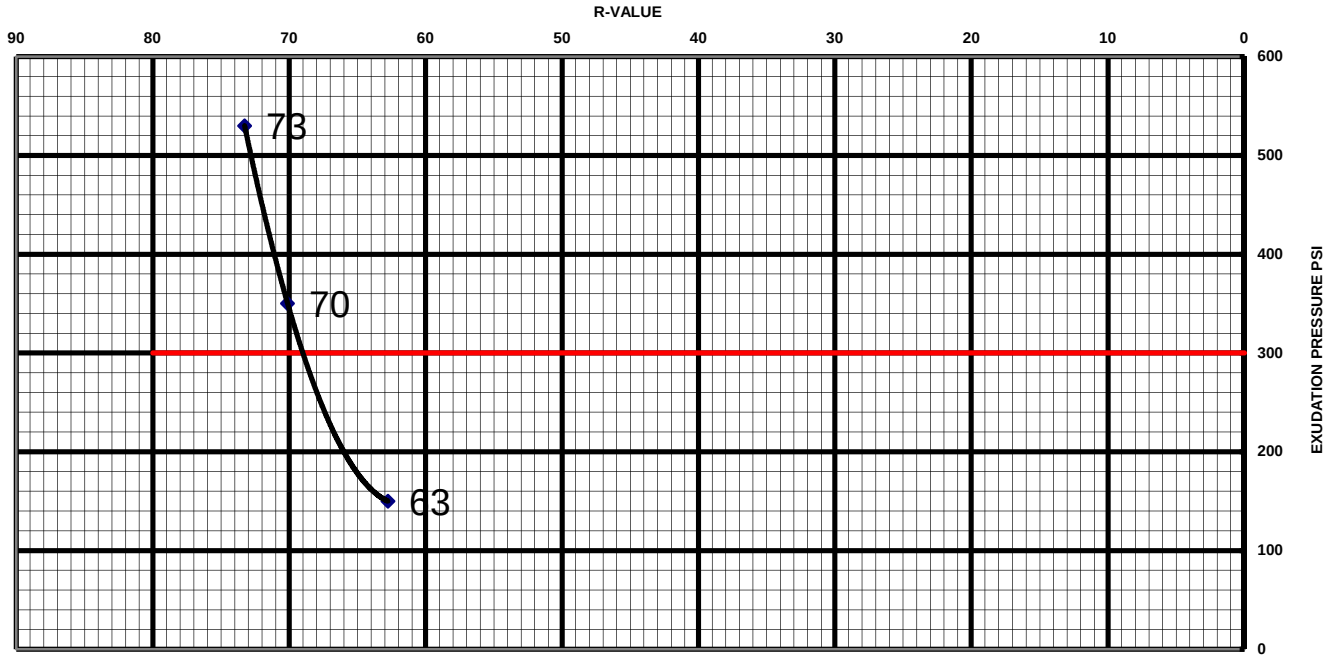
Job No. 60175245
Date. 1/11/2018

LAB0RATORY RECORD OF TESTS MADE ON BASE, SUBBASE, AND BASEMENT SOILS

CLIENT:
PROJECT CHS:Baseline
LOCATION:
R-VALUE # : P-1
T.I. :

	A	B	C	D
COMPACTOR AIR PRESSURE P.S.I.	350	350	350	
INITIAL MOISTURE %	3.0	3.0	3.0	
WATER ADDED, ML	60	65	55	
WATER ADDED %	5.4	6.0	5.1	
MOISTURE AT COMPACTION %	8.4	9.0	8.1	
HEIGHT OF BRIQUETTE	2.54	2.49	2.51	
WET WEIGHT OF BRIQUETTE	1135	1120	1121	
DENSITY LB. PER CU.FT.	124.9	125.1	125.2	
STABILOMETER PH AT 1000 LBS.	21	26	18	
2000 LBS.	33	39	28	
DISPLACEMENT	4.10	4.60	4.30	
R-VALUE	70	63	73	
EXUDATION PRESSURE	350	150	530	
THICK. INDICATED BY STAB.	0.00	0.00	0.00	
EXPANSION PRESSURE	0	0	0	
THICK. INDICATED BY E.P.	0.00	0.00	0.00	

EXUDATION CHART



R-Value: 69

CHEMICAL LABORATORY TEST REPORT

Project Number: 60175245
Service Date: 01/05/18
Report Date: 01/10/18
Task:

Terracon
750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client

Project
Baseline & Alder Warehouse

Sample Submitted By: Terracon (60) **Date Received:** 1/8/2018 **Lab No: 18-0011**

Results of Corrosion Analysis

Sample Number		
Sample Location	B-1	B-6
Sample Depth (ft.)	0	0
pH Analysis, AWWA 4500 H	7.87	7.60
Water Soluble Sulfate (SO4), AWWA 4500 E (percent %)	0.01	0.01
Sulfides, AWWA 4500-S D (mg/kg)	Nil	Nil
Chlorides, ASTM D 512 (mg/kg)	50	50
Red-Ox, AWWA 2580 (mV)	+709	+703
Total Salts, AWWA 2540 (mg/kg)	179	166
Resistivity, ASTM G 57 (ohm-cm)	15520	17460

Analyzed By:

Trisha Campo
Chemist

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

APPENDIX C
SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING

Auger

Shelby Tube

Split Spoon

Rock Core

Macro Core

Modified California Ring Sampler

Grab Sample

No Recovery

Modified Dames & Moore Ring Sampler

WATER LEVEL

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
N	N value
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer
(WOH)	Weight of Hammer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength, Qu, psf**	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42
			Hard	> 8,000	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

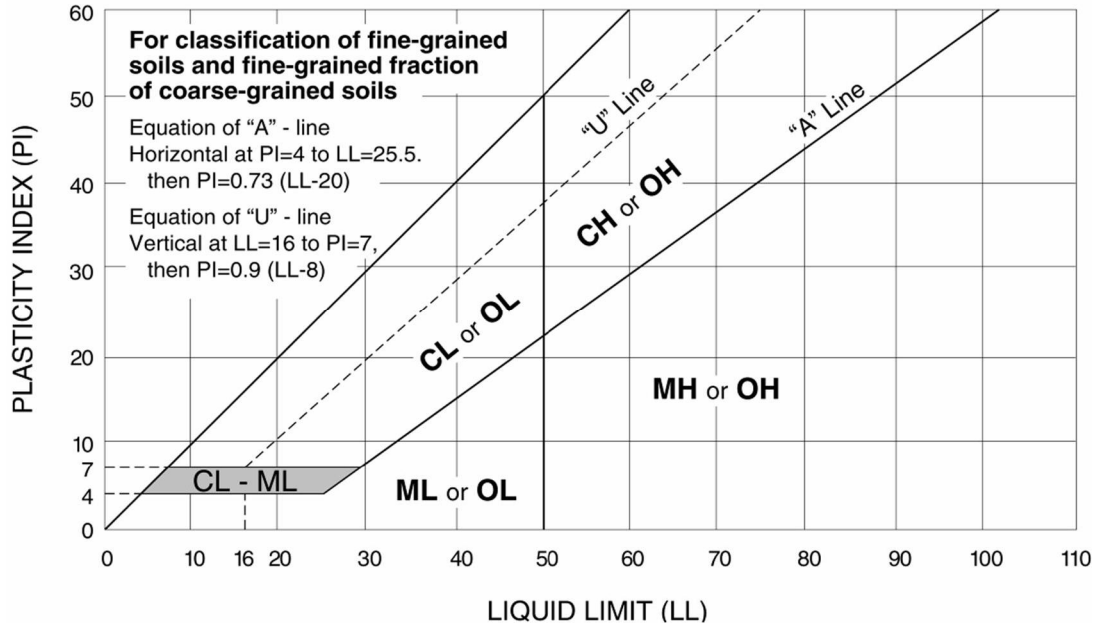
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



Design Maps Detailed Report

ASCE 7-10 Standard (34.1225°N, 117.42025°W)

Site Class C – “Very Dense Soil and Soft Rock”, Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1]	S_S = 1.686 g
From Figure 22-2 [2]	S_1 = 0.735 g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class C, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\overline{v}_s$	$\overline{N}$ or $\overline{N}_{ch}$	$\overline{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\overline{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk–Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4–1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_S

For Site Class = C and S_S = 1.686 g, F_a = 1.000

Table 11.4–2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1–s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_1

For Site Class = C and S_1 = 0.735 g, F_v = 1.300

Equation (11.4–1):	$S_{MS} = F_a S_S = 1.000 \times 1.686 = 1.686$ g
Equation (11.4–2):	$S_{M1} = F_v S_1 = 1.300 \times 0.735 = 0.956$ g

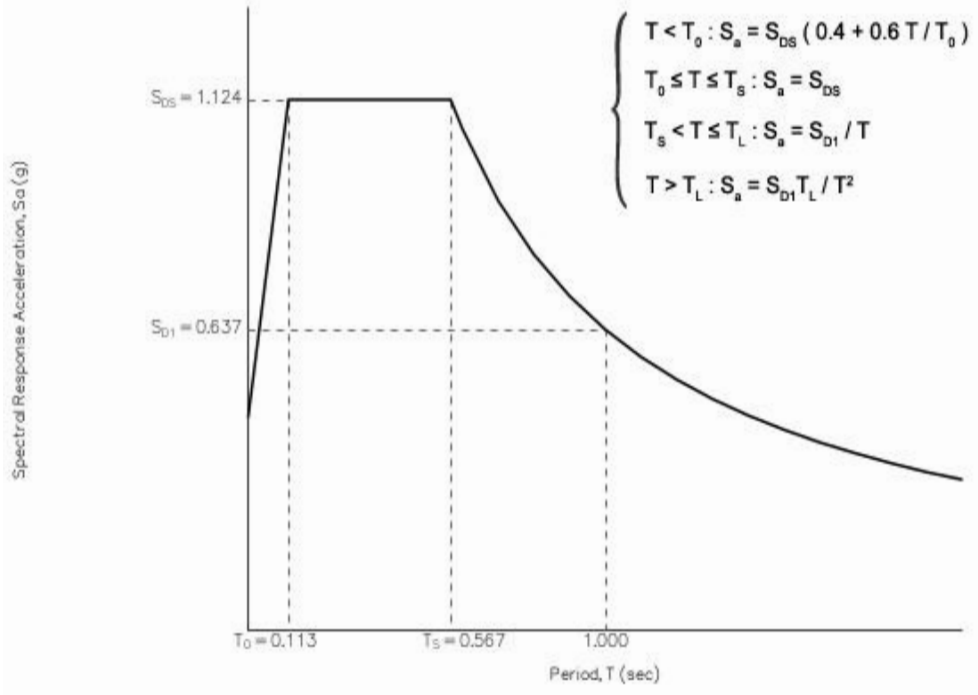
Section 11.4.4 — Design Spectral Acceleration Parameters

Equation (11.4–3):	$S_{DS} = ⅔ S_{MS} = ⅔ \times 1.686 = 1.124$ g
Equation (11.4–4):	$S_{D1} = ⅔ S_{M1} = ⅔ \times 0.956 = 0.637$ g

Section 11.4.5 — Design Response Spectrum

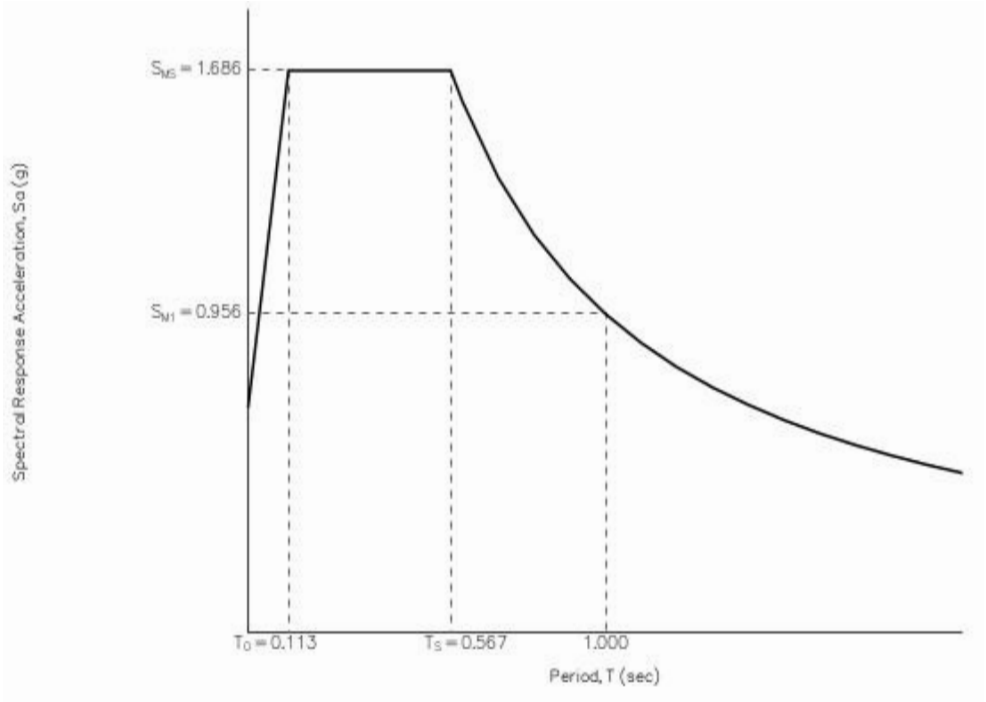
From Figure 22-12 [3]	T_L = 12 seconds

Figure 11.4–1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 0.662

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.000 \times 0.662 = 0.662$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = C and PGA = 0.662 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 1.056

From Figure 22-18 [6] C_{R1} = 1.019

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
S_{DS} < 0.167g	A	A	A
0.167g ≤ S_{DS} < 0.33g	B	B	C
0.33g ≤ S_{DS} < 0.50g	C	C	D
0.50g ≤ S_{DS}	D	D	D

For Risk Category = I and S_{DS} = 1.124 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
S_{D1} < 0.067g	A	A	A
0.067g ≤ S_{D1} < 0.133g	B	B	C
0.133g ≤ S_{D1} < 0.20g	C	C	D
0.20g ≤ S_{D1}	D	D	D

For Risk Category = I and S_{D1} = 0.637 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is E for buildings in Risk Categories I, II, and III, and F for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ “the more severe design category in accordance with Table 11.6-1 or 11.6-2” = D

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

APPENDIX E

Noise and Vibration

DUDEK

TECHNICAL MEMORANDUM

To:	Kevin Rice, Director
From:	Jonathan Leech, Senior Acoustician
Subject:	Noise Assessment for Baseline/Alder Warehouse Project
Date:	June 18, 2018
cc:	Collin Ramsey, Dudek
Attachment(s):	A, Field Data Logs
	B, RCNM Model Inputs and Results
	C, Traffic Noise Calculation Spreadsheets

INTRODUCTION

This memo describes the existing noise setting on and near the project site based on short-term measurements and traffic noise modeling in the vicinity of the site. The memo further evaluates short-term noise levels related to the construction of the proposed project, using a construction equipment inventory developed in CalEEMod, and analyzes whether these short-term noise levels would exceed applicable standards. Finally, the noise analysis includes impacts resulting from long-term on-site operations and off-site traffic noise.

BACKGROUND AND TERMINOLOGY

The proposed project entails construction and operation of a distribution warehouse on land designated for this purpose in the Renaissance Specific Plan area in the western-central portion of the City. Noise-sensitive land uses in the project vicinity include a single residence located on the parcel to the north, several residences located on properties toward the west of the project, and a residential neighborhood to the south of the project, across Baseline Road. To better understand terms such as “noise-sensitive land use” a brief discussion of the terms used for characterization of sound is provided below.

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear

the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting called "A" weighting is typically used for quieter noise levels which de-emphasizes the low frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the "noise level" and is referenced in units of dBA (refer to *Attachment 1* for definitions of acoustical terms).

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (Caltrans 1980). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable. The human ear perceives a 10 dBA increase in sound level as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual's noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. The equivalent noise level L_{eq}, also referred to as the average sound level, is a single-number representing the fluctuating sound level in decibels (dB) over a specified period of time. It is a sound-energy average of the fluctuating level and is equal to a constant unchanging sound of that dB level. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed "community noise equivalent level" (CNEL) was developed, The CNEL scale represents a time-weighted 24-hour average noise level based on the A-weighted sound level. CNEL accounts for the increased noise sensitivity during the evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding five dB to the average sound levels occurring during the evening hours and 10 dB to the sound levels occurring during nighttime hours.

PROJECT DESCRIPTION

Figure 1 illustrates the project's site plan. The proposed project would include construction of a 255,655 square foot (SF, gross floor area), one-story industrial/warehouse building on an approximately 11.48-acre site at the northwest corner of Alder Avenue/Baseline Road. The project would also include 155 standard (passenger vehicle) parking spaces, 39 trailer parking spaces, and 28 loading docks.

Access to project site would be via two right-turn in/out only driveways on Baseline Road, and a right-turn in/out only driveway on Alder Avenue. Inbound truck access for the project site is proposed at the driveway on Alder Avenue, and outbound truck access from the driveway on Baseline Road. All three driveways would provide passenger car access to the proposed project. The project would also include improvements to Baseline Road and Alder Avenue along the project's street frontage, including a landscape, sidewalk, and parkway improvements.

The project applicant intends to construct the project in a single phase. It is anticipated that construction would take approximately 12 months. Hence, the traffic impact assessment (Dudek June 2018) assumes the project completion for the project to be in the year 2020. Construction-related traffic generated by workers and delivery and equipment trucks is not likely to generate significant daily or peak hour traffic; consequently the construction noise assessment addresses on-site construction activity. With regard to the potential for traffic noise increases associated with the project, the noise assessment evaluates traffic noise levels from the permanent operations of the proposed project.

The project site is located on vacant land designated as Planning Area 16 and 17-Employment with Commercial Overlay, and proposed for development in accordance with the Renaissance Specific Plan (RSP). The project site is bounded on the south by Baseline Road and on the east by Alder Avenue. The newly constructed, I-210 Logistics Center is located at the northeastern corner of Alder Avenue/Baseline Road intersection, just east of the project site across Alder Avenue. The land to the north of project site would eventually include industrial/warehouse uses; at the present time one residence is located on the property immediately to the north, with a warehouse building to the north of this residence. To the west, several residences are located on the west side of Tamarind Avenue. A municipal water well site and a residential neighborhood exist to the south of the project site, across Baseline Road.

NOISE REGULATIONS

The City of Rialto General Plan and Municipal Code contain policies and ordinances which govern noise conditions within the City. The City does not have policies or ordinances which address vibration effects, but the Federal Transit Authority (FTA) has adopted guidelines for the avoidance of damage to structures from construction-related vibration. A discussion of applicable noise regulations is presented below.

City of Rialto General Plan Noise Element

The Noise Element of the City of Rialto General Plan defines policies related to the maintenance of acceptable noise conditions in the City. The policies of the Noise Element that are relevant to the proposed project are presented below.

Policy 1.b The City shall require an environmental and noise impact evaluation for all projects as part of the design review process to determine if unacceptable noise levels will be created or experienced. Should noise abatement be necessary, the City shall require the implementation of mitigation measures based on a detailed technical study prepared by a qualified acoustical engineer.

Policy 2.a The City shall require the construction of barriers to mitigate sound emissions where necessary or where feasible.

Policy 3.a The City shall establish a Community Noise Ordinance to mitigate noise conflicts between adjacent land uses. The Noise Ordinance establishes noise limits that cannot be exceeded at the property line. Because it is a City statute, the Noise Ordinance can only control noise generated on private property. Therefore, the primary function of the Noise Ordinance is to control stationary noise sources and construction noise.

Table 1 lists the City of Rialto's exterior and interior noise standards applicable to the proposed project and vicinity land uses.

Table 1
City of Rialto Interior and Exterior Noise Standards

Land Use Categories		CNEL (Dba)	
Category	**Uses**	**Interior[1]**	**Exterior[2]**
Residential	Single-family, Duplex, Multifamily	45[3]	60[3]
Commercial	Hotel, Motel, Transient Lodge	45	60[3,4]
Industrial	Commercial Retail, Bank, Restaurants	50	65
Institutional	Office Building, Research and Development, Professional Offices, City Office Building	45	---
	Manufacturing, Warehouse, Wholesale, Utilities	65	---
Institutional	Hospital, Schools, Classrooms	45	65

Source: City of Rialto Noise Element; Notes:

1 Indoor environment excluding bathrooms, toilets, closets, corridors.

2 Outdoor environment limited to private yard of single-family, multifamily private patio, or balcony, which is served by a means of exit from inside, mobile home park, hospital patio, office patio, park's picnic area, school's playground, or hotel and motel recreation area.

3 An exterior noise level of up to 65 dBA CNEL will be allowed provided exterior levels have been substantially mitigated with a noise barrier of at least 6 feet in height, and interior noise exposure does not exceed 45 dBA CNEL with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level will necessitate the use of air conditioning or mechanical ventilation.

4 Except those areas affected by aircraft.

City of Rialto Municipal Code

Section 9.50.030, Prohibited Acts. It is unlawful for any person to engage in the following activities:

a. Creating excessive noise adjacent to any school, church, court, or library while the same is in use, or adjacent to any hospital or care facility, which unreasonably interferes with the workings of such institution, or which disturbs or unduly annoys patients in the hospital, students in the school, users of the court or library, provided conspicuous signs are displayed in such streets indicating the presence of a school, institution of learning, church, court, or hospital.

b. Making or knowingly and unreasonably permitting to be made any unreasonably loud, unnecessary, or unusual noise that disturbs the comfort, repose, health, peace and quiet or which causes discomfort or annoyance to any reasonable person of normal sensitivity. The characteristics and conditions that may be considered in determining whether this section has been violated, include, but are not limited to, the following:

    1) The level of noise;
    2) Whether the nature of the noise is usual or unusual;
    3) Whether the origin of the noise is natural or unnatural;
    4) The level of background noise;
    5) The proximity of the noise to sleeping facilities;
    6) The nature and zoning of the areas within which the noise emanates;
    7) The density of the inhabitation of the area within which the noise emanates;
    8) The time of day or night the noise occurs;
    9) The duration of the noise;
    10) Whether the noise is recurrent, intermittent or constant; and
    11) Whether the noise is produced by a commercial or noncommercial activity.

Section 9.50.050, Controlled Hours of Operation. It is unlawful for any person to engage in the ties other than between the hours of 7:00 a.m. and 8:00 p.m. in all zones:

1. Load or unload any vehicle, or operate or permit the use of dollies, carts, forklifts, or other wheeled equipment that causes any impulsive sound, raucous, or unnecessary noise within 100 feet of a residence;
2. Operate or permit the use of domestic power tools, or machinery or any other equipment or tool in any garage, workshop, house, or any other structure;
3. Operate or permit the use of privately operated street/parking lot sweepers or vacuums, except that emergency work and/or work necessitated by unusual conditions may be performed with the written consent of the City Manager;
4. Operate or permit the use of pile driver, steam or gasoline shovel, pneumatic hammer, steam or electric hoist, or other similar devices;
5. Operate or permit the use of electrically operated compressor, fan, and other similar devices;
6. Operate or permit the use of any motor vehicle with a gross vehicle weight rating in excess of 10,000 pounds, or of any auxiliary equipment attached to such a vehicle, including but not limited to, refrigerated truck compressors, for a period longer than 15 minutes in any hour while the vehicle is stationary and on a public right-of-way or public space except when movement of the vehicle is restricted by other traffic. (Ord. 1417 Section 1 (part), 2008)

Section 9.50.060, Exemptions. The following activities and noise sources shall be exempt from the provisions of this chapter:

1. Those noise events in the community (e.g., airport noise, arterial traffic noise, railroad noise) that are more accurately measured by application of the General Plan Noise Element policy, utilizing the CNEL method;
2. Construction, repair, or excavation necessary for the immediate preservation of life or property;
3. Construction, repair, or excavation work performed pursuant to a valid written agreement with the City or any of its political subdivisions which agreement provides for noise mitigation measures;
4. Any activity to the extent regulation thereof has been preempted by State or federal law;
5. Sounds generated in commercial and industrial zones that are necessary and incidental to the uses permitted therein. (Ord. 1417 Section 1 (part), 2008)

Section 9.50.070, Disturbances from Construction Activity.

1. No person shall be engaged or employed, or cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours provided for by subsection B of this section.
2. For purposes of this section, the following definitions shall apply:
    a. "Building" means any structure used or intended for supporting or sheltering any use or occupancy.
    b. "Structure" means that which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.
3. The permitted hours for such construction work are shown in Table 2.

Table 2
City of Rialto Permitted Hours of Construction Work

Days of Week	Time
October 1 through April 30	
Monday – Friday	7:00 a.m. to 5:30 p.m.
Saturday	8:00 a.m. to 5:00 p.m.
Sunday	No permissible hours
State Holidays	No permissible hours
May 1 through September 30	
Monday – Friday	6:00 a.m. to 7:00 p.m.
Saturday	8:00 a.m. to 5:00 p.m.
Sunday	No permissible hours
State Holidays	No permissible hours

Source: City of Rialto Municipal Code, Section 9.50.070.

Federal Transit Authority (FTA) Vibration Guidance

Table 3 lists the construction-related vibration damage criteria, as contained in the *Transit Noise and Vibration Impact Assessment* (FTA, May 2006).

Table 3
Construction Vibration Damage Criteria

Building Category	PPV (inch/sec)	Approximate VdB[1]
Reinforced-concrete, steel or timber (no plaster)	0.50	102
Engineered concrete and masonry (no plaster)	0.30	98
Non-engineered timber and masonry buildings	0.20	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: Federal Transit Administration. *Transit Noise and Vibration Impact Assessment* (May 2006).

[1] VdB = vibration decibels PPV = peak particle velocity

FTA guidelines show that a vibration level of up to 102 VdB (an equivalent to 0.5 in/sec PPV) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction vibration damage criterion is 94 VdB (0.2 in/sec PPV). While not adopted by the City of Rialto, the vibration damage criteria in Table 3 are widely employed for the assessment of potential damage to structures from construction activities.

NOISE SIGNIFICANCE CRITERIA

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on noise if it would result in:

1. 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.
2. The exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

City of Rialto Thresholds of Significance for Noise

With regard to Threshold #1, the applicable local noise standards governing the project site and adjacent areas are the criteria in the City's Noise Element and the City's Municipal Code Noise Ordinance. The City has adopted exterior and interior noise standards (see Table 1) for various land use categories. For residential uses, the exterior and interior noise standards are 60 and 45 dBA CNEL, respectively. For commercial retail and banks and restaurants, the exterior and interior noise standards are 65 and 50 dBA CNEL, respectively. For industrial uses such as manufacturing, warehousing, wholesale, and utilities, the interior noise standard is 65 dBA CNEL. There is no exterior noise standard for industrial uses. Therefore, a significant impact would occur if the project's long-term operational noise were to expose vicinity residences to noise levels greater than 60 dBA CNEL, or commercial land uses to noise levels greater than 65 dBA CNEL.

With regard to Threshold #2, it is not anticipated the warehouse development would include large scale equipment capable of producing vibration that could be perceived off-site. However, construction of the project would involve heavy earth-moving equipment that would generate vibration. For short-term construction-related vibration impacts, the recommended VTA criteria of 0.2 inches/sec PPV (timber construction buildings) will be used.

With regard to Threshold #3, permanent noise increases from the project would include on-site operational noise sources and project-related off-site traffic. The Caltrans "noticeability" criterion of 3 dBA CNEL will be used as the significance threshold for permanent noise increases associated with project operations.

With respect to Threshold #4, the Safety and Noise Chapter of the City General Plan does not identify sound level limits for construction activity. As such, the requirements contained in the City Noise Ordinance (Chapter 9.50 of the Rialto Municipal Code) regulate construction activity. City Municipal Code Section 9.50.070 specifies time-of-day constraints on construction activity; however, the City Municipal Code does not contain noise level limits pertaining to construction activity. Therefore, for the purposes of this analysis, construction activities carried out in compliance with City Municipal Code Section 9.50.070 are considered to have a less than significant construction noise impact.

ENVIRONMENTAL SETTING

Existing Noise Receptors

The closest existing noise-sensitive receptors to the project site are single-family residences; one residence is located to the north (approximately 88 feet from the northern site boundary), while several residences are located to the west, across Tamarind Avenue (approximately 455 feet from

the western property boundary. A residential neighborhood exists along the south side of East Baseline Road, approximately 100 feet south of the southern property boundary of the project site. Lands to the east are occupied by warehouse uses, which are not considered to be noise sensitive.

Existing Ambient Noise Levels

Dudek visited the project site on December 12, 2017, to measure ambient sound levels in the vicinity. Figure 2 illustrates the measurement locations in relation to the project site and vicinity roadways. Attachment A contains the field data forms with complete sound level measurement results for the four measurement locations. Short-term (ST#) measurements were conducted with a calibrated Rion NL-52 sound level meter placed on a tripod with the microphone positioned approximately 5 feet above the ground. The short-term measurements were 10-15 minutes apiece in duration. Table 4 presents the results of the short-term noise measurements.

Table 4
Short-Term Sound Level Measurements

Measurement	Road/Distance to Roadway Edge	Date/Time	L_{eq}[1]	Cars	MT[2]	HT[3]
ST1	Baseline / 50 feet	12/12/17, 10:10 AM to 10:25 AM	55	120	2	6
ST2	Alder / 30 feet	12/12/17, 9:55 AM to 10:05 AM	66	89	5	9
ST3	Tamarind /45 feet	12/12/17, 10:25 AM to 10:35 AM	53	6	0	1
ST4	Walnut / 100 feet	12/12/17, 9:26 AM to 9:36 AM	62	103	4	4

Notes:
1 Equivalent continuous sound level (time-average sound level)
2 Medium trucks
3 Heavy trucks
Conditions: Temperature: 80° Fahrenheit, clear sky, 12 mile-per-hour gusty southwest wind

CONSTRUCTION NOISE ANALYSIS

Construction of the proposed project would generate noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction, distance between the noise source and receiver, and intervening structures. This section of the report discusses the noise levels calculated to result from construction of the project at nearby sensitive receptors (i.e., residences).

Construction Equipment Inventory

The California Air Resources Board CalEEMod (California Emissions Evaluation Model) was used to identify the construction equipment anticipated for development of a warehouse project of the proposed size. Based upon a warehouse with total floor area of 255,655 square feet, sited on a parcel of approximately 11.5 acres, CalEEMod (Version: CalEEMod.2016.3.1) identified the anticipated equipment for each phase of the project construction, as shown in Table 5.

Table 5
Construction Equipment Per Phase

Construction Activity	Demolition	
Equipment Needed	(1) Concrete Saw	(3) Excavators
	(2) Dozers	(1) Water Truck
Construction Activity	**Site Preparation**	
Equipment Needed	(3) Dozer	(4) Backhoe/Loader
	(1) Water Truck	
Construction Activity	**Grading**	
Equipment Needed	(1) Dozer	(1) Grader
	(1) Excavator	(3) Front End Loader
	(1) Trencher (Tractor)	(1) Water Truck
Construction Activity	**Building Construction**	
Equipment Needed	(1) Crane	(1) Generator
	(3) Forklifts (Manlifts)	(1) Welder
	(3) Front End Loader	
Construction Activity	**Paving**	
Equipment Needed	(2) Paver	(2) Grader
	(2) Roller	

Construction Noise Assessment

With the noise sources identified above, a noise analysis was performed using a model developed by the Federal Highway Administration (FHWA) called the Roadway Construction Noise Model (RCNM) (FHWA 2008). Input variables for RCNM consist of the receiver / land use types, the equipment type (backhoe, crane, truck, etc.), the number of equipment pieces, the duty cycle for each piece of equipment (i.e., percentage of time the equipment is operating during a given period), and the distance from the noise source to a selected sensitive receiver. Refer to Attachment B for the input files used in the RCNM model.

The various construction equipment types and quantities (as described above) were used for this analysis. The RCNM has default duty cycle values for the various pieces of equipment, which

were derived from an extensive study of typical construction activity patterns. Those default duty cycle values were utilized for this analysis, and can be found in the input files for RCNM in Attachment B.

Noise-sensitive land uses in the vicinity of the project include a residence to the west (455 feet from the project site/construction boundary), an individual residence to the north (88 feet from the project site/construction boundary), and several residences to the south along the south side of Baseline Road (100 feet from the project site/construction boundary). The construction noise assessment is focused on noise levels that would occur at the distance of the closest residence (i.e., at 88 feet), construction noise levels at greater distances from the site would be less.

However, the above distance separation assumption would not be representative of more typical construction noise, because in general the construction activities would not take place either at the nearest or at the farthest portions of the project site, but somewhere in between. Thus, in order to provide information on typical construction noise levels, the distance from the nearest receiver to the project's "acoustic center" was also analyzed. The acoustic center represents the idealized point from which the energy sum of all construction activity noise, near and far, would be centered. The acoustic center is derived by taking the square root of the product of the nearest and the farthest distances. For this project, the acoustic center was found to be approximately 302 feet from the nearest noise sensitive receiver located to the north. Given the overall size of the project site, and the relatively equal distribution of proposed development across the property, noise levels derived from the acoustic center of construction activity would provide a better representation of average noise level exposure across the entire construction process for a given off-site receiver than using the minimum-distance, worst-case method.

Using the provided construction information, the RCNM construction noise model was used to predict noise from on-site construction activities. The results are summarized in Table 3 (see Attachment B for model results). As shown, the highest noise levels from construction are predicted to range from approximately 77 dBA L_{EQ} (during Phase 4) to 82 dBA L_{EQ} (during Phase 1) at the nearest receiver. This maximum noise level is considered to be a peak exposure, applicable to not more than 10%–15% of the total construction period, only while the construction activity is taking place along the eastern property boundary (i.e., closest to the nearest off-site receiver). The average construction noise levels (for construction taking place at a range of locations on site and modeled at the acoustical center for analysis purposes) range from approximately 67 dBA L_{eq} (during Phase 4) to approximately 71 dBA L_{eq} (during Phase 1), and are also shown in Table 3. The average noise levels (based upon the acoustic center) are considered a better representation of the overall noise exposure experience for adjacent receivers over the duration of each construction phase. Table 6 presents the summary results of the construction noise analysis.

Table 6
Construction Noise Summary of Results (dBA L_{EQ})

Receiver Location/ Description	Land Use	Construction Noise Level by Construction Phase				
		Phase 1: Demolition	*Phase 2: Site Preparation*	*Phase 3: Grading*	*Phase 4: Building Construction*	*Phase 5: Paving*
Nearest Receiver / Construction at Nearest Property Boundary (325')	Residential	73	71	72	68	71
Nearest Receivers /Construction at Acoustic Center (395')	Residential	69	67	68	64	64

Table 4 shows the construction noise analysis results in terms of the Community Noise Equivalent Level (CNEL), the 24-hour weighted average noise level. It was assumed for the purposes of this calculation that construction would occur over a typical 8-hour workday. In terms of CNEL, the worst-case noise levels based upon the minimum separation distance from construction activities to off-site receivers are predicted to range from approximately 73 dBA CNEL (during Phase 4) to 78 dBA CNEL (during Phase 1) at the nearest residential receiver. The average construction-related noise levels (for construction taking place at a range of locations on-site and modeled at the acoustical center for analysis purposes) range from approximately 63 dBA CNEL (during Phase 4) to approximately 67 dBA CNEL (during Phase 1), as presented in Table 7.

Table 7
Construction Noise Summary of Results (dBA CNEL)

Receiver Location/ Description	Land Use	Construction Noise Level by Construction Phase				
		Phase 1: Demolition	*Phase 2: Site Preparation*	*Phase 3: Grading*	*Phase 4: Building Construction*	*Phase 5: Paving*
Nearest Receiver / Construction at Nearest Property Boundary (325')	Residential	69	67	68	64	67
Nearest Receivers /Construction at Acoustic Center (395')	Residential	65	63	64	60	60

The proposed project would be required to comply with the Rialto noise ordinance (City Municipal Code Section 9.50.070 – Disturbances from Construction Activity) by adhering to the following construction schedule:

> Construction activity for site preparation and for future development shall be consistent with City Noise Ordinance requirements, which limits construction activities to the hours between 7:00 AM and 5:30 PM, Monday through Friday and between 8:00 AM and 5:00 PM Saturday (Oct. 1 through April 30); to the hours between 6:00 AM and 7:00 PM, Monday through Friday and between 8:00 AM and 5:00 PM Saturday (May 1 through Sept. 30); and prohibiting construction during Sundays and State Holidays.

Average noise levels from construction activities may be mildly annoying at times, but restricting construction activities to the daytime period will avoid disruption of evening time relaxation and overnight sleep periods. The Safety and Noise Chapter of the City General Plan does not identify sound level limits for construction activity. As such, the requirements contained in the City Noise Ordinance (Chapter 9.50 of the Rialto Municipal Code) are the only applicable restrictions that regulate construction activity. City Municipal Code Section 9.50.070 specifies time-of-day constraints on construction activity; however, the City Municipal Code does not contain noise level limits pertaining to construction activity. Therefore, for the purposes of this analysis, project construction activities which are in compliance with City Municipal Code Section 9.50.070 would result in a less than significant construction noise impact.

Even though construction noise impacts were found to be insignificant, mitigation measures are recommended in order to further minimize the potential for annoyance from construction noise for area residents.

Recommended Construction Noise Mitigation Measures

1. During all project site excavation and grading on site, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
2. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors to the east and southwest of the site.
3. The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction related noise sources and noise sensitive receptors to the east and southwest of the site during all project construction.
4. During all project site construction, the construction contractor shall limit all construction related activities that would result in high noise levels to between the hours of 7:00 a.m. and 5:30 p.m. Monday through Friday, and between 8:00 a.m. and 5:00 p.m. Saturday. No construction shall be allowed on Sundays and public holidays.

CONSTRUCTION VIBRATION ANALYSIS

For typical construction activity, the equipment with highest vibration generation potential is the vibratory roller, which would generate 0.21 in. /sec at 25 feet or 0.071 in. /sec at 50 feet (Caltrans 2013). With the vibration attenuation through distance divergence, the vibration from project construction would be reduced to 0.032 in. /sec or lower at the residential building to the north. Vibration levels from construction would be no greater than 0.026 in./sec at the residences in the neighborhood to the south of East Baseline Road opposite the project site. This range of vibration levels from construction equipment or activity would be well below the FTA 0.2 inch per second PPV threshold. No significant construction vibration impacts would occur, and, therefore, no mitigation measures are required.

OPERATIONAL NOISE ANALYSIS

Traffic Noise Analysis

The primary noise-related effect that most commercial projects produce is a potential for off-site increases in traffic, which is the main source of noise in most urban areas. Acoustical calculations (using standard noise modeling equations adapted from the FHWA noise prediction model) were performed for the following traffic scenarios: existing, opening year, opening year plus project, cumulative, and cumulative plus project.

Roadway traffic data for use in the traffic noise calculations was obtained from the traffic study prepared by Dudek for the proposed warehouse (Dudek 2018). The acoustical modeling calculations take into account the posted vehicle speed, average daily traffic volume, and the estimated vehicle mix. Table 8 presents the noise level results for each scenario. Refer to Attachment C for the FHWA traffic noise model worksheets.

Noise levels are indicated at 100 feet from the centerline of Baseline Road, and 75 feet from the centerline of Walnut Avenue and Alder Avenue, the approximate distance to existing structures along these roadways. Noise levels at distances greater than 10 feet from the centerline of Baseline Road and 75 feet from the centerline of Walnut Avenue and Alder Avenue 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 for Baseline Road, Walnut Avenue and Alder Avenue are conservative.

Table 8
Noise Levels for Vicinity Roadways Under Each Traffic Scenario (dBA CNEL)

Traffic Scenario	Roadway Segment						
	Walnut	*Baseline west of Alder*	*Baseline east of Alder*	*Alder Baseline to Walnut*	*Alder Walnut to Renaissance*	*Alder Renaissance to I-210 E/B*	*Alder I-210 E/B to W/B Ramps*
Existing	64.7	66.2	66.1	67.1	69.1	70.2	69.4
Opening Year	64.8	66.4	66.2	67.3	69.2	70.3	69.6
Opening Year + Project	65.5	66.6	66.3	67.5	69.5	70.5	69.7
Difference in Noise Level (Project Added Noise)	+ 0.7	+ 0.2	+ 0.1	+ 0.2	+ 0.3	+ 0.2	+ 0.1
Cumulative	68.2	68.1	69.1	71.1	72.5	73.4	72.4
Cumulative + Project	68.5	68.3	69.1	71.2	72.6	73.5	72.5
Difference in Noise Level (Project Added Noise)	+ 0.3	+ 0.2	0	+ 0.1	+ 0.1	+ 0.1	0

The proposed project would result in the addition of vehicle trips that would increase traffic noise. A potentially significant project impact would occur where project traffic would increase noise levels from below 65 dB CNEL to above 65 dB CNEL (where residences exist adjacent to the identified roadway segment). In addition, an increase of 3 dBA CNEL would be significant (Caltrans 2013).

With respect to the traffic noise analysis results presented in Table 8, there are no residential uses located along Walnut Avenue, between Tamarind Avenue and Alder Avenue. Under the "opening" traffic scenario, the project would increase noise levels by approximately 0.7 dBA CNEL, compared to the significance threshold of 3 dBA CNEL. In the cumulative scenario for Walnut Avenue, the project would increase traffic noise levels by 0.3 dBA CNEL, compared to a significance threshold of 3.0 dBA CNEL. Consequently, project traffic noise impacts along Walnut Avenue would be less than significant.

There are existing residences located along Baseline Road to the east and west of Alder Avenue, and on Alder Avenue between Baseline Avenue and Walnut Avenue. However, existing traffic noise levels without the project are already slightly above 65 dBA CNEL. Under the "opening" traffic scenario, the project would increase noise levels by 0.3 dBA CNEL or less, compared to the significance threshold of 3.0 dBA. In the cumulative scenario for Baseline Road and Alder

Avenue, the project would increase traffic noise levels by 0.2 dBA CNEL or less, compared to a significance threshold of 3.0 dBA CNEL. Project traffic noise contributions along all segments of Walnut Avenue, Baseline Road and Alder Avenue would be well below 1 dBA, indicating that proposed project added traffic would have an imperceptible increase to roadway traffic noise levels. Therefore, the proposed project would not create or contribute to a significant traffic-related noise impact, and no mitigation measures would be required with respect to project traffic noise impacts.

LONG-TERM ON-SITE OPERATIONAL NOISE ANALYSIS

Truck loading and unloading, along with slow-moving trucks and forklifts, would result in sound levels of approximately 75 to 80 dBA L_{max} at 50 feet (LSA Associates Inc. 2016). For the existing residence to the north (which is approximately 273 feet from the loading docks on the north façade of the warehouse), maximum noise levels from truck loading/unloading and maneuvering would be attenuated to 65 dBA L_{max} while average noise levels associated with these operations would be anticipated to be approximately 10 dBA lower (55 dBA Leq). This range of noise levels is lower than traffic noise levels documented at the residence and would not exceed the 65 dBA L_{max} exterior noise standard during the night (10:00 p.m.–7:00 a.m.). Therefore, noise associated with loading/unloading and slow-moving trucks and forklifts activities in the parking areas would not result in noise levels exceeding the daytime noise standards at the nearest residence to the north. It should also be noted this residence to the north is located on land designated for industrial/warehouse uses, and would likely be displaced in the near future by such proposed uses.

For residences to the west, at a distance of approximately 455 feet, the noise distance attenuation would be 19 dBA. Noise associated with loading/unloading and slow-moving trucks and forklifts in the loading docks would be reduced to 56 to 61 dBA L_{max} at the closest residence to the west. The average noise level would be anticipated to be 10 dBA lower (46 to 51 dBA Leq). This range of average noise levels is approximately equivalent to the traffic noise documented at these residences. Therefore, noise associated with loading/unloading and slow-moving trucks and forklifts activities in the truck parking areas would not result in noise levels exceeding the daytime noise standards at the nearest residences approximately 455 feet to the west.

For residences to the south, the proposed warehouse structure would be situated between the truck loading docks and the residences south of Baseline Road. Therefore, noise associated with on-site slow-moving trucks and forklift activities in the truck parking areas would not be expected to be audible to the residences along the south side of Baseline Road, opposite the project site.

Consequently, long-term operational noise levels of the proposed warehouse facility would be less than significant upon the proximate existing residential land uses in the project vicinity, and no mitigation measures would be required with respect to on-site operational noise impacts.

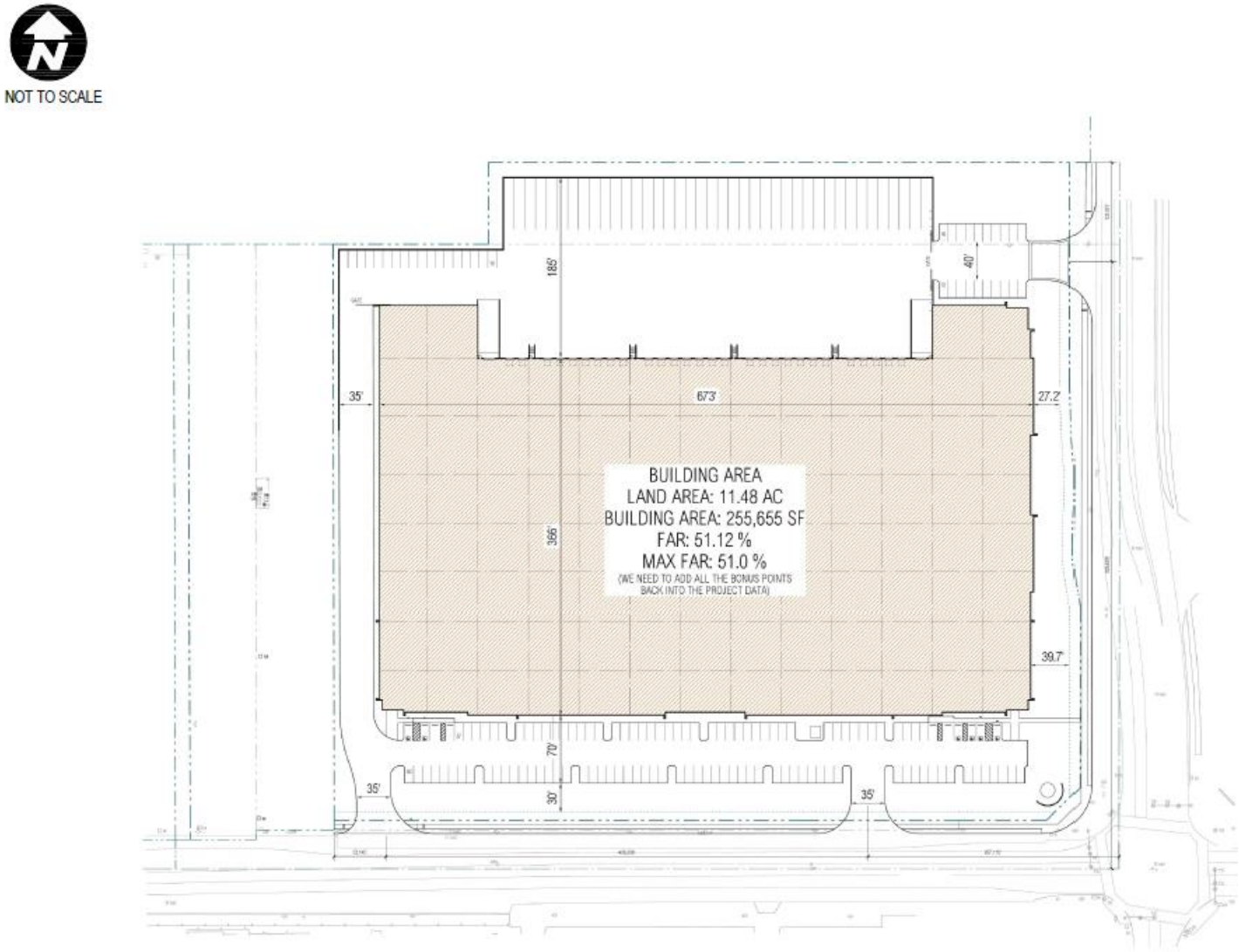
REFERENCES

Caltrans. 2013. *Transportation and Construction Vibration Guidance Manual.* September 2013

Dudek. 2018. *Traffic Impact Analysis Baseline/Alder Warehouse Project.* June 2018

FHWA (Federal Highway Administration). 2008. Roadway Construction Noise Model (RCNM).

LSA Associates Inc. 2016. *Noise and Vibration Impact Study, Morin Industrial Project, City of Rialto.* March 2016.



Source: RGA, Office of Architecture Design, 03/2018

FIGURE 1
SITE PLAN
NOISE ASSESSMENT FOR BASELINE/ALDER WAREHOUSE PROJECT

LEGEND

ST# Short-term Measurement Location

FIGURE 2
NOISE MEASUREMENT LOCATIONS
NOISE ASSESSMENT FOR BASELINE/ALDER WAREHOUSE PROJECT

ATTACHMENT A

Field Data Logs

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Field Noise Measurement Data

Record: 833	
Project Name	*Baseline at alder*
Observer(s)	*Connor Burke*
Date	*2017-12-12*
autoemail	*cburke@dudek.com*

Meteorological Conditions	
Temp (F)	*80*
Humidity % (R.H.)	*45*
Wind	*Gusty*
Wind Speed (MPH)	*15*
Wind Direction	*North*
Sky	*Sunny*

Recordings	
Record #	*1*
Site ID	*ST2*
Site Location	*Latitude:34.123609, Longitude:-117.418901, Altitude:427.046577, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:4.000000, Time:9:46:33 AM PST*
Begin (Time)	*09:55:00*
End (Time)	*10:05:00*
Leq	*61.9*
Lmax	*68.5*
Lmin	*49*
Other Lx?	*L90, L50, L10*
L90	*55.1*
L50	*61.1*
L10	*64.9*
Other (Specify Metric)	
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Industrial, Distant Traffic*
Other Noise Sources Additional Description	*Construction on road. Roller and compactor.*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

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DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Source Info and Traffic Counts	
Distance to Roadway (feet)	*45*
Distance to Roadway - Centerline/Edge of Pavement	*Centerline*
Estimated Vehicle Speed (MPH)	*40*
Count Duration (Min)	*10*
Posted Speed Limit Sign (MPH)	*50*

Traffic Counts	
Counting Both Directions?	*Yes*
Autos	*1*
Number of Vehicles - Autos	*88*
Medium Trucks	*1*
Number of Vehicles - Medium Trucks	*6*
Heavy Trucks	*1*
Number of Vehicles - Heavy Trucks	*8*

Description / Photos

Site Photos	
Photo	
Comments / Description	*Facing east towards alder.*

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DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Recordings	
Record #	*2*
Site ID	*ST1*
Site Location	*Latitude:34.121128, Longitude:-117.421012, Altitude:431.777046, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:4.000000, Time:9:59:38 AM PST*
Begin (Time)	*10:10:00*
End (Time)	*10:25:00*
Leq	*54.6*
Lmax	*63.9*
Lmin	*45.3*
Other Lx?	*L90, L50, L10*
L90	*48.8*
L50	*53.1*
L10	*57*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, 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*

Source Info and Traffic Counts	
Distance to Roadway (feet)	*50*
Estimated Vehicle Speed (MPH)	*40*
Count Duration (Min)	*15*

Traffic Counts	
Counting Both Directions?	*Yes*
Autos	*1*
Number of Vehicles - Autos	*120*
Medium Trucks	*1*
Number of Vehicles - Medium Trucks	*2*
Heavy Trucks	*1*
Number of Vehicles - Heavy Trucks	*6*

Description / Photos

Site Photos

powered by ZerionSoftware

Photo	
Comments / Description	*Facing north towards baseline.*

Recordings	
Record #	*3*
Site ID	*ST3*
Site Location	*Latitude:34.122589, Longitude:-117.423063, Altitude:431.852852, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:6.000000, Time:10:11:18 AM PST*
Begin (Time)	*10:25:00*
End (Time)	*10:35:00*
Leq	*53.2*
Lmax	*64.4*
Lmin	*45.2*
Other Lx?	*L90, L50, L10*
L90	*47.4*
L50	*50.6*
L10	*55.3*
Other (Specify Metric)	
Primary Noise Source	*Other*
Primary Noise Source Other	*Concrete truck*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Conversations / Yelling, Distant Gardener / Landscape Noise, Distant Industrial, Distant Traffic, Rustling Leaves*
Other Noise Sources Additional Description	*Weed whacked at nearby residence*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

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DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Source Info and Traffic Counts	
Distance to Roadway (feet)	*45*
Estimated Vehicle Speed (MPH)	*40*
Count Duration (Min)	*10*

Traffic Counts	
Counting Both Directions?	*Yes*
Autos	*1*
Number of Vehicles - Autos	*6*
Heavy Trucks	*1*
Number of Vehicles - Heavy Trucks	*1*

Description / Photos

Site Photos	
Photo	
Comments / Description	*Facing east.*

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ATTACHMENT B

RCNM Model Inputs and Results

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/16/2018
Case Description: Baseline/Alder Warehouse - Demolition

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence (North)	Residential	55	50	45

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Dozer	No	40		81.7	88	0
Dozer	No	40		81.7	88	0
Excavator	No	40		80.7	88	0
Excavator	No	40		80.7	88	0
Excavator	No	40		80.7	88	0
Concrete Saw	No	20		89.6	88	0
Dump Truck	No	40		76.5	88	0

		Results	
		Calculated (dBA)	
Equipment		*Lmax	Leq
Dozer		76.8	72.8
Dozer		76.8	72.8
Excavator		75.8	71.8
Excavator		75.8	71.8
Excavator		75.8	71.8
Concrete Saw		84.7	77.7
Dump Truck		71.5	67.6
	Total	84.7	81.7

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Closest Residence (Acoustic	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	302	0
Dozer	No	40		81.7	302	0
Excavator	No	40		80.7	302	0
Excavator	No	40		80.7	302	0
Excavator	No	40		80.7	302	0
Concrete Saw	No	20		89.6	302	0
Dump Truck	No	40		76.5	302	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		66	62.1
Dozer		66	62.1
Excavator		65.1	61.1
Excavator		65.1	61.1
Excavator		65.1	61.1
Concrete Saw		74	67
Dump Truck		60.8	56.8
	Total	74	71

*Calculated Lmax is the Loudest value.

Report date: 6/16/2018 Roadway Construction Noise Model, Version 1.1
Case Description: Baseline/Alder Warehouse - Site Preparation

				---- Receptor #1 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Closest Residence (North)	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	88	0
Dozer	No	40		81.7	88	0
Dozer	No	40		81.7	88	0
Front End Loader	No	40		79.1	88	0
Front End Loader	No	40		79.1	88	0
Backhoe	No	40		77.6	88	0
Backhoe	No	40		77.6	88	0
Dump Truck	No	40		76.5	88	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Dozer		76.8	72.8
Dozer		76.8	72.8
Dozer		76.8	72.8
Front End Loader		74.2	70.2
Front End Loader		74.2	70.2
Backhoe		72.6	68.7
Backhoe		72.6	68.7
Dump Truck		71.5	67.6
	Total	76.8	79.9

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Closest Residence (Acoustic	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	302	0
Dozer	No	40		81.7	302	0
Dozer	No	40		81.7	302	0
Front End Loader	No	40		79.1	302	0
Front End Loader	No	40		79.1	302	0
Backhoe	No	40		77.6	302	0
Backhoe	No	40		77.6	302	0
Dump Truck	No	40		76.5	302	0

Results

	Calculated (dBA)	
Equipment	*Lmax	Leq
Dozer	66	62.1
Dozer	66	62.1
Dozer	66	62.1
Front End Loader	63.5	59.5
Front End Loader	63.5	59.5
Backhoe	61.9	58
Backhoe	61.9	58
Dump Truck	60.8	56.8
Total	66	69.2

*Calculated Lmax is the Loudest value.

Report date: 6/16/2018 Roadway Construction Noise Model (RCNM),Version 1.1
Case Description: Baseline/Alder Warehouse - Grading

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence (North)	Residential	55	50	45

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	88	0
Grader	No	40	85		88	0
Dozer	No	40		81.7	88	0
Backhoe	No	40		77.6	88	0
Backhoe	No	40		77.6	88	0
Backhoe	No	40		77.6	88	0
Front End Loader	No	40		79.1	88	0
Dump Truck	No	40		76.5	88	0

Results

	Calculated (dBA)	
Equipment	*Lmax	Leq
Excavator	75.8	71.8
Grader	80.1	76.1
Dozer	76.8	72.8
Backhoe	72.6	68.7
Backhoe	72.6	68.7
Backhoe	72.6	68.7
Front End Loader	74.2	70.2
Dump Truck	71.5	67.6
Total	80.1	80.5

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Closest Residence (Acoustic	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	302	0
Grader	No	40	85		302	0
Dozer	No	40		81.7	302	0
Backhoe	No	40		77.6	302	0
Backhoe	No	40		77.6	302	0
Backhoe	No	40		77.6	302	0
Front End Loader	No	40		79.1	302	0
Dump Truck	No	40		76.5	302	0

Results

	Calculated (dBA)	
Equipment	*Lmax	Leq
Excavator	65.1	61.1
Grader	69.4	65.4
Dozer	66	62.1
Backhoe	61.9	58
Backhoe	61.9	58
Backhoe	61.9	58
Front End Loader	63.5	59.5
Dump Truck	60.8	56.8
Total	69.4	69.8

*Calculated Lmax is the Loudest value.

Report date: 6/16/2018 Roadway Construction Noise Model,Version 1.1

Case Description: Baseline/Alder Warehouse - Building Construction

				---- Receptor #1 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Closest Residence (North)	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	88	0
Man Lift	No	20		74.7	88	0
Man Lift	No	20		74.7	88	0
Man Lift	No	20		74.7	88	0
Generator	No	50		80.6	88	0
Backhoe	No	40		77.6	88	0
Backhoe	No	40		77.6	88	0
Front End Loader	No	40		79.1	88	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Crane		75.6	67.7
Man Lift		69.8	62.8
Man Lift		69.8	62.8
Man Lift		69.8	62.8
Generator		75.7	72.7
Backhoe		72.6	68.7
Backhoe		72.6	68.7
Front End Loader		74.2	70.2
	Total	75.7	77.4

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Closest Residence (Acoustic	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	302	0
Man Lift	No	20		74.7	302	0
Man Lift	No	20		74.7	302	0
Man Lift	No	20		74.7	302	0
Generator	No	50		80.6	302	0
Backhoe	No	40		77.6	302	0
Backhoe	No	40		77.6	302	0
Front End Loader	No	40		79.1	302	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Crane		64.9	57
Man Lift		59.1	52.1
Man Lift		59.1	52.1
Man Lift		59.1	52.1
Generator		65	62
Backhoe		61.9	58
Backhoe		61.9	58
Front End Loader		63.5	59.5
	Total	65	66.7

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/16/2018
Case Description: Baseline/Alder Warehouse - Paving

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence (North)	Residential	55	50	45

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	88	0
Paver	No	50		77.2	88	0
Grader	No	40	85		88	0
Grader	No	40	85		88	0
Roller	No	20		80	88	0
Roller	No	20		80	88	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Paver		72.3	69.3
Paver		72.3	69.3
Grader		80.1	76.1
Grader		80.1	76.1
Roller		75.1	68.1
Roller		75.1	68.1
	Total	80.1	80.5

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Closest Residence (Acoustic	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	302	0
Paver	No	50		77.2	302	0
Grader	No	40	85		302	0
Grader	No	40	85		302	0
Roller	No	20		80	302	0
Roller	No	20		80	302	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Paver		61.6	58.6
Paver		61.6	58.6
Grader		69.4	65.4
Grader		69.4	65.4
Roller		64.4	57.4
Roller		64.4	57.4
	Total	69.4	69.8

*Calculated Lmax is the Loudest value.

ATTACHMENT C

Traffic Noise Calculation Spreadsheets

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto			JN:	10935
ROADWAY:	Tamarind, Between Baseline & Walnut			DATE:	06/18/2018
Scenario:	**Calibration**			BY:	J. Leech
ADT	420			PK HR VOL	42
SPEED	40				
PK HR %	10				
DIST CTL	65				
DIST N/F	76	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		53.0
DIST WALL	0		MED TRUCK SLE DIST		52.8
DIST W/OB	65		HVY TRUCK SLE DIST		52.8
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-25				
RT ANGLE	25				
DF ANGLE	50				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.8600
MEDIUM TRUCKS	0.874	0.051	0.075	0.0010
HEAVY TRUCKS	0.891	0.028	0.081	0.1390

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	44.9	43.0	41.1	35.2	44.4
MEDIUM TRUCKS	26.8	25.4	19.0	16.0	25.5
HEAVY TRUCKS	53.5	52.2	43.2	43.0	52.2
VEHICULAR NOISE	**54.0**	52.7	45.3	43.7	52.9

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Walnut, West of Alder	DATE:	06/18/2018
Scenario:	**Calibration**	BY:	J. Leech

ADT	6,660			PK HR VOL	666
SPEED	50				
PK HR %	10				
DIST CTL	115				
DIST N/F	76	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		108.7
DIST WALL	0		MED TRUCK SLE DIST		108.6
DIST W/OB	115		HVY TRUCK SLE DIST		108.6
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-25				
RT ANGLE	25				
DF ANGLE	50				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.9200
MEDIUM TRUCKS	0.874	0.051	0.075	0.0400
HEAVY TRUCKS	0.891	0.028	0.081	0.0400

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	56.8	54.9	53.0	47.1	56.3
MEDIUM TRUCKS	54.0	52.6	46.2	43.2	52.7
HEAVY TRUCKS	58.3	57.0	48.1	47.9	57.1
VEHICULAR NOISE	**61.5**	60.0	54.9	51.2	60.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Walnut, West of Alder	DATE:	06/18/2018
Scenario:	**Existing**	BY:	J. Leech

ADT	3,410		PK HR VOL	341
SPEED	50			
PK HR %	10			
DIST CTL	75			
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	70.5
DIST WALL	0		MED TRUCK SLE DIST	70.4
DIST W/OB	75		HVY TRUCK SLE DIST	70.4
HTH WALL	0.0	********		
HTH OBS	5.0			
AMBIENT	45.0			
ROADWAY VIEW:				
LF ANGLE	-25			
RT ANGLE	25			
DF ANGLE	50			

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	54.5	52.6	50.8	44.8	54.0
MEDIUM TRUCKS	55.2	53.9	47.5	44.5	54.0
HEAVY TRUCKS	65.1	63.8	54.9	54.7	63.8
VEHICULAR NOISE	**65.9**	64.5	56.8	55.4	64.7

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Walnut, West of Alder	DATE:	06/18/2018
Scenario:	**Opening**	BY:	J. Leech

ADT	3,500			PK HR VOL	350
SPEED	50				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-25				
RT ANGLE	25				
DF ANGLE	50				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	54.6	52.7	50.9	44.9	54.1
MEDIUM TRUCKS	55.4	54.0	47.6	44.6	54.1
HEAVY TRUCKS	65.2	63.9	55.0	54.8	64.0
VEHICULAR NOISE	**66.0**	64.7	57.0	55.6	64.8

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Walnut, West of Alder	DATE:	06/18/2018
Scenario:	**Opening + Project**	BY:	J. Leech

ADT	4,154			PK HR VOL	415
SPEED	50				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-25				
RT ANGLE	25				
DF ANGLE	50				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	55.4	53.4	51.6	45.6	54.8
MEDIUM TRUCKS	56.1	54.7	48.4	45.3	54.8
HEAVY TRUCKS	66.0	64.7	55.7	55.5	64.7
VEHICULAR NOISE	**66.7**	65.4	57.7	56.3	65.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Walnut, West of Alder	DATE:	06/18/2018
Scenario:	**Cumulative (No Project)**	BY:	J. Leech

ADT	7,650			PK HR VOL	765
SPEED	50				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-25				
RT ANGLE	25				
DF ANGLE	50				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	58.0	56.1	54.3	48.3	57.5
MEDIUM TRUCKS	58.7	57.4	51.0	48.0	57.5
HEAVY TRUCKS	68.6	67.3	58.4	58.2	67.4
VEHICULAR NOISE	**69.4**	68.0	60.4	58.9	68.2

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Walnut, West of Alder	DATE:	06/18/2018
Scenario:	**Cumulative With Project**	BY:	J. Leech

ADT	8,304			PK HR VOL	830
SPEED	50				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-25				
RT ANGLE	25				
DF ANGLE	50				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	58.4	56.4	54.6	48.6	57.8
MEDIUM TRUCKS	59.1	57.7	51.4	48.3	57.8
HEAVY TRUCKS	69.0	67.7	58.8	58.5	67.7
VEHICULAR NOISE	**69.7**	68.4	60.7	59.3	68.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, West of Alder	DATE:	06/18/2018
Scenario:	**Calibration**	BY:	J. Leech

ADT	5,120			PK HR VOL	512
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.9400
MEDIUM TRUCKS	0.874	0.051	0.075	0.0150
HEAVY TRUCKS	0.891	0.028	0.081	0.0450

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	52.1	50.2	48.4	42.4	51.6
MEDIUM TRUCKS	45.3	44.0	37.6	34.6	44.1
HEAVY TRUCKS	55.4	54.1	45.2	44.9	54.1
VEHICULAR NOISE	**57.3**	55.9	50.3	47.1	56.3

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, West of Alder	DATE:	06/18/2018
Scenario:	**Existing**	BY:	J. Leech

ADT	13,300			PK HR VOL	1,330
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	54.9	53.0	51.2	45.2	54.4
MEDIUM TRUCKS	56.1	54.7	48.3	45.3	54.8
HEAVY TRUCKS	66.8	65.5	56.6	56.4	65.6
VEHICULAR NOISE	**67.4**	66.1	58.2	57.0	66.2

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, West of Alder	DATE:	06/18/2018
Scenario:	**Opening**	BY:	J. Leech

ADT	13,800			PK HR VOL	1,380
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	55.1	53.1	51.3	45.3	54.6
MEDIUM TRUCKS	56.2	54.8	48.5	45.4	54.9
HEAVY TRUCKS	67.0	65.7	56.8	56.5	65.7
VEHICULAR NOISE	**67.6**	66.3	58.3	57.1	66.4

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, West of Alder	DATE:	06/18/2018
Scenario:	**Opening + Project**	BY:	J. Leech

ADT	14,536			PK HR VOL	1,454
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	55.3	53.4	51.6	45.6	54.8
MEDIUM TRUCKS	56.4	55.1	48.7	45.7	55.2
HEAVY TRUCKS	67.2	65.9	57.0	56.7	65.9
VEHICULAR NOISE	**67.8**	66.5	58.6	57.4	66.6

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, West of Alder	DATE:	06/18/2018
Scenario:	**Cumulative (No Project)**	BY:	J. Leech

ADT	20,800			PK HR VOL	2,080
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	56.8	54.9	53.1	47.1	56.3
MEDIUM TRUCKS	58.0	56.6	50.3	47.2	56.7
HEAVY TRUCKS	68.8	67.5	58.5	58.3	67.5
VEHICULAR NOISE	**69.4**	68.0	60.1	58.9	68.1

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, West of Alder	DATE:	06/18/2018
Scenario:	**Cumulative With Project**	BY:	J. Leech

ADT	21,536			PK HR VOL	2,154
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	57.0	55.1	53.3	47.3	56.5
MEDIUM TRUCKS	58.1	56.8	50.4	47.4	56.9
HEAVY TRUCKS	68.9	67.6	58.7	58.5	67.7
VEHICULAR NOISE	**69.5**	68.2	60.3	59.1	68.3

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, East of Alder	DATE:	06/18/2018
Scenario:	**Existing**	BY:	J. Leech

ADT	12,900			PK HR VOL	1,290
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	54.8	52.8	51.0	45.1	54.3
MEDIUM TRUCKS	55.9	54.5	48.2	45.1	54.6
HEAVY TRUCKS	66.7	65.4	56.5	56.2	65.4
VEHICULAR NOISE	**67.3**	66.0	58.0	56.9	66.1

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, East of Alder	DATE:	06/18/2018
Scenario:	**Opening**	BY:	J. Leech

ADT	13,400			PK HR VOL	1,340
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	54.9	53.0	51.2	45.2	54.4
MEDIUM TRUCKS	56.1	54.7	48.3	45.3	54.8
HEAVY TRUCKS	66.9	65.6	56.6	56.4	65.6
VEHICULAR NOISE	**67.5**	66.1	58.2	57.0	66.2

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL
(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, East of Alder	DATE:	06/18/2018
Scenario:	**Opening + Project**	BY:	J. Leech

ADT	13,454			PK HR VOL	1,345
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	55.0	53.0	51.2	45.2	54.4
MEDIUM TRUCKS	56.1	54.7	48.4	45.3	54.8
HEAVY TRUCKS	66.9	65.6	56.7	56.4	65.6
VEHICULAR NOISE	**67.5**	66.2	58.2	57.0	66.3

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, East of Alder	DATE:	06/18/2018
Scenario:	**Cumulative (No Project)**	BY:	J. Leech

ADT	26,000			PK HR VOL	2,600
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	57.8	55.9	54.1	48.1	57.3
MEDIUM TRUCKS	59.0	57.6	51.2	48.2	57.7
HEAVY TRUCKS	69.8	68.5	59.5	59.3	68.5
VEHICULAR NOISE	**70.4**	69.0	61.1	59.9	69.1

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Baseline, East of Alder	DATE:	06/18/2018
Scenario:	**Cumulative With Project**	BY:	J. Leech

ADT	26,054			PK HR VOL	2,605
SPEED	40				
PK HR %	10				
DIST CTL	110				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		107.0
DIST WALL	0		MED TRUCK SLE DIST		106.9
DIST W/OB	110		HVY TRUCK SLE DIST		106.9
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	57.8	55.9	54.1	48.1	57.3
MEDIUM TRUCKS	59.0	57.6	51.2	48.2	57.7
HEAVY TRUCKS	69.8	68.5	59.5	59.3	68.5
VEHICULAR NOISE	**70.4**	69.0	61.1	59.9	69.1

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Baseline & Walnut	DATE:	06/18/2018
Scenario:	**Calibration**	BY:	J. Leech

ADT	6,740			PK HR VOL	674
SPEED	45				
PK HR %	10				
DIST CTL	40				
DIST N/F	36	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		36.1
DIST WALL	0		MED TRUCK SLE DIST		35.8
DIST W/OB	40		HVY TRUCK SLE DIST		35.8
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.7920
MEDIUM TRUCKS	0.874	0.051	0.075	0.0750
HEAVY TRUCKS	0.891	0.028	0.081	0.1350

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	57.5	55.5	53.7	47.7	56.9
MEDIUM TRUCKS	58.2	56.9	50.5	47.5	57.0
HEAVY TRUCKS	65.6	64.3	55.4	55.1	64.3
VEHICULAR NOISE	**66.9**	65.5	58.4	56.4	65.7

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Baseline & Walnut	DATE:	06/18/2018
Scenario:	**Existing**	BY:	J. Leech

ADT	11,900			PK HR VOL	1,190
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	56.4	54.5	52.7	46.7	55.9
MEDIUM TRUCKS	57.4	56.0	49.6	46.6	56.1
HEAVY TRUCKS	67.7	66.4	57.4	57.2	66.4
VEHICULAR NOISE	**68.3**	67.0	59.2	57.9	67.1

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Baseline & Walnut	DATE:	06/18/2018
Scenario:	**Opening**	BY:	J. Leech

ADT	12,400			PK HR VOL	1,240
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	56.6	54.7	52.9	46.9	56.1
MEDIUM TRUCKS	57.5	56.2	49.8	46.8	56.3
HEAVY TRUCKS	67.8	66.6	57.6	57.4	66.6
VEHICULAR NOISE	**68.5**	67.2	59.4	58.1	67.3

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Baseline & Walnut	DATE:	06/18/2018
Scenario:	**Opening + Project**	BY:	J. Leech

ADT	13,054			PK HR VOL	1,305
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	56.8	54.9	53.1	47.1	56.3
MEDIUM TRUCKS	57.8	56.4	50.0	47.0	56.5
HEAVY TRUCKS	68.1	66.8	57.8	57.6	66.8
VEHICULAR NOISE	**68.7**	67.4	59.6	58.3	67.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Baseline & Walnut	DATE:	06/18/2018
Scenario:	**Cumulative (no project)**	BY:	J. Leech

ADT	30,100			PK HR VOL	3,010
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	60.5	58.5	56.7	50.7	59.9
MEDIUM TRUCKS	61.4	60.0	53.6	50.6	60.1
HEAVY TRUCKS	71.7	70.4	61.5	61.2	70.4
VEHICULAR NOISE	**72.4**	71.0	63.2	61.9	71.1

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Baseline & Walnut	DATE:	06/18/2018
Scenario:	**Cumulative w/Project**	BY:	J. Leech

ADT	30,754			PK HR VOL	3,075
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	60.5	58.6	56.8	50.8	60.0
MEDIUM TRUCKS	61.5	60.1	53.7	50.7	60.2
HEAVY TRUCKS	71.8	70.5	61.6	61.3	70.5
VEHICULAR NOISE	**72.5**	71.1	63.3	62.0	71.2

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Walnut & Renaissance	DATE:	06/18/2018
Scenario:	**Existing**	BY:	J. Leech

ADT	18,700			PK HR VOL	1,870
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	58.4	56.5	54.7	48.7	57.9
MEDIUM TRUCKS	59.3	57.9	51.6	48.5	58.0
HEAVY TRUCKS	69.6	68.3	59.4	59.2	68.4
VEHICULAR NOISE	**70.3**	69.0	61.2	59.9	69.1

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Walnut & Renaissance	DATE:	06/18/2018
Scenario:	**Opening**	BY:	J. Leech

ADT	19,400			PK HR VOL	1,940
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	58.5	56.6	54.8	48.8	58.0
MEDIUM TRUCKS	59.5	58.1	51.7	48.7	58.2
HEAVY TRUCKS	69.8	68.5	59.6	59.3	68.5
VEHICULAR NOISE	**70.5**	69.1	61.3	60.0	69.2

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Walnut & Renaissance	DATE:	06/18/2018
Scenario:	**Opening + Project**	BY:	J. Leech

ADT	20,654			PK HR VOL	2,065
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	58.8	56.9	55.1	49.1	58.3
MEDIUM TRUCKS	59.7	58.4	52.0	49.0	58.5
HEAVY TRUCKS	70.1	68.8	59.8	59.6	68.8
VEHICULAR NOISE	**70.7**	69.4	61.6	60.3	69.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Walnut & Renaissance	DATE:	06/18/2018
Scenario:	**Cumulative (no project)**	BY:	J. Leech

ADT	41,100			PK HR VOL	4,110
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	61.8	59.9	58.1	52.1	61.3
MEDIUM TRUCKS	62.7	61.4	55.0	52.0	61.5
HEAVY TRUCKS	73.1	71.8	62.8	62.6	71.8
VEHICULAR NOISE	**73.7**	72.4	64.6	63.3	72.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Walnut & Renaissance	DATE:	06/18/2018
Scenario:	**Cumulative w/Project**	BY:	J. Leech

ADT	42,354			PK HR VOL	4,235
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0		AUTOMOBILES =	0.00	
ROAD	0.0		MEDIUM TRUCKS=	2.30	
			HEAVY TRUCKS =	8.01	
GRADE:	0.0 %		GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	61.9	60.0	58.2	52.2	61.4
MEDIUM TRUCKS	62.9	61.5	55.1	52.1	61.6
HEAVY TRUCKS	73.2	71.9	62.9	62.7	71.9
VEHICULAR NOISE	**73.9**	72.5	64.7	63.4	72.6

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto			JN:	10935
ROADWAY:	Alder, Between Renaissance & I-210			DATE:	06/18/2018
Scenario:	**Existing**			BY:	J. Leech
ADT	24,000			PK HR VOL	2,400
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	59.5	57.5	55.7	49.7	59.0
MEDIUM TRUCKS	60.4	59.0	52.7	49.6	59.1
HEAVY TRUCKS	70.7	69.4	60.5	60.2	69.4
VEHICULAR NOISE	**71.4**	70.1	62.2	60.9	70.2

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto			JN:	10935
ROADWAY:	Alder, Between Renaissance & I-210			DATE:	06/18/2018
Scenario:	**Opening**			BY:	J. Leech
ADT	25,000			PK HR VOL	2,500
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	59.6	57.7	55.9	49.9	59.1
MEDIUM TRUCKS	60.6	59.2	52.8	49.8	59.3
HEAVY TRUCKS	70.9	69.6	60.7	60.4	69.6
VEHICULAR NOISE	**71.6**	70.2	62.4	61.1	70.3

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Renaissance & I-210	DATE:	06/18/2018
Scenario:	**Opening + Project**	BY:	J. Leech

ADT	26,226			PK HR VOL	2,623
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	59.9	57.9	56.1	50.1	59.3
MEDIUM TRUCKS	60.8	59.4	53.0	50.0	59.5
HEAVY TRUCKS	71.1	69.8	60.9	60.6	69.8
VEHICULAR NOISE	**71.8**	70.4	62.6	61.3	70.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Renaissance & I-210	DATE:	06/18/2018
Scenario:	**Cumulative (no project)**	BY:	J. Leech

ADT	50,400			PK HR VOL	5,040
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	62.7	60.8	59.0	53.0	62.2
MEDIUM TRUCKS	63.6	62.2	55.9	52.8	62.3
HEAVY TRUCKS	73.9	72.6	63.7	63.5	72.7
VEHICULAR NOISE	**74.6**	73.3	65.5	64.2	73.4

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between Renaissance & I-210	DATE:	06/18/2018
Scenario:	**Cumulative w/Project**	BY:	J. Leech

ADT	51,626			PK HR VOL	5,163
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	62.8	60.9	59.1	53.1	62.3
MEDIUM TRUCKS	63.7	62.4	56.0	52.9	62.4
HEAVY TRUCKS	74.0	72.8	63.8	63.6	72.8
VEHICULAR NOISE	**74.7**	73.4	65.6	64.3	73.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between I-210 E/B to W/B Ramps	DATE:	06/18/2018
Scenario:	**Existing**	BY:	J. Leech

ADT	20,300			PK HR VOL	2,030
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	58.7	56.8	55.0	49.0	58.2
MEDIUM TRUCKS	59.7	58.3	51.9	48.9	58.4
HEAVY TRUCKS	70.0	68.7	59.8	59.5	68.7
VEHICULAR NOISE	**70.7**	69.3	61.5	60.2	69.4

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto			JN:	10935
ROADWAY:	Alder, Between I-210 E/B to W/B Ramps			DATE:	06/18/2018
Scenario:	**Opening**			BY:	J. Leech
ADT	21,100			PK HR VOL	2,110
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	58.9	57.0	55.2	49.2	58.4
MEDIUM TRUCKS	59.8	58.5	52.1	49.1	58.6
HEAVY TRUCKS	70.2	68.9	59.9	59.7	68.9
VEHICULAR NOISE	**70.8**	69.5	61.7	60.4	69.6

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between I-210 E/B to W/B Ramps	DATE:	06/18/2018
Scenario:	**Opening + Project**	BY:	J. Leech

ADT	21,713			PK HR VOL	2,171
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	59.0	57.1	55.3	49.3	58.5
MEDIUM TRUCKS	60.0	58.6	52.2	49.2	58.7
HEAVY TRUCKS	70.3	69.0	60.0	59.8	69.0
VEHICULAR NOISE	**71.0**	69.6	61.8	60.5	69.7

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto			JN:	10935
ROADWAY:	Alder, Between I-210 E/B to W/B Ramps			DATE:	06/18/2018
Scenario:	**Cumulative (no project)**			BY:	J. Leech
ADT	40,400			PK HR VOL	4,040
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	61.7	59.8	58.0	52.0	61.2
MEDIUM TRUCKS	62.7	61.3	54.9	51.9	61.4
HEAVY TRUCKS	73.0	71.7	62.7	62.5	71.7
VEHICULAR NOISE	**73.7**	72.3	64.5	63.2	72.4

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	Baseline/Alder Warehouse Rialto	JN:	10935
ROADWAY:	Alder, Between I-210 E/B to W/B Ramps	DATE:	06/18/2018
Scenario:	**Cumulative w/Project**	BY:	J. Leech

ADT	41,013			PK HR VOL	4,101
SPEED	45				
PK HR %	10				
DIST CTL	75				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		70.5
DIST WALL	0		MED TRUCK SLE DIST		70.4
DIST W/OB	75		HVY TRUCK SLE DIST		70.4
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	45.0				
ROADWAY VIEW:					
LF ANGLE	-15				
RT ANGLE	15				
DF ANGLE	30				

SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.127	0.096	0.6900
MEDIUM TRUCKS	0.874	0.051	0.075	0.0680
HEAVY TRUCKS	0.891	0.028	0.081	0.2420

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	61.8	59.9	58.1	52.1	61.3
MEDIUM TRUCKS	62.7	61.4	55.0	51.9	61.4
HEAVY TRUCKS	73.0	71.8	62.8	62.6	71.8
VEHICULAR NOISE	**73.7**	72.4	64.6	63.3	72.5

APPENDIX F

Traffic and Circulation

Traffic Impact Analysis
Baseline/Alder Warehouse Project

Prepared for:

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JULY 2018

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1 INTRODUCTION

1.1 Purpose of the TIA and Study Objectives

The purpose of this Traffic Impact Analysis (TIA) is to identify traffic impacts associated with the proposed Baseline/Alder Warehouse Project (proposed project) in the City of Rialto (City) which is also being evaluated under the California Environmental Quality Act (CEQA). This TIA has been prepared per City of Rialto's *Traffic Impact Analysis Report Guidelines and Requirements* (December 2013) and with the San Bernardino Association of Governments (SANBAG) *Congestion Management Program* (CMP) requirements. In addition, an approved *Scoping Agreement for Traffic Impact Analysis* (April 17, 2018) is provided in Appendix A.

The objectives of this TIA are:

- Document existing traffic conditions, including roadway segment and intersection levels of service in the study area;
- Estimate trip generation, distribution, and assignment characteristics for the proposed project;
- Analyze the traffic impacts that would occur as a result of project traffic under the Project Completion and Cumulative conditions;
- Describe the significance of the potential impacts under the Project Completion and Cumulative Conditions;
- Identify mitigation measures, for traffic impacts; and
- Describe adequacy of on-site circulation and project access locations.

The study area roadway segments and intersections were analyzed for the following study scenarios:

Existing Conditions

The TIA includes a description of existing traffic conditions in the site vicinity, including existing street system, existing weekday AM and PM peak hour traffic volumes, existing roadway segment daily traffic volumes, and traffic operations. The Existing conditions are representative of the year 2018.

Project Completion 2020 (Existing + Ambient Background Growth)

This condition includes a description of traffic conditions and operations prior to the time that the proposed development is completed. It is estimated by increasing the existing traffic volumes by an appropriate growth rate that is projected up to the year the project is estimated to be complete. The proposed project is anticipated to be completed in the year 2020.

Project Completion 2020 plus Project

This condition includes analysis of traffic operations under Project Completion conditions with project related traffic added to the AM and PM peak hour traffic volumes, and roadway segment daily traffic volumes. The traffic impacts specific to the project under this condition are the basis for determining the project's specific impacts, mitigation measures, and conditions of approval.

Cumulative 2020 (Existing + Ambient Background Growth + Cumulative Projects)

This condition includes traffic generated by other approved projects in the study area added to the Project Completion traffic volumes. This traffic includes projects that are proposed and in the review process, but not yet fully approved; or, projects that have been approved, but not fully constructed or occupied. The impacts identified under this scenario are cumulative impacts and mitigation identified for such impacts includes existing impact fees, CMP or other approved funding sources applicable to the project.

Cumulative 2020 plus Project

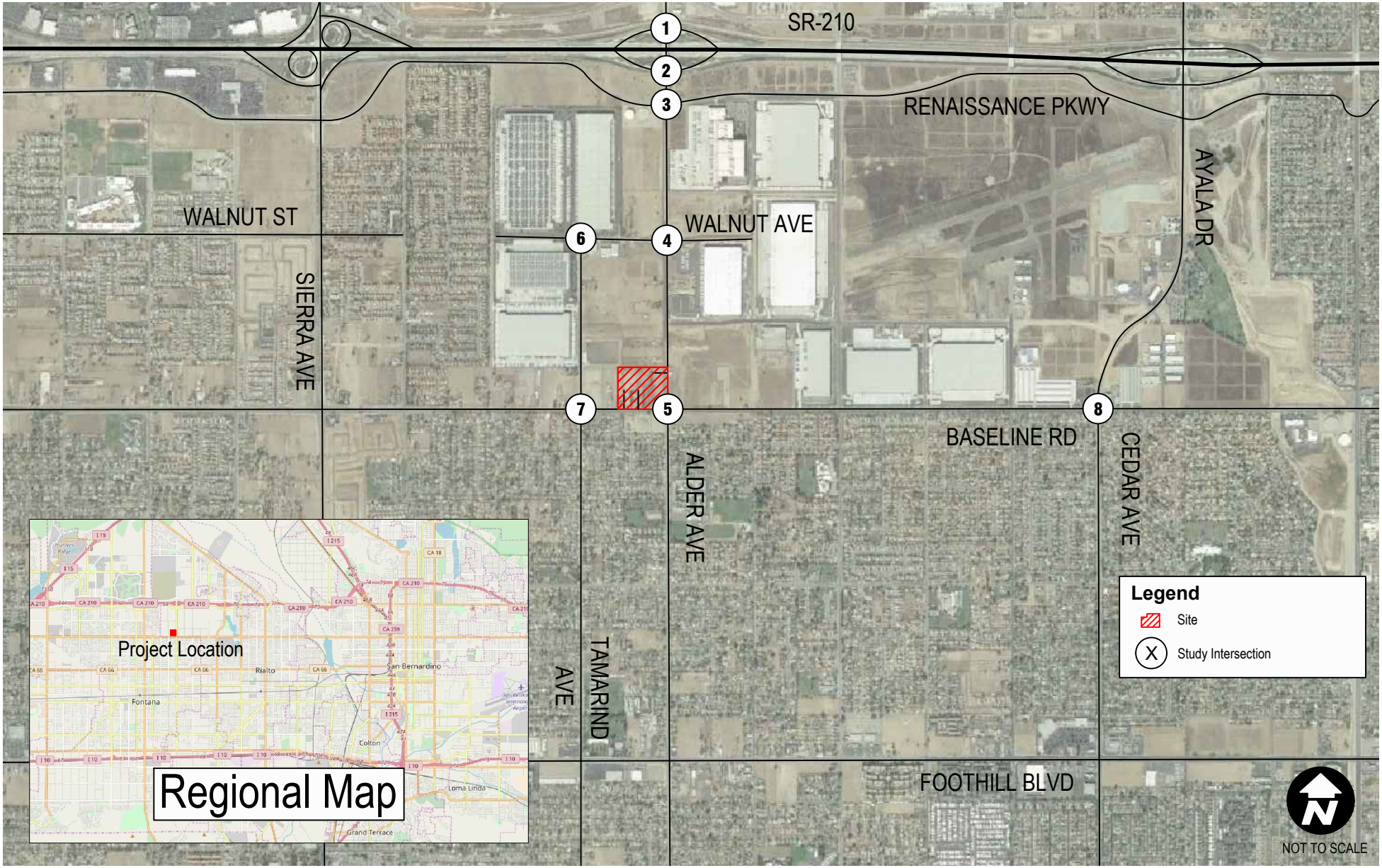
This condition includes analysis of traffic operations under Cumulative 2020 conditions with project related traffic added to the AM and PM peak hour traffic volumes, and roadway segment daily traffic volumes. The traffic impacts specific to project under this condition are basis for determining project's cumulative impacts and its fair-share towards proposed mitigation measures.

1.2 Project Location and the Study Area

Figure 1 shows the project's regional location and the study area. The major freeway in the project vicinity is State Route 210 (SR-210) which provides access to the proposed site via its interchange at Alder Avenue. As illustrated in Figure 1, and per City of Rialto's Scoping Agreement for Traffic Impact Analysis (provided in Appendix A), the study area is comprised of the following eight intersections and five roadway segments:

Intersections

1. Alder Avenue/SR-210 westbound ramps
2. Alder Avenue/SR-210 eastbound ramps
3. Alder Avenue/Renaissance Parkway
4. Alder Avenue/Walnut Avenue
5. Alder Avenue/Baseline Road
6. Tamarind Avenue/Walnut Avenue
7. Tamarind Avenue/ Baseline Road



Source: Google Earth, 10/2016
OpenStreetMap

Regional Location and Study Area

FIGURE 1

Baseline Alder Warehouse - Rialto

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8. Ayala Drive-Cedar Avenue/Baseline Road

Roadway Segments

1. Alder Avenue, between SR-210 westbound ramps and eastbound ramps
2. Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway
3. Alder Avenue, between Renaissance Parkway and Walnut Avenue
4. Alder Avenue, between Walnut Avenue and Baseline Road
5. Baseline Road, between Alder Avenue and Tamarind Avenue
6. Baseline Road, between Alder Avenue and Locust Avenue
7. Walnut Avenue, between Alder Avenue and Tamarind Avenue

1.3 Project Description

Figure 2 illustrates the project's site plan. The proposed project would include construction of a 255,655 square foot (SF, gross floor area), one-story industrial/warehouse building on an approximately 11.48-acre site at the northwest corner of Alder Avenue/Baseline Road. The warehouse building would comprise approximately 255,655 SF of warehouse space. The project would also include 137 standard (passenger vehicle) parking spaces, 40 trailer parking spaces, and 28 loading docks.

Access to project site would be via two right-turn in/out only driveways on Baseline Road, and a right-turn in/out only driveway on Alder Avenue. Inbound truck access for the project site is proposed at the driveway on Alder Avenue, and outbound truck access from the driveway on Baseline Road. All three driveways would provide passenger car access to the proposed project. The project would also include improvements to Baseline Road and Alder Avenue along the project's street frontage, including a landscape, sidewalk, and parkway improvements.

The proposed project is part of the Renaissance Specific Plan (RSP) area in the western-central portion of the City. The RSP planning area is located generally south of SR-210, north of Baseline Road, west of Ayala Drive, and east of Locust Avenue. Figure 3 shows the RSP area.

The project site is located on vacant land designated as Planning Area 16 and 17-Employment with Commercial Overlay, and proposed for development in accordance with the RSP. The land to the north and east of project site would include industrial/warehouse uses The newly constructed, I-210 Logistics Center is located at the northeastern corner of Alder Avenue/Baseline Road intersection, just across the project site. To the south of the project site is a water well and residential uses and to the west, there are vacant lots and single-family homes.

The project applicant intends to construct the project in a single phase. It is anticipated that construction would take approximately 12 months. Hence, the TIA assumes the project completion for the project to be in the year 2020. Construction-related traffic generated by workers and delivery and equipment trucks is not likely to generate significant daily or peak hour traffic. Therefore, this TIA focusses on the traffic impacts of the permanent operations of the proposed project.

1.4 Analysis Methodology

Level of service (LOS) is commonly used as a qualitative description of roadway segments and intersection operations and is based on the capacity and the volume of traffic using the roadway segment or intersection.

1.4.1 Intersections

The City of Rialto utilizes the *Highway Capacity Manual* (HCM) analysis methodology to analyze the operation of signalized and unsignalized study intersections. The HCM analysis methodology describes the operation of an intersection using a range of LOS from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding control delay experienced per vehicle for signalized and unsignalized intersections. The Synchro 10 LOS software was used to determine intersection LOS for all study scenarios. Synchro is consistent with the HCM 2010 methodology (Transportation Research Board 2010). Table 1 shows the level of service definitions, and Table 2 shows the LOS values by delay ranges for unsignalized and signalized intersections under the HCM methodology.

Table 1
Levels of Service Descriptions

Level of Service	Description
A	No approach phase is fully utilized by traffic, and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily, and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized and a substantial number are nearing full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.
D	This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are

Table 1
Levels of Service Descriptions

Level of Service	Description
	reduced substantially, and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

Source: Highway Capacity Manual, Transportation Research Board, Special Report No. 209, Washington, D.C., 2000.

Table 2
Levels of Service for Intersections using HCM Methodology

Level of Service	Unsignalized Intersections Control Delay (in seconds)	Signalized Intersections Control Delay (in seconds)
A	< 10.0	< 10.0
B	> 10.0 to < 15.0	> 10.0 to < 20.0
C	> 15.0 to < 25.0	> 20.0 to < 35.0
D	> 25.0 to < 35.0	> 35.0 to < 55.0
E	> 35.0 to < 50.0	> 55.0 to < 80.0
F	> 50.0	> 80.0

Source: HCM 2010

1.4.2 Roadway Segments

For roadway segment analysis, the City compares the average daily traffic (ADT) volumes on a segment to the roadway capacity thresholds as shown in Table 3 as provided in Exhibit D in the City's TIA guidelines.

Table 3
City of Rialto Roadway Capacity [1]

Roadway Classification	No. of Lanes	Two-way Average Traffic Volume (ADT) [2]		
		LOS C	*LOS D*	*LOS E*
Local	2	2,500-2,799	2,800-3,099	3,100 +
Collector (60' or 64')	2	9,900-11,199	11,200-12,499	12,500 +
Industrial (45')	2	9,900-11,199	11,200-12,499	12,500 +
Arterial[3]	2	14,400-16,199	16,200-17,999	18,000 +
Secondary Highway	4	16,900-19,399	19,400-21,199	22,000 +
Modified Arterial (100')	4	26,200-29,599	29,600-32,999	33,000 +
Arterial (120')	6	38,700-44,099	44,100-49,499	49,500 +

Source: Exhibit D, City of Rialto Traffic Impact Analysis Report Guidelines and Requirements, December 2013
Notes:
1 All capacity figures are based on optimum conditions and are intended as guidelines for planning purposes only
2 Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables.
3 Two lane roads designated as future arterials that conform to arterial design standards for vertical and horizontal alignments are analyzed as arterials.

1.5 Significance Criteria

1.5.1 City of Rialto

This TIA uses the level of service thresholds provided in the City's *2010 General Plan Update*. According to Policy 4-1.20 of the General Plan:

"*The City of Rialto allows operations at Level of Service (LOS) D as the maximum threshold for the study intersections and roadways during morning and evening peak hours. Projects that degrade LOS below the acceptable level must provide mitigation to maintain minimum LOS*."

According to City's TIA guidelines, significant impacts may occur at any intersection where the project causes the LOS to fall below LOS D, or when the peak hour delay increases as follows:

- LOS A/B; by 10.0 seconds
- LOS C; by 8.0 seconds
- LOS D ; by 5.0 seconds
- LOS E; by 2.0 seconds
- LOS F; by 1.0 second

Additionally, delay at unsignalized intersections shall not exceed 120 seconds during AM and PM peak hours. New developments are required to mitigate impacts exceeding these levels.

For roadway segments, the City currently does not have criteria to determine a significant project impact. Therefore, for purposes of this TIA, improvements will be recommended when a roadway operates below LOS D. Roadway segments may, or may not, be governed by signalized intersections at the ends of the segment. If the segment exceeds 1,500 feet, and the V/C ratio exceeds 1.0, the segment must be mitigated even if intersections on either end do not exceed LOS D.

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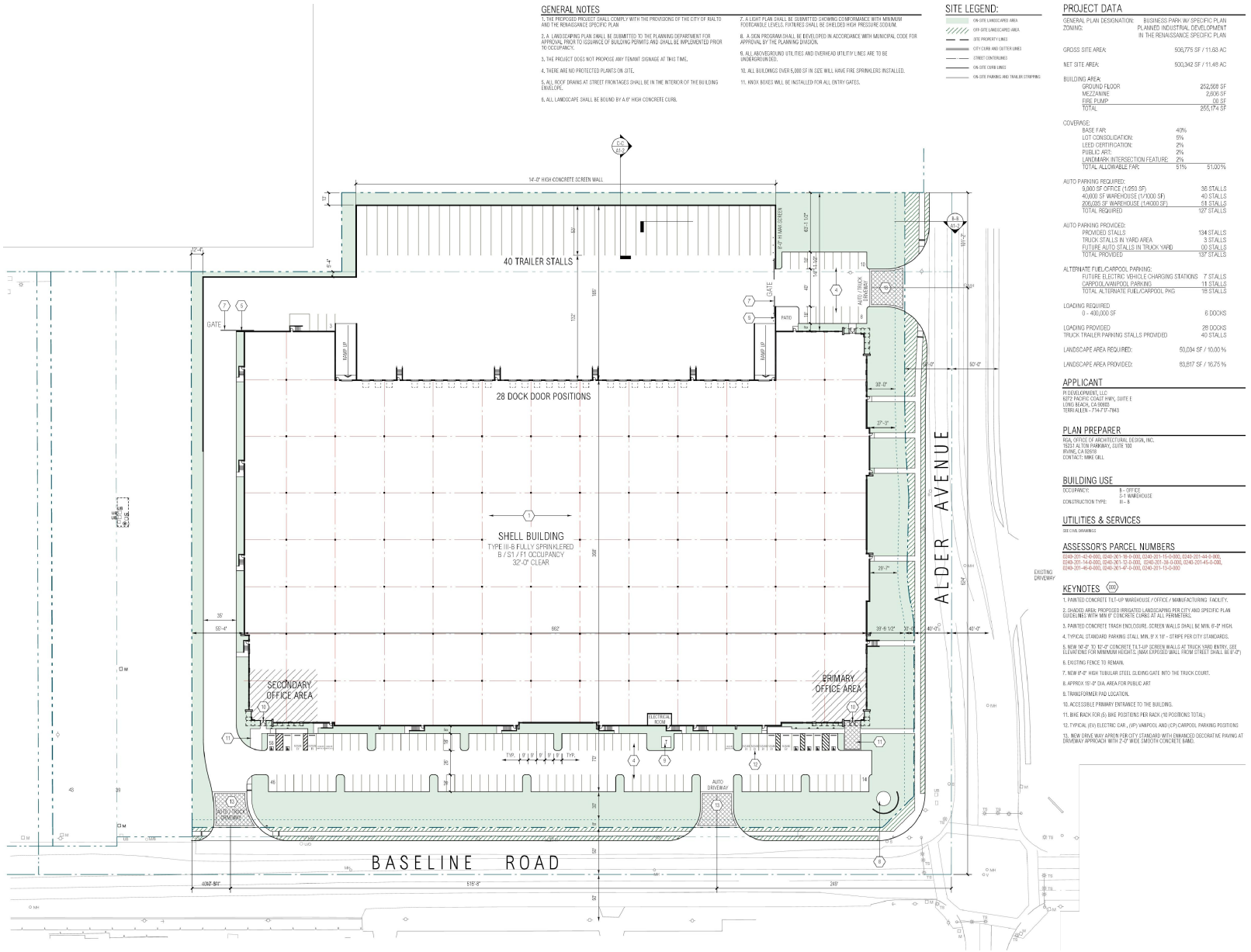

Source: RGA, Office of Architectural Design, 06/2018

Project Site Plan

FIGURE 2

Baseline Alder Warehouse - Rialto

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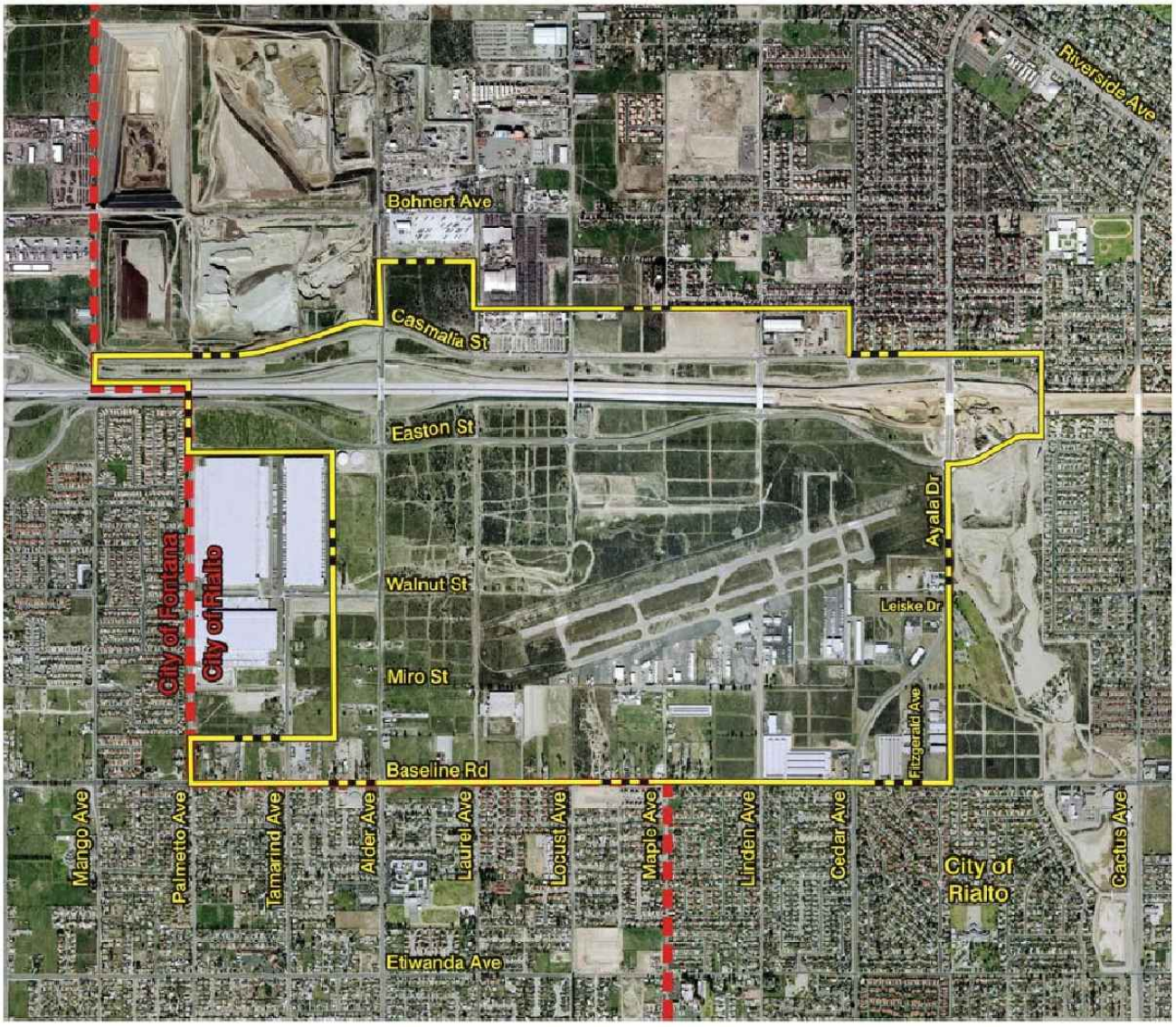
Renaissance



Site Boundary

NOT TO SCALE

Source: Renaissance Specific Plan, Figure 1-2, 2010

Renaissance Specific Plan Area

FIGURE 3

Baseline Alder Warehouse - Rialto

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1.5.2 Caltrans

The study area freeway interchange at SR-210/Alder Avenue is under the jurisdiction of Caltrans. As stated in the Caltrans *Guide for the Preparation of Traffic Impact Studies* (December 2002), the level of service for operating State highway facilities is based upon measures of effectiveness (MOE). These MOEs describe the measures best suited for analyzing State highway facilities (i.e., freeway segments, signalized intersections, on- or off-ramps, etc.). Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and if an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.

1.5.3 Congestion Management Program

As of January 1, 2016 the San Bernardino County Transportation Authority (SBCTA) has succeeded the San Bernardino Associated Governments Authority (SANBAG) as the designated Congestion Management Agency (CMA) in the County. The purpose of the CMA is to establish level of service (LOS) standards for the Congestion Management Program (CMP) road network in the County. LOS E has been established as the LOS standard for intersections and segments on the CMP system of roadways, except those designated as LOS F. CMP TIA reports must be prepared to satisfy CMP requirements when a group of projects is forecast to equal or exceed the CMP threshold of 250 two-way peak hour trips generated.

An important component of the CMP since 2005 is the inclusion of the SANBAG Nexus Study and its development mitigation requirements. Jurisdictions, including the City of Rialto, that have implemented qualifying development mitigation programs that achieve development contribution requirements established by the SANBAG Development Mitigation Nexus Study are not required to prepare TIA reports for CMA review.

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2 AREA AND EXISTING CONDITIONS

This section describes existing conditions within the study area. Characteristics are provided for the existing street system, daily roadway segment traffic volumes, peak hour traffic volumes, and traffic operations.

2.1 Existing Street System

The existing traffic controls and geometrics at the study area intersections are shown in Figure 4. Characteristics of the existing street system in the study are described below.

State Route 210 (SR-210) is an east-west route within Los Angeles and San Bernardino counties. It connects the Los Angeles metropolitan area with southwest San Bernardino County. SR-210 is a Surface Transportation Assistance Act Route for use by oversized trucks. Near the project site, SR-210 is an eight-lane divided highway that has three mixed-flow lanes and one high occupancy vehicle (HOV) lane in each direction.

Alder Avenue is a north-south arterial that provides access throughout the City and is designated as a truck route, north of Baseline Road. Per the RSP's Vehicular Circulation Plan shown on Figure 5, Alder Avenue is identified as a Major Arterial with a 100-foot right-of-way (ROW). In the study area, certain segments of Alder Avenue are currently under construction due to new developments that are widening Alder Avenue to its ultimate width. Alder Avenue generally is constructed as a 4-lane divided roadway with left turn pockets and/or a median, curbs and sidewalks. The posted speed limit along Alder Avenue is 50 miles per hour (mph). Alder Avenue provides access to the project site via a proposed right turn in/out only driveway.

Baseline Road is an east-west arterial the provides access throughout the City and is also designated as a truck route. Per the RSP's Vehicular Circulation Plan shown on Figure 5, Baseline Road is identified as a Major Arterial with a 100-foot right-of-way (ROW). Baseline Road is constructed as a 2-lane roadway with two-way-left-turn lane near the proposed project site and it widens to 3-lanes near its intersection with Tamarind Avenue. In the study area, the westbound right-turn lane at the Alder Avenue/Baseline Road was currently under construction adjacent to the new development located at the northeastern corner of this intersection. The posted speed limit along Baseline Road is 50 mph. Baseline Road provides access to the project site via two proposed right turn in/out only driveways, west of Alder Avenue.

Tamarind Avenue is a 2-lane undivided, north-south roadway classified as Commercial Collector in the RSP and has an 88-foot right-of-way. There is no posted speed limit or bike lanes along this roadway; however, there are existing meandering sidewalks along some portions of the street between Baseline Road and Walnut Avenue. The roadway would be utilized by outbound project

traffic (trucks and passenger cars) to access Walnut Avenue, via its intersection with Tamarind Avenue, to ultimately gain access on to northbound Alder Avenue.

Walnut Avenue is a 2-lane undivided, east-west roadway classified as Commercial Collector in the RSP and has an 88-foot right-of-way. There is no posted speed limit or bike lanes along this roadway; however, there are existing meandering sidewalks on both sides of the street between Tamarind Avenue and Alder Avenue. The roadway would be utilized by outbound project traffic (trucks and passenger cars) to access Alder Avenue via its intersection with Walnut Avenue.

2.2 Existing Traffic Volumes

Existing peak hour counts ADT counts at the study intersections and roadway segments, respectively, were conducted on Tuesday, March 6, 2018, during a typical non-holiday week. Raw traffic count worksheets are provided in Appendix B. Existing weekday AM and PM peak hour and ADT volumes are summarized on Figure 6.

2.3 Existing Traffic Conditions

This analysis focuses on the weekday daily (24 hour), AM (7:00 to 9:00 a.m.) and the PM (4:00 to 6:00 p.m.) peak periods. The peak periods represent the highest cumulative total traffic for the adjacent street system.

2.3.1 Existing Intersection Conditions

An intersection LOS analysis was prepared for the existing conditions using the HCM 2010 methodology through the Synchro (version 10) LOS software as described in Chapter 1. Table 4 shows the results of the existing conditions LOS analysis and the detailed LOS worksheets are included in Appendix C.

Table 4
Existing Weekday Peak Hour Intersection LOS

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]
1	Alder Avenue/SR-210 westbound ramps	signalized	24.7	C	25.0	C
2	Alder Avenue/SR-210 eastbound ramps	signalized	23.8	C	19.7	B
3	Alder Avenue/Renaissance Parkway	signalized	22.6	C	34.5	C
4	Alder Avenue/ Walnut Avenue	signalized	5.5	A	6.1	A
5	Alder Avenue/Baseline Road	signalized	46.2	D	37.4	D
6	Tamarind Avenue/Walnut Avenue	unsignalized	8.7	A	8.7	A
7	Tamarind Avenue/Baseline Road	unsignalized	**127.3**	**F**	28.0	D
8	Ayala Drive-Cedar Avenue/Baseline Road	signalized	28.0	C	29.5	C

Source: Dudek 2018
1 Delay in seconds per vehicle calculated per HCM methodology
2 Level of Service (LOS)

As shown in the table, all of the study area intersections, with the exception of Tamarind Avenue/Baseline Road, are currently operating at LOS D or better under existing conditions during both peak hours. The Tamarind Avenue/Baseline Road intersection currently operates at LOS F during the AM peak hour.

Per City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road currently operates at LOS F with average delay of 127.3 seconds during the AM peak hour for the most critical approach (northbound left turn). Based on a peak hour signal warrant analysis, conducted per the *California Manual of Uniform Traffic Control Devices* (CA MUTCD), the existing traffic volumes at Tamarind Avenue/Baseline Road would not satisfy a peak hour signal warrant.

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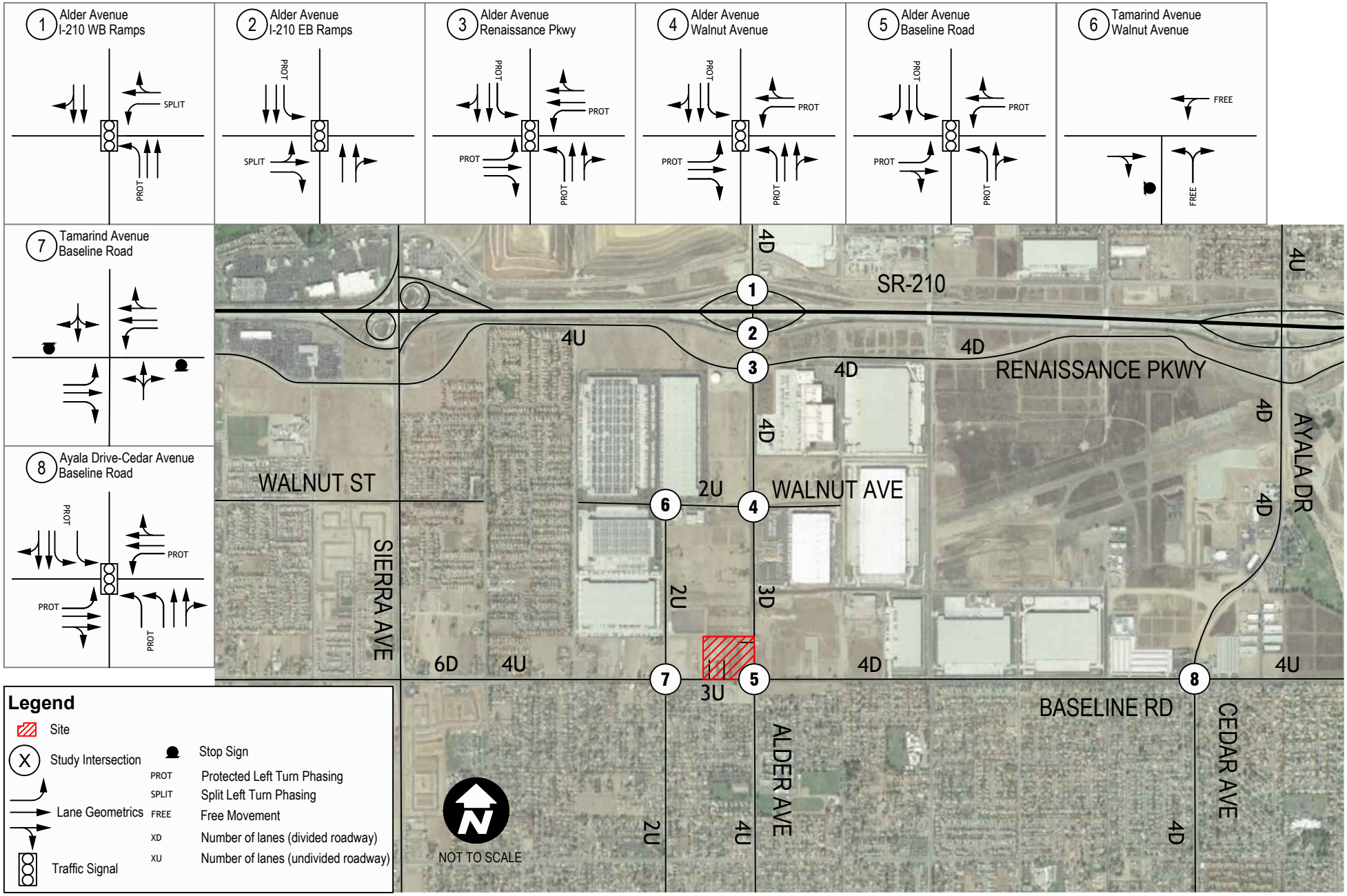

Source: Google Earth, 10/2016

Existing Traffic Controls and Geometrics

FIGURE 4

Baseline Alder Warehouse - Rialto

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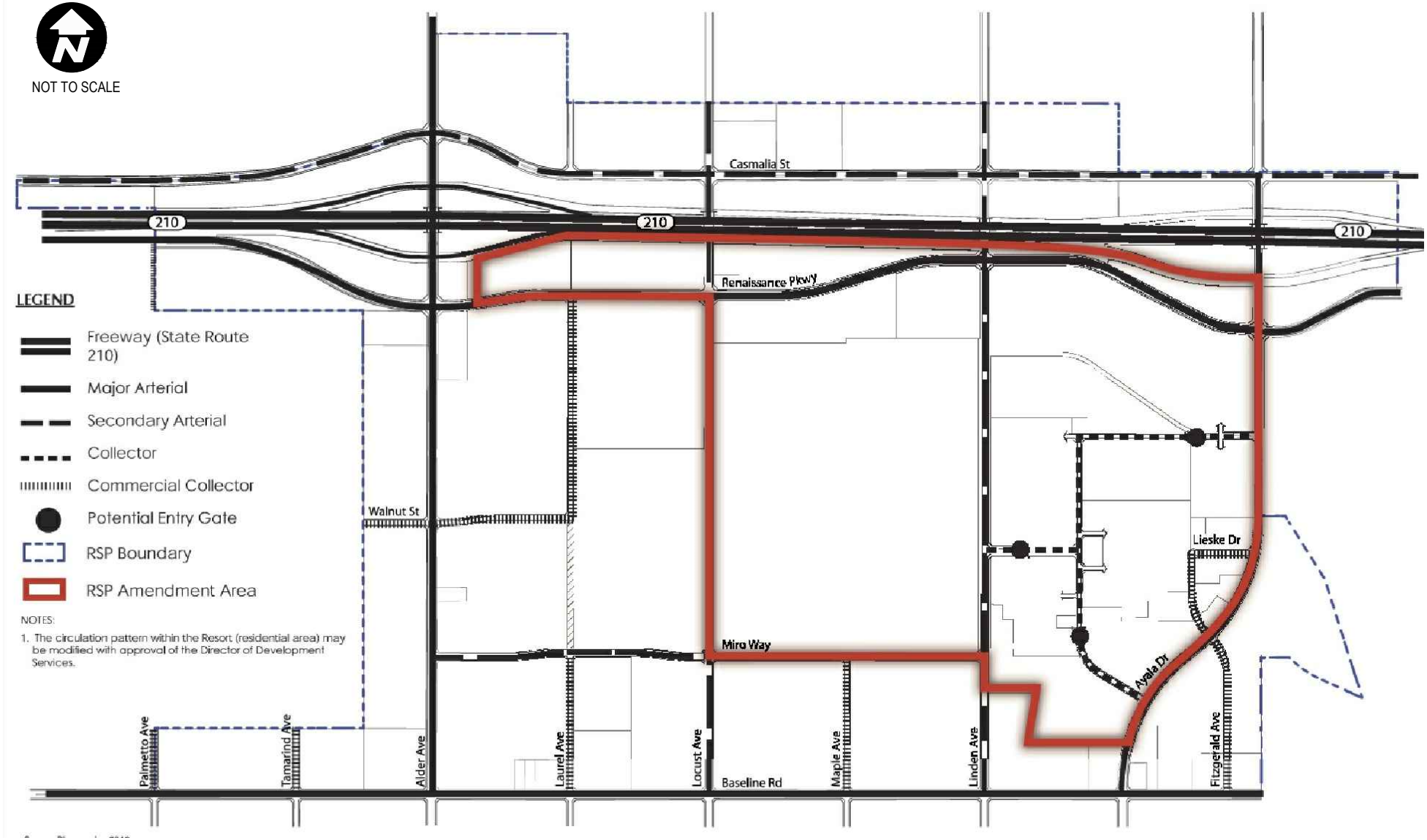

Source: Renaissance Specific Plan Amendement, Figure 3-9, 2016

Renaissance Specific Plan Vehicular Circulation

FIGURE 5

Baseline Alder Warehouse - Rialto

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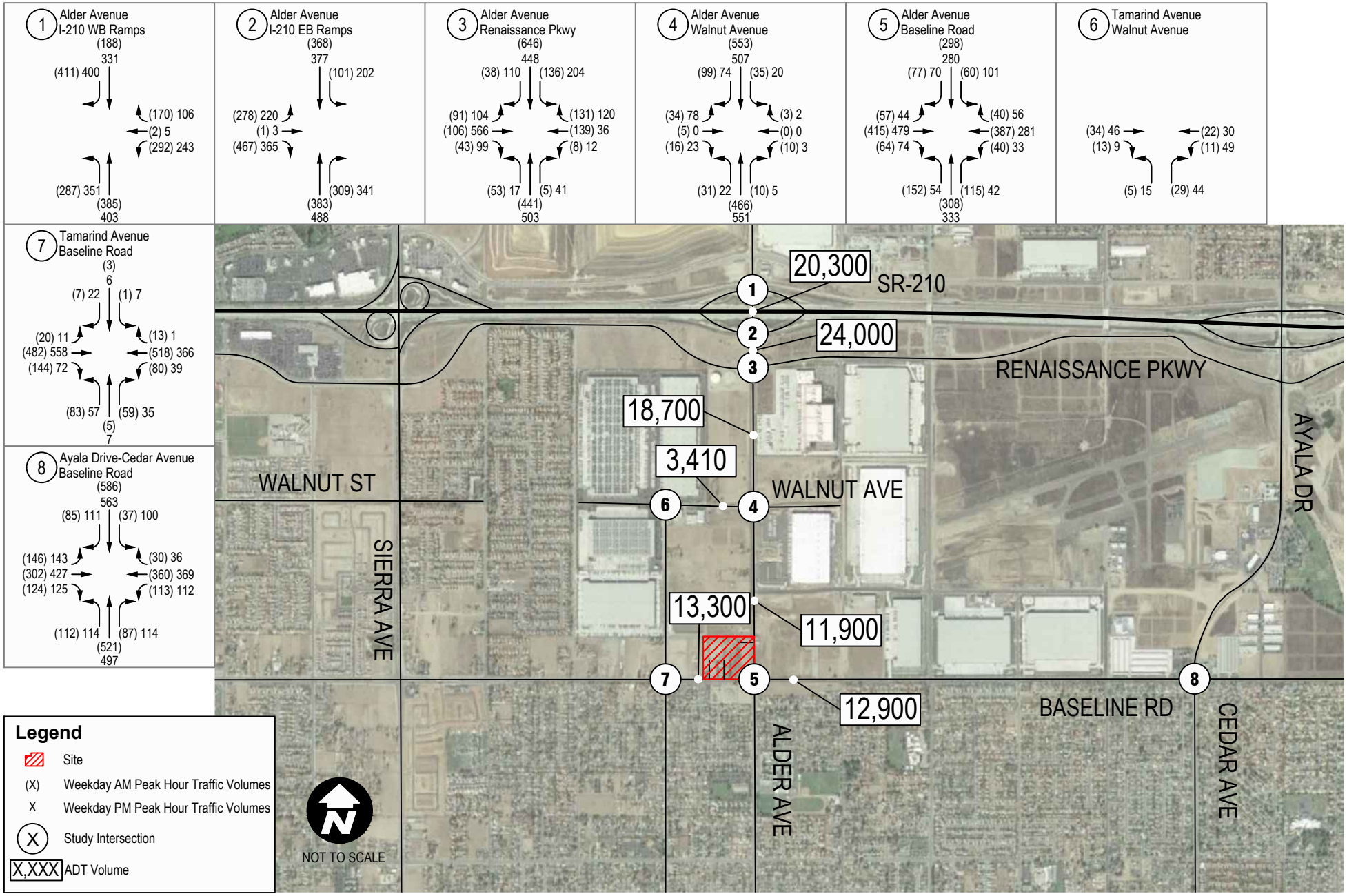

Source: Google Earth, 10/2016

Existing Traffic Volumes

Baseline Alder Warehouse - Rialto

FIGURE 6

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2.3.2 Existing Roadway Segment Conditions

A roadway segment LOS analysis was prepared for the existing conditions using the roadway segment LOS methodologies as discussed in Chapter 1. Table 5 shows the results of the existing conditions LOS analysis for the study area roadway segments.

Table 5
Existing Daily Roadway Segment LOS

Roadway Segment	Classification	No. of Lanes	Capacity	ADT [1]	V/C [2]	LOS [3]
Alder Avenue						
-SR-210 WB ramps to SR -210 EB ramps	Secondary Highway	4	24,600	20,300	0.83	D
-SR-210 EB ramps to Renaissance Pkwy	Secondary Highway	4	24,600	24,000	**0.98**	**E**
-Renaissance Pkwy to Walnut Ave	Major Arterial	4	36,400	18,700	0.51	A/B
-Walnut Ave to Base Line Rd	Major Arterial	3	24,600	11,900	0.48	A/B
Baseline Road						
-Alder Ave to Tamarind Ave	Major Arterial	2	19,800	13,300	0.67	A/B
-Alder Ave to Locust Ave	Major Arterial	3	24,600	12,900	0.52	A/B
Walnut Avenue						
-Alder Ave to Tamarind Ave	Commercial Collector	2	13,800	3,410	0.27	A/B

Source: Dudek 2018
Note: Classification and Capacity is based is on City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements, December 2013, RSP 2010 and RSP Amendment 2016.
1 ADT – Average Daily Traffic
2 V/C– Volume to Capacity Ratio
3 LOS – Level of Service

As shown in the table, with the exception of Alder Avenue, between the SR-210 eastbound ramps and Renaissance Parkway, all of the roadway segments are currently operating at LOS D or better under existing conditions. The roadway segment of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway, currently operates at LOS E under existing conditions.

2.4 Transit System

Omnitrans is the transit provider in the City, and within the RSP area. Currently, two Omnitrans bus routes, Route 10 and Route 22, provide service to the RSP area.

- **Route 10** operates along Baseline Road and provides connections between downtown San Bernardino and the Metrolink station in Fontana. The nearest bus stop to the project site is located on its frontage along Baseline Avenue.
- **Route 22** connects North Rialto to South Rialto and has a transfer point with Route 10 at the intersection of Baseline Road and Riverside Avenue.

2.5 Pedestrian and Bicycle Facilities

In the study area, certain segments of Alder Avenue are currently under construction due to new developments that are widening Alder Avenue to its ultimate width. As these segments of Alder Avenue are widened, pedestrian and bicycle facilities (i.e., sidewalks and bike lanes/routes), will be constructed per City/RSP specifications. On Baseline Avenue, along project frontage, there is no sidewalk or bike lane. Per RSP, bike lane is not proposed along Baseline Avenue. Per the RSP's *Bicycle and Pedestrian Circulation Plan*, on-street public bike lanes (Class II – striped) and sidewalks are proposed along Alder Avenue; and, on-street (Class III – signed) public bike routes and sidewalks are proposed along Walnut Avenue and Tamarind Avenue.

3 PROJECTED FUTURE TRAFFIC

This section documents the trip generation, distribution, and assignment of project traffic. It analyzes projected traffic volumes and identifies traffic impacts associated with the proposed project under Project Completion 2020 and Cumulative 2020 conditions.

3.1 Project Traffic

3.1.1 Trip Generation

Trip generation estimates for the proposed project are based on daily and AM and PM peak hour trip generation rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition* (2012). Trip generation estimates for the project are based on the trip generation rates for ITE Land Use 150, Warehousing.

The methodology to calculate the passenger car and truck vehicle mix for a warehouse land use is provided in the City's TIA guidelines. The vehicle mix rates are based on the South Coast Air Quality Management District's (SCAQMD) recommendations for traffic impact studies for warehousing projects. The guidelines specify a minimum truck rate of 40% of the total project traffic, with 70% of those trucks being 4+axle; 28% being 3-axle; and, 2% being 2-axle. These vehicle classification splits were applied to the daily and peak hour trip generation estimates to develop an estimate of truck volumes by number of axles (2-axle, 3-axle, and 4+axle trucks) that would be associated with the proposed project. Passenger car equivalent (PCE) factors, were then applied to the truck types, based on number of axles (1.5 PCE for 2-axle trucks; 2.0 PCE for 3-axle trucks; and, 3.0 PCE for 4+-axle trucks) to determine the total PCE volumes to be generated by the project. Trip generation rates and resulting trip generation estimates for the project are summarized in Table 6.

As shown in the table, the project would generate 910 daily trips, 77 AM peak hour trips, and 82 PM peak hour trips. With the application of PCE factors to truck trips, the proposed project would generate 1,526 PCE daily trips, and 132 PCE trips during the AM peak hour (104 inbound and 28 outbound), and138 PCE trips during the PM peak hour (34 inbound and 104 outbound).

3.1.2 Trip Distribution and Assignment

Project trips were distributed to the study area intersections and roadway segments using the regional location of the project, logical commute routes for employees, and available truck routes for project-related trucks. A majority of truck traffic will access the study area via SR-210 at its existing interchange with Alder Avenue. It was assumed that 50% of the employee (passenger car) traffic would access the project from north via Alder Avenue, 30% of employee traffic would access the project from south via the Alder Avenue/Baseline Road intersection.

Approximately 10% of employee traffic would access the project from east along Baseline Road, and another 10% from the west, along Baseline Road**.**

Table 6
Project Trip Generation

Land Use		Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Trip Rates									
Warehousing (ITE Land Use 150)		per TSF	3.56	0.24	0.06	0.30	0.08	0.24	0.32
Trip Generation									
Vehicle Mix [2]	**Percent [3]**								
Passenger Vehicles	69.0%		546	37	9	46	12	37	49
2-Axle Trucks	6.8%		7	1	0	1	0	1	1
3-Axle Trucks	5.5%		102	7	2	9	2	7	9
4+-Axle Trucks	18.7%		255	17	5	21	6	17	23
	100.0%	**255.655 TSF**	910	62	16	77	20	62	82
PCE Trip Generation	**PCE Factor**								
Passenger Vehicles	1.0		546	37	9	46	12	37	49
2-Axle Trucks	1.5		11	2	0	2	0	2	2
3-Axle Trucks	2.0		204	14	4	18	4	14	18
4+-Axle Trucks	3.0		765	51	15	66	18	51	69
Trip Generation with PCE			**1,526**	**104**	**28**	**132**	**34**	**104**	**138**

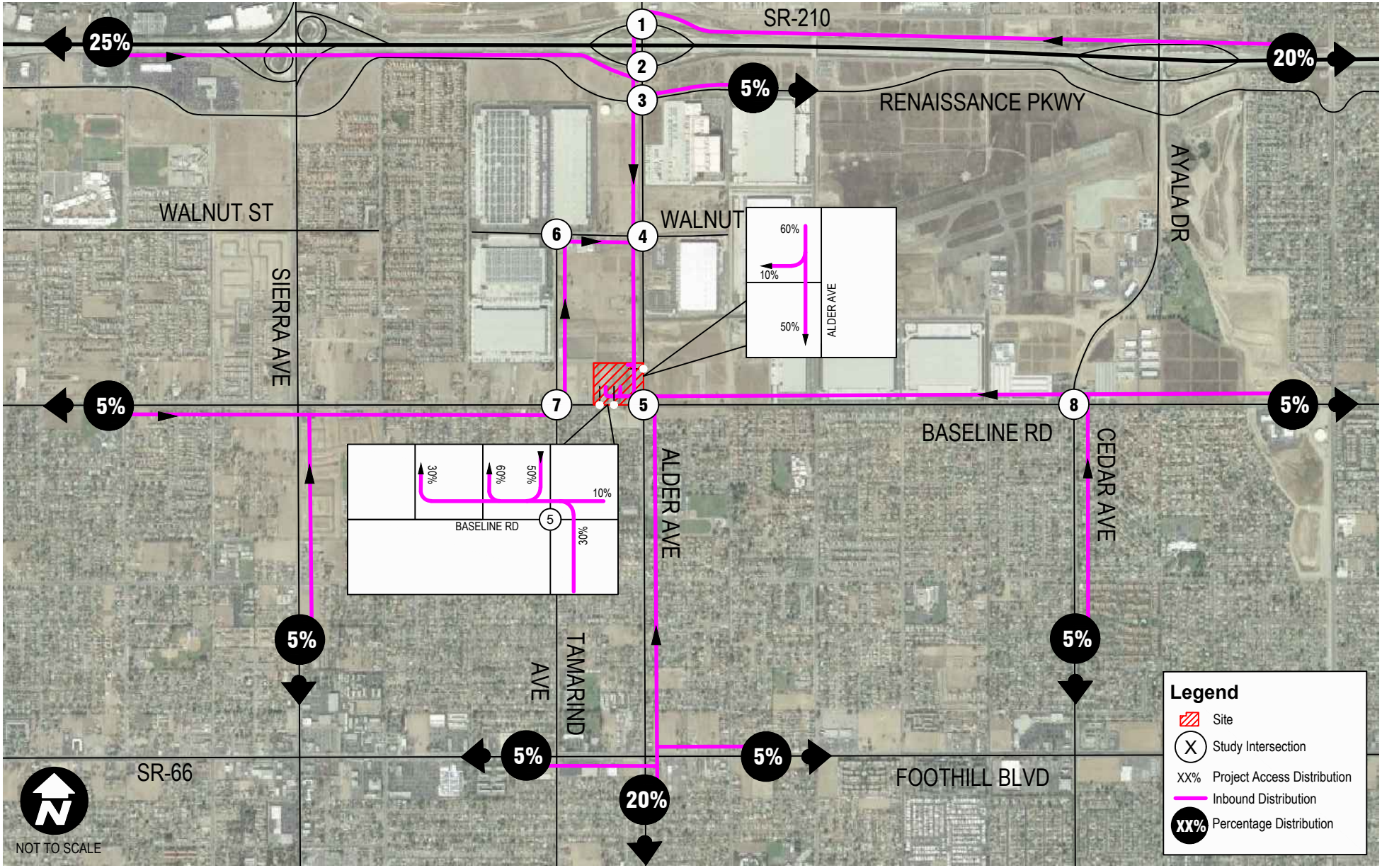
TSF = Thousand Square Feet, PCE = Passenger Car Equivalent

1 Trip rates from the Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012. Land Use Code 150 – Warehousing.

2 Vehicle Mix and Percent from the City of Rialto, Traffic Impact Analysis Report Guidelines and Requirements, December 2013.

3 Passenger Car Equivalent (PCE) factors from County CMP, Appendix B - Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County, 2016

Project trips were assigned to the study area intersections by applying the project trip generation estimates to the trip distribution percentages at each study area intersection and roadway segment. The inbound and outbound project trip distribution for passenger cars is shown in Figure 7, and Figure 8, respectively. Project trip distribution for trucks is shown in Figure 9. The resulting project trip assignments for passenger cars and trucks are shown in Figures 10 and 11, respectively. The total project trip assignment (total volumes) is shown in Figure 12.



Source: Google Maps, 10/2016

Inbound Project Trip Distribution - Passenger Cars

FIGURE 7

Baseline Alder Warehouse - Rialto

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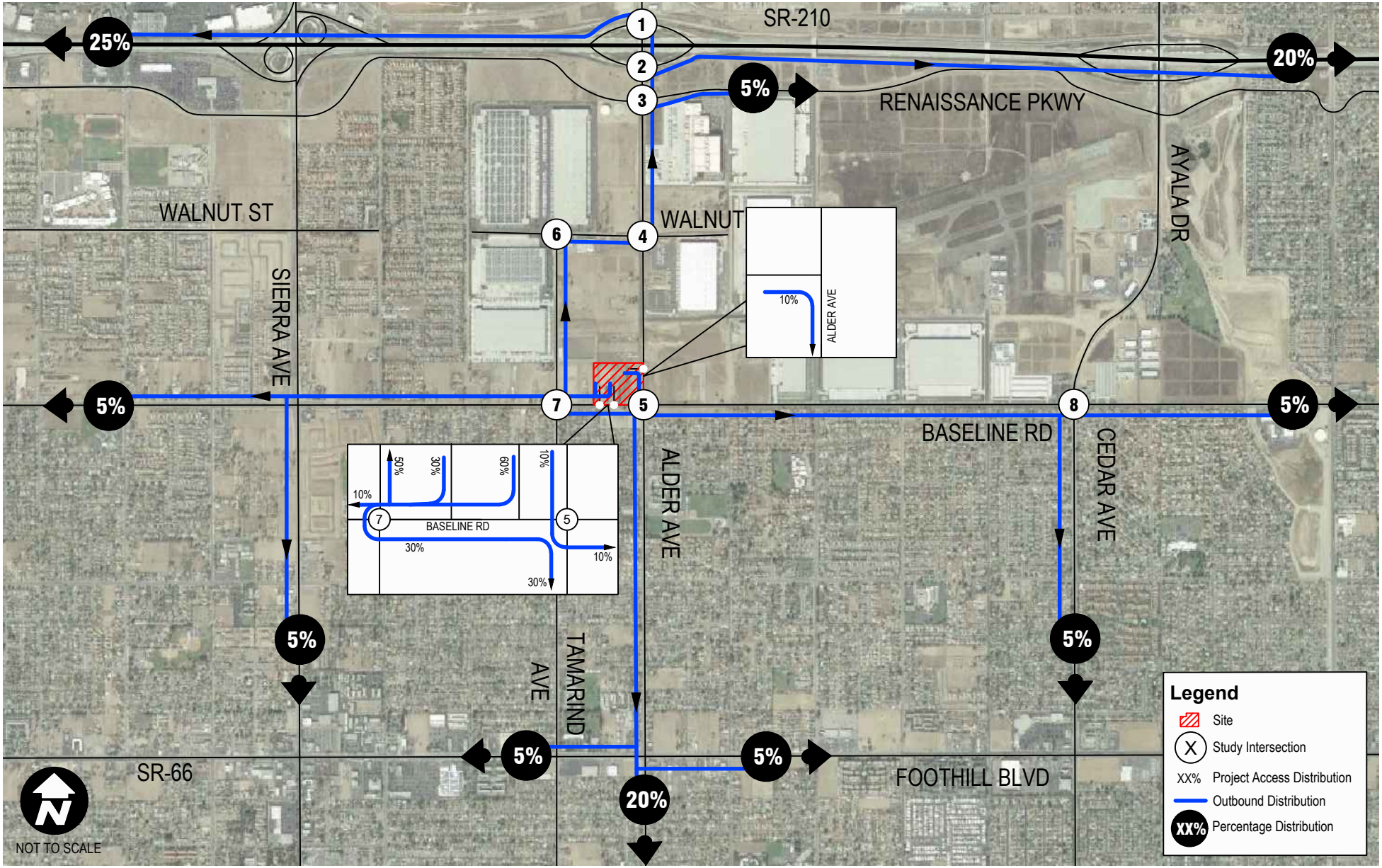

Source: Google Maps, 10/2016

Outbound Project Trip Distribution - Passenger Cars

FIGURE 8

Baseline Alder Warehouse - Rialto

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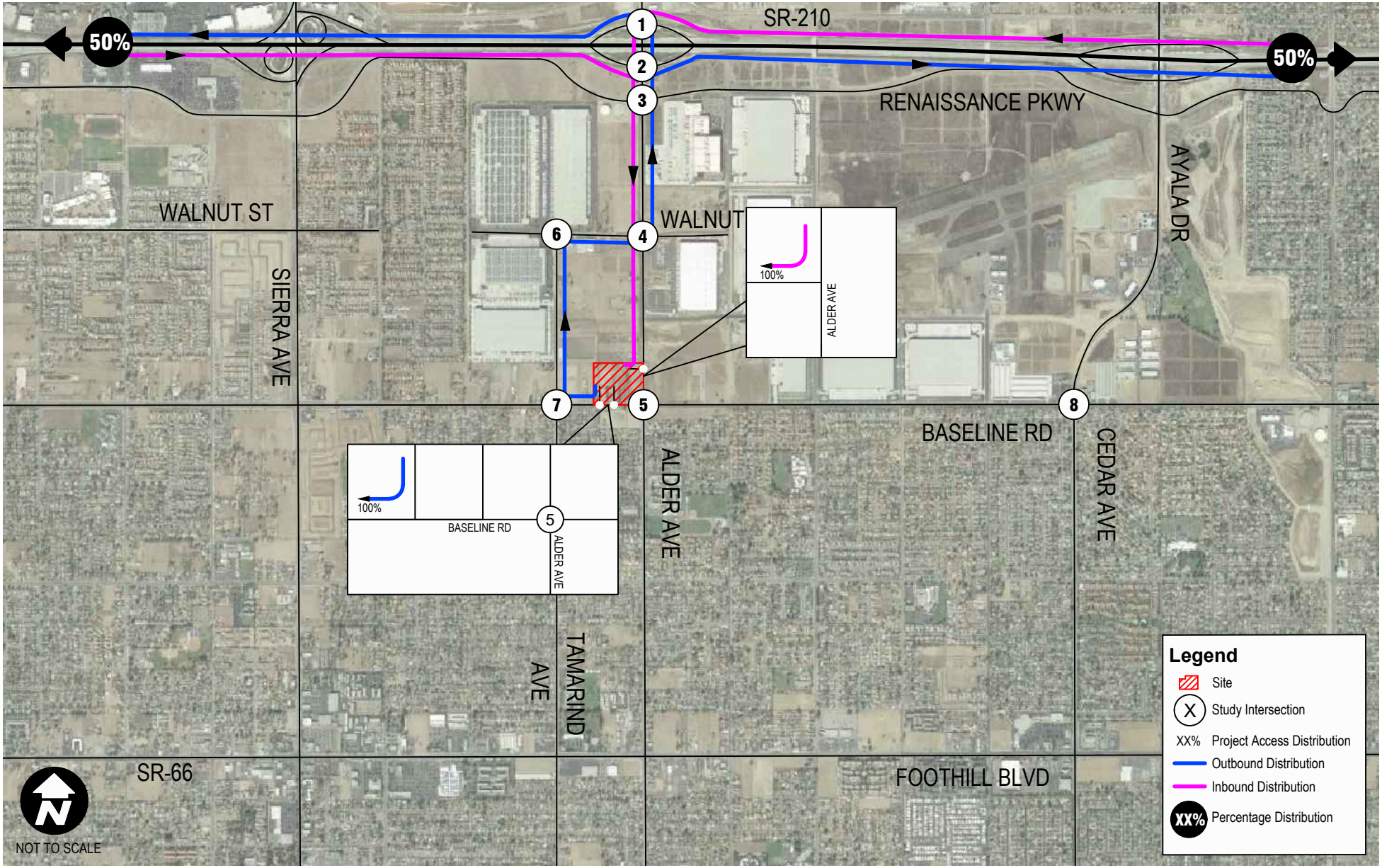

Source: Google Maps, 10/2016

Project Trip Distribution - Trucks

FIGURE 9

Baseline Alder Warehouse - Rialto

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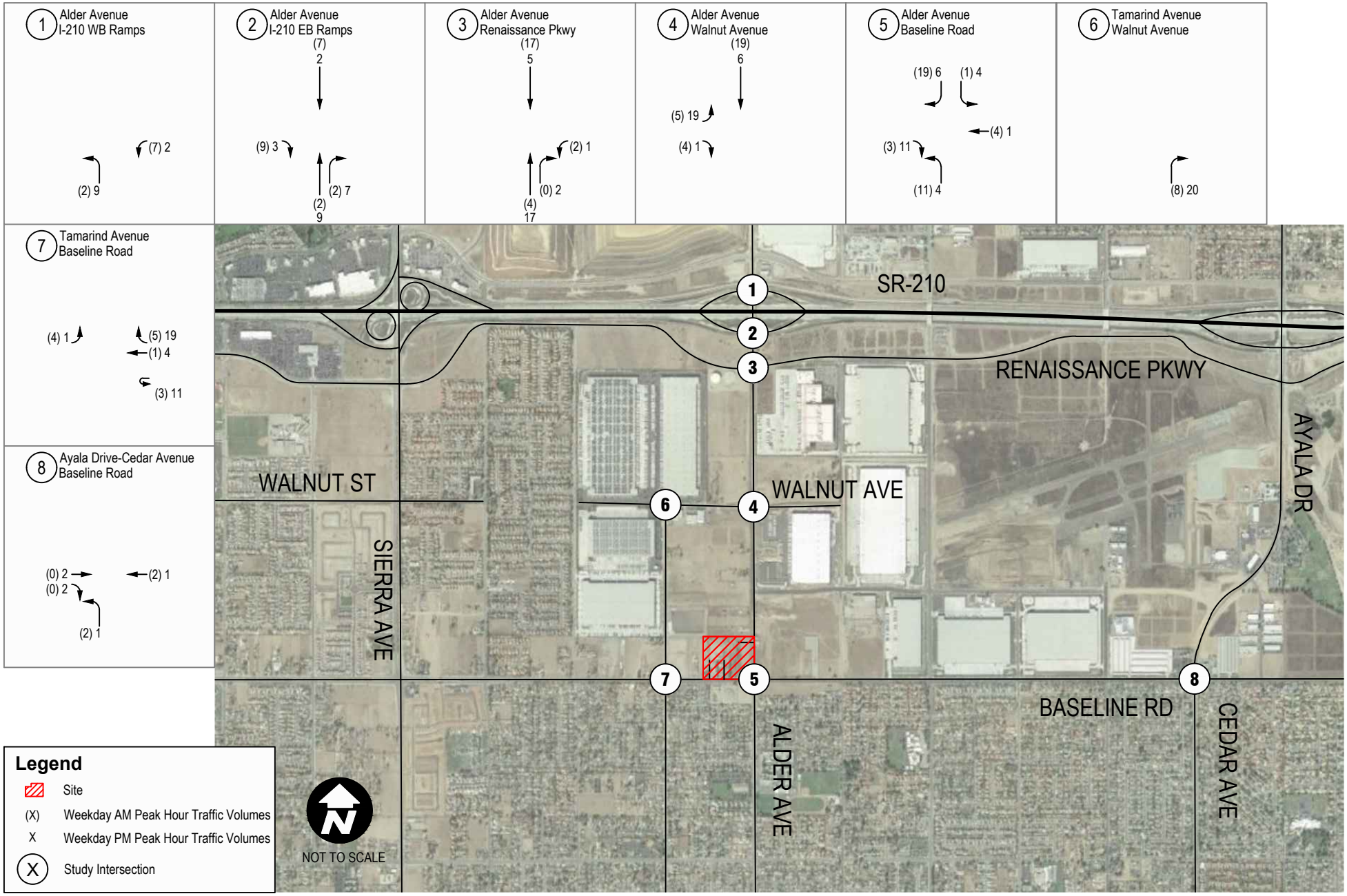

Source: Google Earth, 10/2016

Project Trip Assignment - Passenger Cars

FIGURE 10

Baseline Alder Warehouse - Rialto

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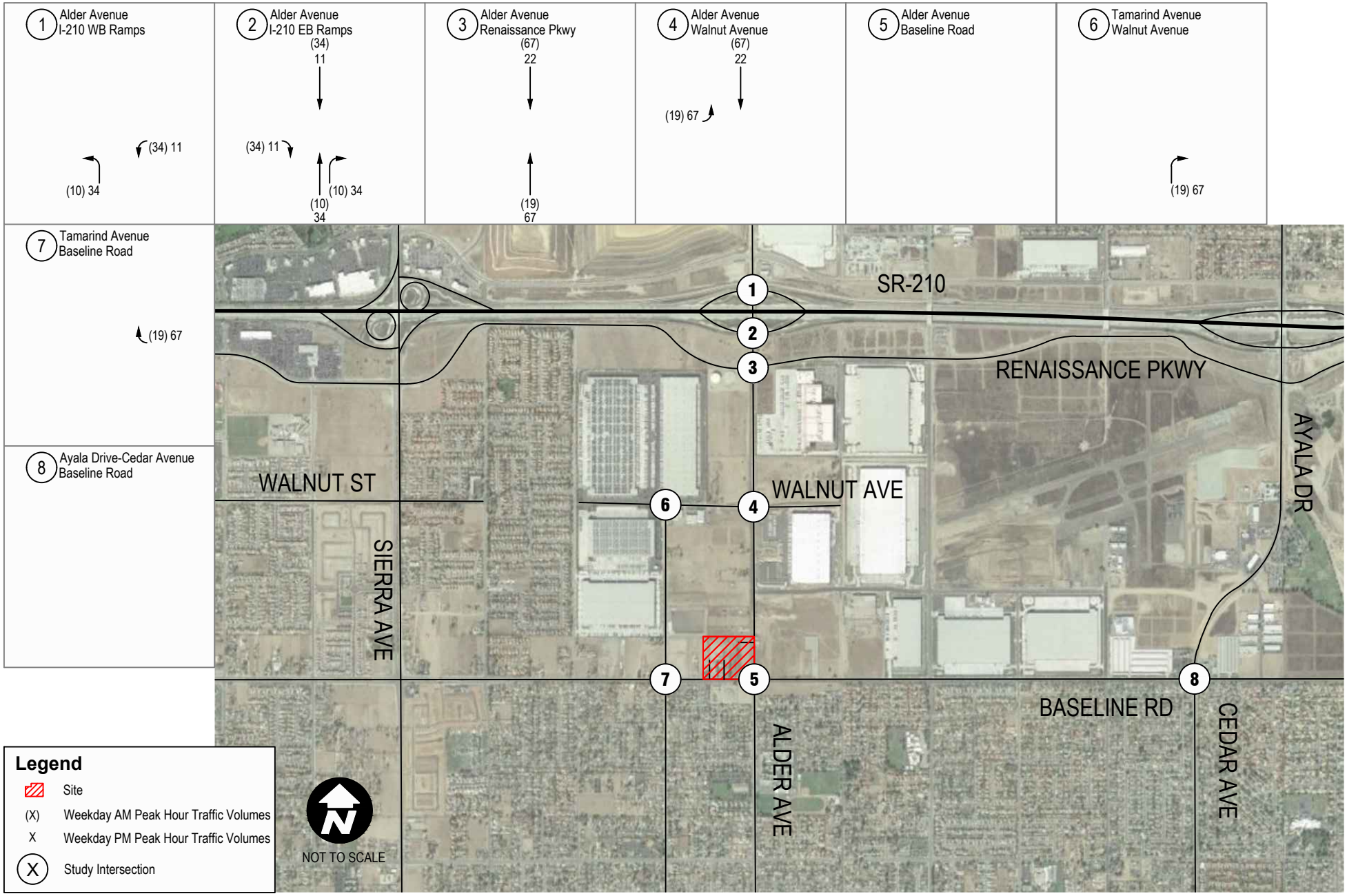

Source: Google Earth, 10/2016

Project Trip Assignment - Trucks (PCE-Adjusted)

Baseline Alder Warehouse - Rialto

FIGURE 11

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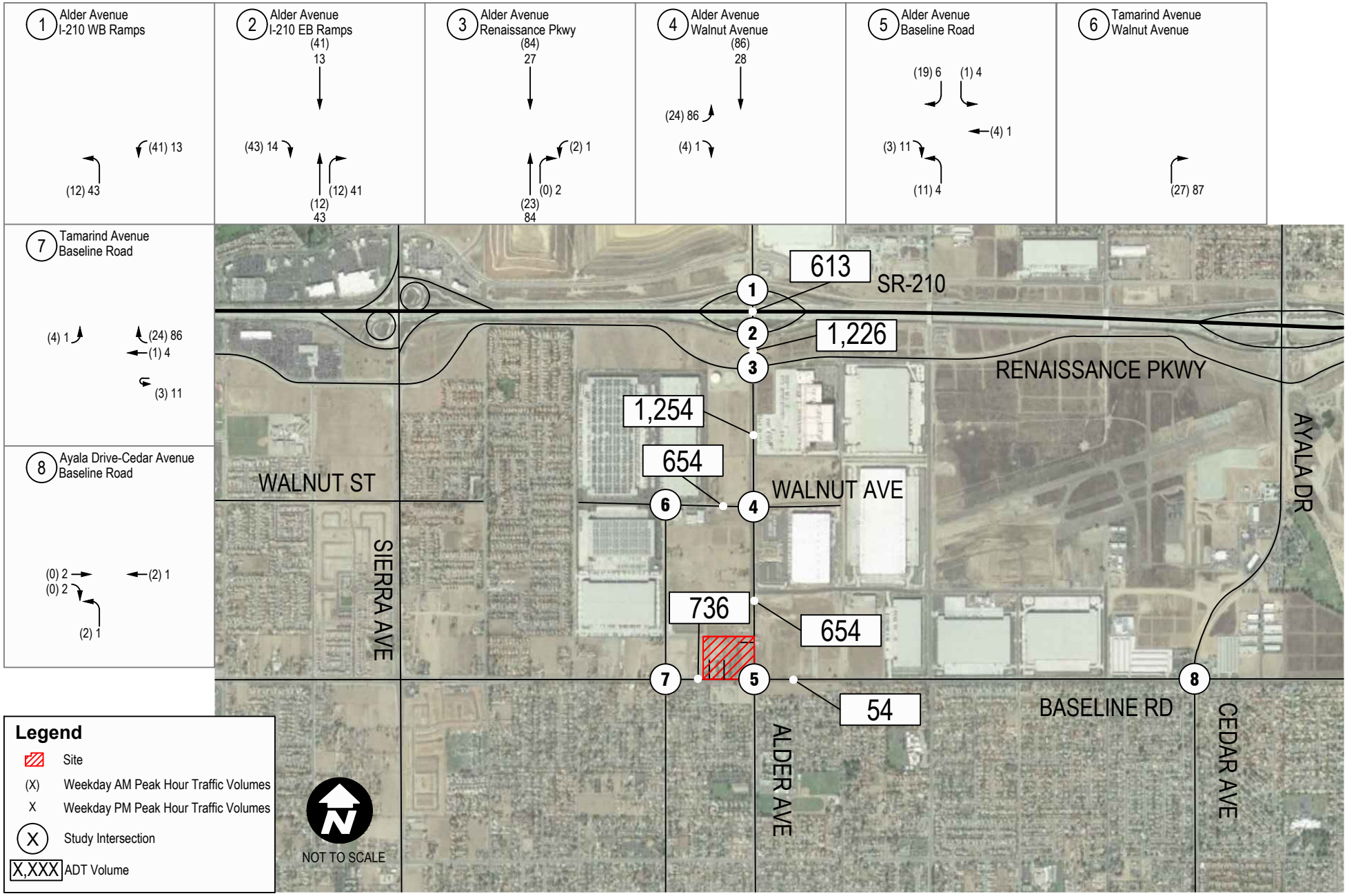

Source: Google Earth, 10/2016

Project Trip Assignment - Passenger Cars and Trucks (PCE-Adjusted)

FIGURE 12

Baseline Alder Warehouse - Rialto

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3.2 Project Completion 2020 Baseline

The project completion year is anticipated to be 2020. The existing roadway segment and intersection configurations (Figure 4) have been assumed under Project Completion 2020 Baseline (no project) conditions.

3.2.1 Traffic Volumes

Project completion year baseline traffic volumes were estimated by increasing the existing 2018 traffic counts by an ambient background growth rate of two percent (2%) per year per the Scoping Agreement with the City, for a period of two years (2018 – 2020). Figure 13 illustrates the Project Completion 2020 Baseline traffic volumes for the daily and peak hour conditions.

3.2.2 Intersection LOS

An intersection operations analysis was prepared for the study area to evaluate the Project Completion 2020 Baseline weekday AM and PM peak hour conditions. Intersection operations were calculated using the HCM 2010 methodology described in Chapter 1. Table 7 shows the results of the Project Completion 2020 Baseline LOS conditions, while the detailed LOS worksheets are included in Appendix C.

Table 7
Project Completion 2020 Baseline Intersection LOS Summary

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]
1	Alder Avenue/SR-210 westbound ramps	signalized	25.7	C	26.2	C
2	Alder Avenue/SR-210 eastbound ramps	signalized	24.6	C	20.6	C
3	Alder Avenue/Renaissance Parkway	signalized	22.7	C	36.1	C
4	Alder Avenue/ Walnut Avenue	signalized	5.5	A	6.1	A
5	Alder Avenue/Baseline Road	signalized	48.6	D	39.1	D
6	Tamarind Avenue/Walnut Avenue	unsignalized	8.7	A	8.8	A
7	Tamarind Avenue/Baseline Road	unsignalized	**177.5**	**F**	31.1	C
8	Ayala Drive-Cedar Avenue/Baseline Road	signalized	28.6	D	29.9	C

Source: Dudek 2018
1 Delay in seconds per vehicle calculated per HCM methodology
2 Level of Service (LOS)

As shown in the table, all of the study area intersections, with the exception of Tamarind Avenue/Baseline Road, are forecast to operate at LOS D or better under the Project Completion 2020 Baseline conditions during both peak hours. The Tamarind Avenue/Baseline Road intersection is forecast to continue to operate at LOS F during the AM peak hour.

Per City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road is forecast to continue to operate at LOS F with average delay of 177.5 seconds during the AM peak hour for the most critical approach (northbound left turn). Based on a CA MUTCD peak hour signal warrant analysis, the Project Completion 2020 Baseline traffic volumes at Tamarind Avenue/Baseline Road would still not satisfy a peak hour signal warrant.

3.2.3 Roadway Segment LOS

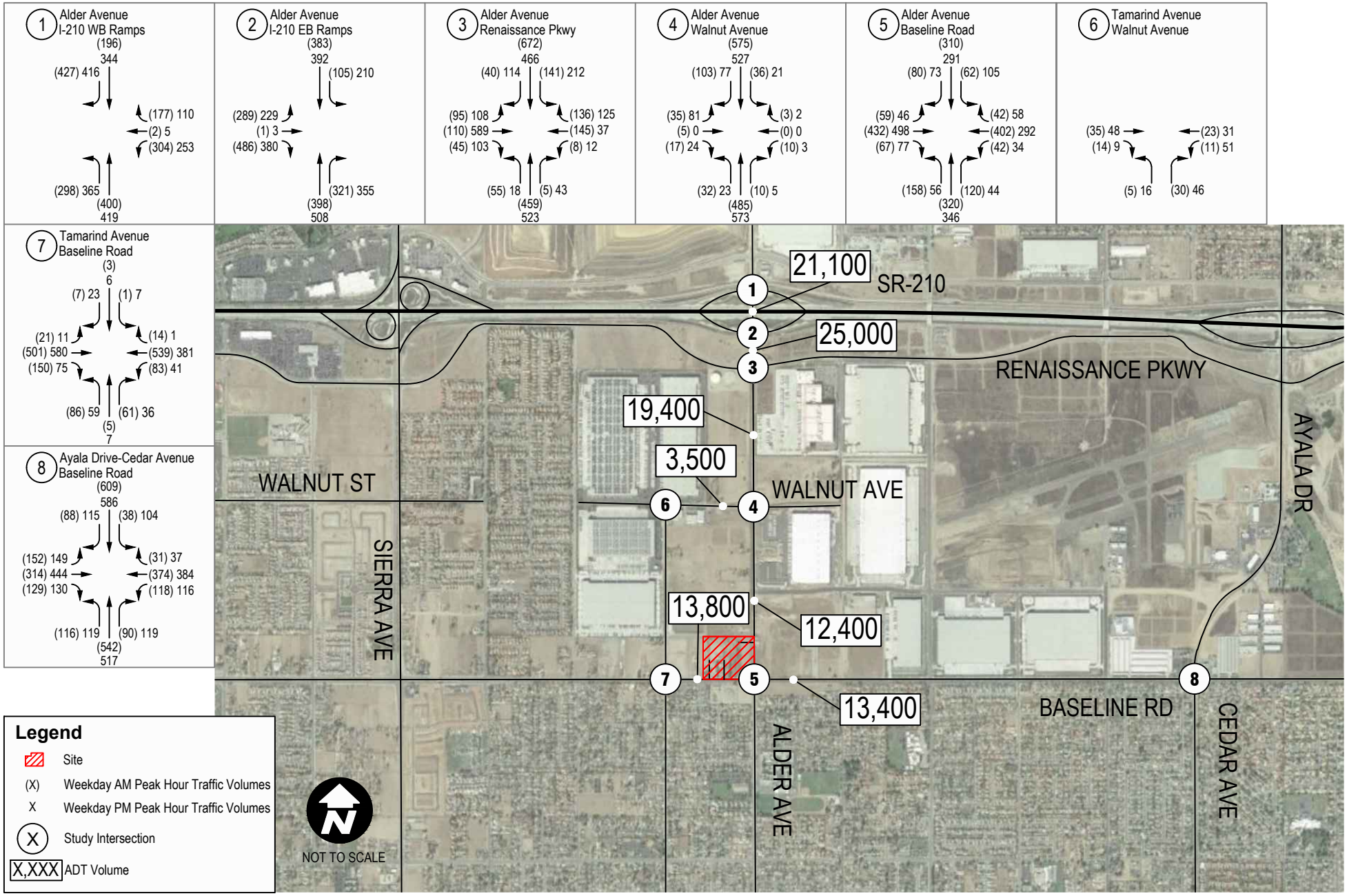
A roadway segment LOS analysis was prepared for the Project Completion 2020 Baseline conditions using the roadway segment LOS methodology discussed in Chapter 1. Table 8 shows the results of the Project Completion 2020 Baseline LOS conditions for the study roadway segments.

Table 8
Project Completion 2020 Baseline Roadway Segment LOS Summary

Roadway Segment	Classification	No. of Lanes	Capacity	ADT [1]	V/C [2]	LOS [3]
Alder Avenue						
- SR-210 WB ramps to SR-210 EB ramps	Secondary Hwy	4	24,600	21,100	0.86	D
- SR-210 EB ramps to Renaissance Pkwy	Secondary Hwy	4	24,600	25,000	**1.02**	**F**
- Renaissance Pkwy to Walnut Ave	Major Arterial	4	36,400	19,400	0.53	A/B
- Walnut Ave to Base Line Rd	Major Arterial	3	24,600	12,400	0.50	A/B
Baseline Road						
-Alder Ave to Tamarind Ave	Major Arterial	2	19,800	13,800	0.70	A/B
-Alder Ave to Locust Ave	Major Arterial	3	24,600	13,400	0.54	A/B
Walnut Avenue						
- Alder Ave to Tamarind Ave	Commercial Collector	2	13,800	3,500	0.25	A/B

Source: Dudek 2018
Note: Classification and Capacity is based is on City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements, December 2013, RSP 2010 and RSP Amendment 2016.
1 ADT – Average Daily Traffic
2 V/C– Volume to Capacity Ratio
3 LOS – Level of Service

As shown in the table, with the exception of Alder Avenue, between the SR-210 eastbound ramps and Renaissance Parkway, all of the roadway segments are forecast to operate at LOS D or better. The roadway segment of Alder Avenue, between the SR-210 eastbound ramps and Renaissance Parkway, is forecast to operate at LOS F from LOS E in the existing condition.



Source: Google Earth, 10/2016

Project Completion 2020 Baseline Traffic Volumes

FIGURE 13

Baseline Alder Warehouse - Rialto

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3.3 Project Completion 2020 plus Project

The Project Completion 2020 plus Project condition includes analysis of traffic operations under Project Completion Baseline conditions with project related traffic added to the AM and PM peak hour traffic volumes, and roadway segment daily traffic volumes. The traffic impacts specific to the project under this condition are the basis for determining the project's specific impacts, mitigation measures, and conditions of approval.

3.3.1 Traffic Volumes

Traffic generated by the proposed project was added to the Project Completion 2020 Baseline traffic volumes resulting in the Project Completion 2020 plus Project traffic volumes for the daily and peak hour conditions. The project trip assignment (in PCE) shown in Figure 12 for project traffic, was added to the Project Completion 2020 Baseline traffic volumes shown in Figure 13 to derive the Project Completion 2020 plus Project traffic volumes. Figure 14 illustrates the Project Completion 2020 plus Project traffic volumes.

3.3.2 Intersection LOS

An intersection operations analysis was prepared for the study area to evaluate the Project Completion 2020 plus Project weekday AM and PM peak hour conditions. Intersection operations were calculated using the HCM 2010 methodology described in Chapter 1. Table 9 shows the results of the project conditions LOS analysis and detailed LOS worksheets are included in Appendix C.

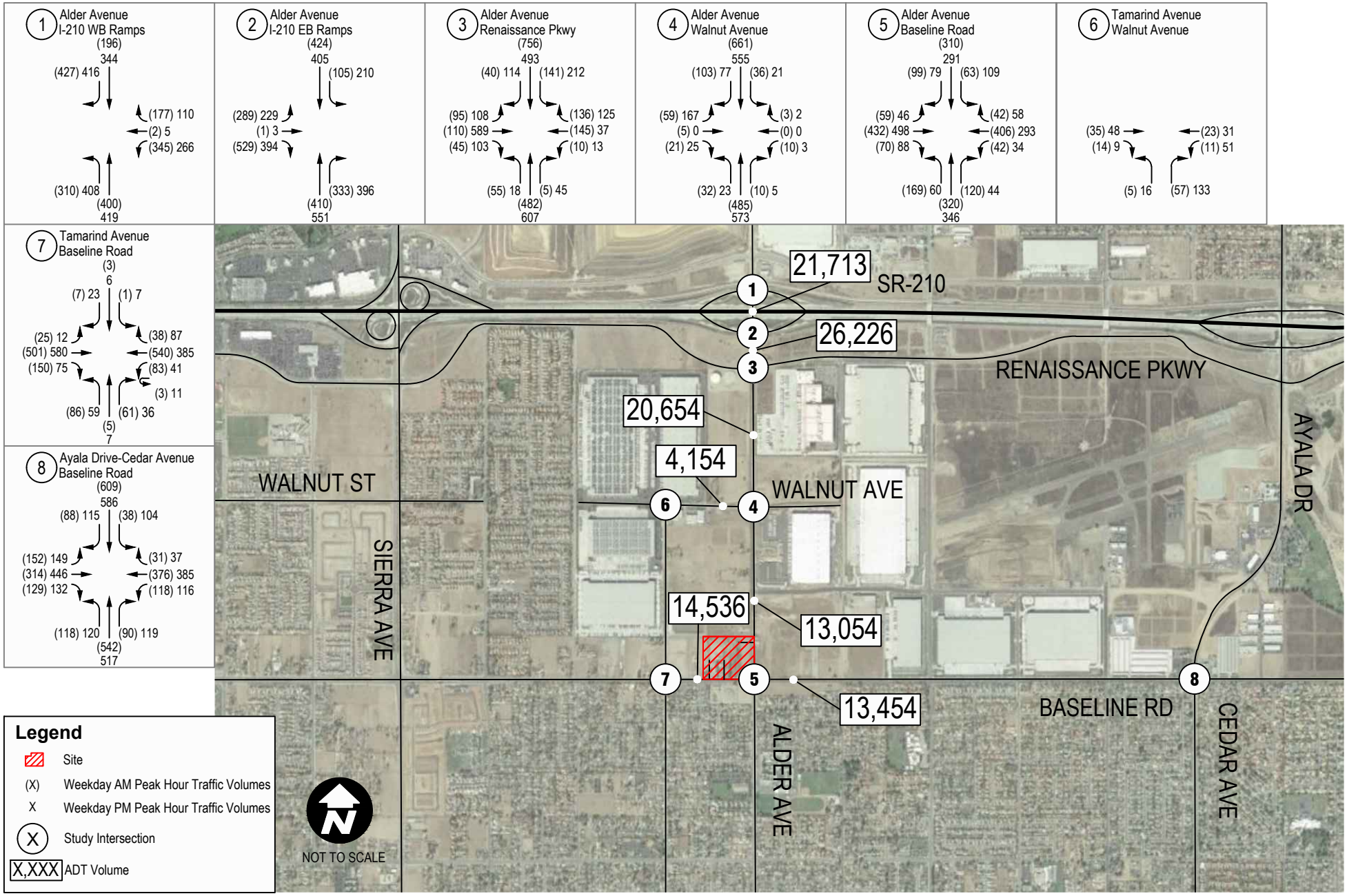
As shown in the table, all of the study area intersections, with the exception of Tamarind Avenue/Baseline Road, are forecast to continue to operate at LOS D under Project Completion 2020 plus Project conditions, during both peak hours. The Tamarind Avenue/Baseline Road intersection is forecast to continue to operate at LOS F during the AM peak hour (and LOS D during the PM peak hour) with addition of project traffic.

Per City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road is forecast to continue to operate at LOS F with average delay of 192.5 seconds during the AM peak hour for the most critical approach (northbound left turn) with addition of project traffic. Based on a CA MUTCD peak hour signal warrant analysis, the Project Completion 2020 plus Project traffic volumes at Tamarind Avenue/Baseline Road would still not satisfy a peak hour signal warrant.

Table 9
Project Completion 2020 plus Project Intersection LOS Summary

No.	Intersection	Traffic Control	Project Completion 2020 Baseline				Project Completion 2020 + Project				Change in Delay (in sec)		Potentially Significant Impact	
			AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*					
			Delay [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]	*AM*	*PM*	*AM*	*PM*
1	Alder Ave/SR-210 WB ramps	signalized	25.7	C	26.2	C	28.2	C	29.0	C	2.5	2.8	No	No
2	Alder Ave/SR-210 EB ramps	signalized	24.6	C	20.6	C	26.5	C	21.0	C	1.9	0.4	No	No
3	Alder Ave/Renaissance Pkwy	signalized	22.7	C	36.1	C	22.0	C	37.4	D	-0.7	1.3	No	No
4	Alder Ave/ Walnut Ave	signalized	5.5	A	6.1	A	6.2	A	8.2	A	0.7	2.1	No	No
5	Alder Ave/Baseline Rd	signalized	48.6	D	39.1	D	50.1	D	40.0	D	1.5	0.9	No	No
6	Tamarind Ave/Walnut Ave	unsignalized	8.7	A	8.8	A	8.7	A	8.8	A	0.0	0.0	No	No
7	Tamarind Ave/Baseline Rd	unsignalized	**177.5**	**F**	31.1	C	**192.5**	**F**	34.2	C	15.0	3.1	**Yes**	No
8	Ayala Dr-Cedar Ave/Baseline Rd	signalized	28.6	C	29.9	C	28.7	C	29.9	C	0.1	0.0	No	No

HCM = Highway Capacity Manual
1 Delay in seconds per vehicle
2 Level of Service (LOS)



Source: Google Earth, 10/2016

Project Completion 2020 plus Project Traffic Volumes

FIGURE 14

Baseline Alder Warehouse - Rialto

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However, per the City's significance criteria, the project would create a potentially significant impact at Tamarind Avenue/Baseline Road since the delay increase of 15.0 seconds from the baseline condition of LOS F is one second or greater. Therefore, the proposed project would be required to mitigate this intersection.

3.3.3 Roadway Segment LOS

A roadway segment LOS analysis was prepared for the Project Completion 2020 plus Project conditions using the roadway segment LOS methodologies as discussed in Chapter 1. Table 10 shows the results of the Project Completion 2020 plus Project conditions LOS analysis for the study roadway segments.

As shown in the table, with the exception of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway, all of the roadway segments are forecast to continue to operate at LOS D or better under Project Completion 2020 plus Project conditions. The roadway segment of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway, is forecast to continue to operate at LOS F under the Project Completion 2020 plus Project conditions.

Per the City's LOS standards for roadway segments, if a roadway segment exceeds 1,500 feet, and the volume-to-capacity (V/C) ratio exceeds 1.0, the segment must be mitigated. The project would not be required to mitigate this roadway segment; however, it would be required to pay its fair share towards improvements required for this segment to operate at an acceptable LOS.

Table 10
Project Completion 2020 plus Project Roadway Segment LOS Summary

Roadway Segment	Classification	No. of Lanes	Capacity	Project Completion 2020 Baseline			Project Completion 2020 + Project				Potentially Significant Impact
				ADT [1]	*V/C* [2]	*LOS* [3]	*Proj. Traffic*	*ADT* [1]	*V/C* [2]	*LOS* [3]	
Alder Avenue											
- SR-210 WB ramps to SR-210 EB ramps	Secondary Hwy	4	24,600	21,100	0.86	D	613	21,713	0.88	D	No
- SR-210 EB ramps to Renaissance Pkwy	Secondary Hwy	4	24,600	25,000	**1.02**	**F**	1,226	**26,226**	**1.07**	**F**	**Yes**
- Renaissance Pkwy to Walnut Ave	Major Arterial	4	36,400	19,400	0.53	A/B	1,254	20,654	0.57	A/B	No
- Walnut Ave to Baseline Rd	Major Arterial	3	24,600	12,400	0.50	A/B	654	13,054	0.53	A/B	No
Baseline Road											
-Alder Ave to Tamarind Ave	Major Arterial	2	19,800	13,800	0.70	A/B	736	14,536	0.73	C	No
-Alder Ave to Locust Ave	Major Arterial	3	24,600	13,400	0.54	A/B	54	13,454	0.55	A/B	No
Walnut Avenue											
- Alder Ave to Tamarind Ave	Commercial Collector	2	13,800	3,500	0.25	A/B	654	4,154	0.30	A/B	No

Source: Dudek 2018

Note: Classification and Capacity is based is on City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements, December 2013, RSP 2010 and RSP Amendment 2016.

1 ADT – Average Daily Traffic
2 V/C– Volume to Capacity Ratio
3 LOS – Level of Service

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3.4 Cumulative 2020 Baseline Conditions

Cumulative 2020 Baseline (no project) conditions includes traffic generated by other approved and pending projects in the study area, in addition to ambient growth. This traffic includes projects that are proposed and in the review process, but not yet fully approved; or, projects that have been approved, but not fully constructed or occupied. Cumulative projects that would add traffic to the study area intersections and roadway segments are generally within one mile of the study area, and are included in the analysis for cumulative conditions. These projects have been provided by the City Traffic Engineer. Since Project Completion and Cumulative conditions are anticipated to be in the same year (i.e., 2020), roadway segment and intersection geometric configurations were assumed the same as the Existing condition (Figure 4).

3.4.1 Cumulative Projects

A list of cumulative projects was obtained from City's Public Works Department, and from the neighboring City of Fontana Community Development Department. Based on review of that data, approximately 33 cumulative projects were identified that would potentially add traffic in the study area under Cumulative conditions. Figure 15 shows the locations of the cumulative projects.

3.4.1.1 Cumulative Projects Trip Generation

As directed by the City, project trip generation estimates for the cumulative projects were taken from traffic studies to their extent possible, prepared for recent development projects in the City. Table 11 provides the summary of trip generation estimates for the cumulative projects. As shown in the table, the cumulative projects are forecast to generate approximately 119,104 daily trips, 8,463 AM peak hour trips, and 10,816 PM peak hour trips.

3.4.1.2 Cumulative Project Trip Distribution and Assignment

Trip distributions and assignments for the cumulative projects were also taken from traffic studies to their extent possible, prepared for recent development projects, or assuming logical commute corridors and/or exiting truck routes when that information was not available. The trips generated by the cumulative projects were distributed through the study area network, primarily along Alder Avenue, Walnut Avenue and Baseline Road, and then added to the Project Completion 2020 Baseline traffic volumes. Worksheets (in Traffix format) showing the cumulative projects distributions and assignments are provided in Appendix D. Figure 16 illustrates the Cumulative Projects trip assignment for the daily and peak hour conditions.

Table 11
Cumulative Projects Trip Generation Summary

No.	Land Use	Quantity	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
City of Rialto										
1	Golden Springs	630	TSF	3761	249	67	316	84	254	337
2	SR-210 Logistics III	742.514	TSF	4430	295	79	374	99	299	398
3	Caprock II - Locust/Bohnert	609	TSF	2782	189	49	238	64	190	254
4	Stater Bros									
	Hotel	100	RMS	817	31	22	53	31	29	60
	High-Turnover (Sit-Down) Restaurant	2000	TSF	254	12	11	23	13	9	22
	Pass-by Fast -Food Restaurant			-57	0	0	0	-2	-2	-4
	Fast-Food Restaurant w/D.T.	1000	TSF	716	26	18	44	13	13	26
	Pass-by Fast -Food Restaurant			-161	-6	-4	-10	-3	-3	-6
	Fast-Food Restaurant w/o D.T.	5440	TSF	2699	126	121	247	92	85	177
	Pass-by Fast -Food Restaurant			-638	-31	-30	-61	-20	-20	-40
	Gas Station w/ Conv Mkt & Car Wash	16	VFP	2445	97	93	190	113	109	222
	Pass-by Gasoline/Service Station			-572	-21	-21	-42	-26	-26	-52
	Site Internal Capture (10%)			-693	-29	-27	-56	-26	-25	-51
5	Shaw Development Warehouse	175.9	TSF	1050	70	16	88	23	70	93
6	Lytle Creek SP (10% of capacity)									
	Single-Family Detached Housing	504	DU	4823	95	284	379	321	188	509
	Condominium	336	DU	1952	25	123	148	117	58	175
7	Emmar Enterprise Homes	20	DU	191	4	11	15	13	7	20
8	B+B Plastics	150.27	TSF	963	64	17	81	22	64	86
9	Pupan Pipe Manufacturing	39	TSF	149	22	6	28	10	18	28
10	Rialto Walmart									
	Free Standing Discount Superstore	197.639	TSF	10501	185	145	330	446	465	911
	Shopping Center	13.712	TSF	589	8	5	13	25	26	51
	High-Turnover (Sit-Down) Restaurant	12.856	TSF	1635	77	71	148	85	59	144

Table 11
Cumulative Projects Trip Generation Summary

No.	Land Use	Quantity	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
	Gasoline/Service Station	16	VFP	2697	99	95	194	111	111	222
	Pass-by Gasoline/Service Station			-1019	-52	-50	-102	-42	-42	-84
	Fast-Food Restaurant w/D.T.	5.948	TSF	2951	138	132	270	101	93	194
	Pass-by Fast-Food Restaurant			-1328	-66	-63	-129	-48	-44	-92
	Site Internal Capture (10%)			-1837	-51	-45	-96	-77	-75	-152
11	Prologis (Locust at Stonehurst)	473.000	TSF	2824	187	50	237	64	191	255
12	Prologis (Tamarind at Walnut)	384.000	TSF	2292	152	39	191	52	154	206
13	Renaissance Market Place									
	North Side Area	65.756	TSF	4441	89	70	159	115	203	318
	South Side Area	523.567	TSF	13340	213	96	309	547	617	1164
14	I-210 Logistics IV	412.56	TSF	2462	105	28	133	35	106	141
15	SR-210 Logistics V	203.639	TSF	1197	79	22	101	27	81	108
16	Monster Energy	1094.9	TSF	6533	434	115	549	148	411	589
17	PA 108 Building 5	614.848	TSF	6353	571	73	644	458	584	1042
18	PA 108 Building 6	855	TSF	9841	168	946	1114	949	58	1007
19	Renaissance East									
	Hotel	108	RMS	882	34	23	57	33	32	65
	Hotel Internal Capture (8%)			-71	-3	-2	-5	-3	-3	-6
	Specialty Retail Center	9.1	TSF	403	-	-	-	11	14	25
	Passby Specialty Retail Center (10%)			40	0	0	0	1	1	2
	High-Turnover (Sit-Down) Restaurant	9.17	TSF	1166	55	51	106	60	42	102
	Fast-Food Restaurant w/D.T.	7.62	TSF	3780	177	170	347	129	119	248
	Pass-by Fast-Food Restaurant (10%)			-378	-18	-17	-35	-13	-12	25
20	PA 108 Building 4-B	411.33	TSF	2454	162	44	206	55	165	220

Table 11
Cumulative Projects Trip Generation Summary

No.	Land Use	Quantity	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
21	Ayres Hotel (SWC of Linden and Renaissance)	135	RMS	1204	52	38	90	47	48	95
22	Alder Distribution Facility (Alder/Miro)	123	TSF	736	48	12	60	17	48	65
23	Locust/Vineyard Warehouse	120.6	TSF	719	47	12	59	17	47	64
24	Renaissance Palmetto Warehouse	340.715	TSF	2033	138	35	173	47	138	185
25	Warehouse (Tamarind at Baseline)	155	TSF	926	60	16	76	18	66	84
26	Building 7,8& 9 (Kimley Horn Project)	540.427	TSF	3224	216	57	273	73	218	291
27	Gasoline Service Station	8	VFS	1377	42	41	83	56	57	113
28	Gas Station (D& A Project)			3331	152	152	304	118	118	236
29	Casamalia Street Warehouses (Between Linden and Cedar)	138.9	TSF	827	71	73	144	71	73	144
30	Walnut/Alder Warehouse	**188.712**	TSF	1125	73	18	91	25	78	103
City of Fontana										
31	Highland Village (17040 South Highland Avenue)									
	Shopping Center	55.05	TSF	2351	33	20	53	98	106	204
	Pass by			-799	0	0	0	-33	-36	-69
	Specialty Retail	6.9	TSF	306	6	4	10	8	10	18
	Fast-Food Restaurant W/Drive-Thru	5.833	TSF	2894	135	130	265	90	91	190
	Pass by			-1433	-66	-64	-130	-50	-46	-96
	Car Wash	22	stalls	2376				62	60	122
	Tire Center	5.8		144	11	6	17	10	14	24
32	3,233 sq ft drive through fast food restaurant (16988 S Highland Ave)	3.233	TSF	1604	75	72	147	55	51	106
	Pass by			-786	-37	-35	-72	-27	-25	-52

Table 11
Cumulative Projects Trip Generation Summary

No.	Land Use	Quantity	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
33	30 Single Family Homes (17064 Baseline Ave)	30	DU	286	6	17	23	19	11	30
	Total Trip Generation			119,104	5,024	3,437	8,463	4,928	5,800	10,816

Notes:
TSF = '000 square feet, RMS = Rooms, VFP = Vehicle Fueling Pumps, DU = Dwelling Unit

3.4.2 Traffic Volumes

Cumulative 2020 Baseline traffic volumes were forecast by adding the cumulative projects' traffic volumes (Figure 15) to Project Completion 2020 Baseline traffic volumes (Figure 12). Figure 17 illustrates the Cumulative 2020 Baseline traffic volumes for the daily and peak hour conditions.

3.4.3 Intersection LOS

An intersection operations analysis was conducted for the study area to evaluate the Cumulative 2020 Baseline weekday AM and PM peak hour conditions. Intersection operations were calculated using the HCM 2010 methodology described in Chapter 1. Table 12 shows the LOS results while detailed LOS worksheets are included in Appendix C.

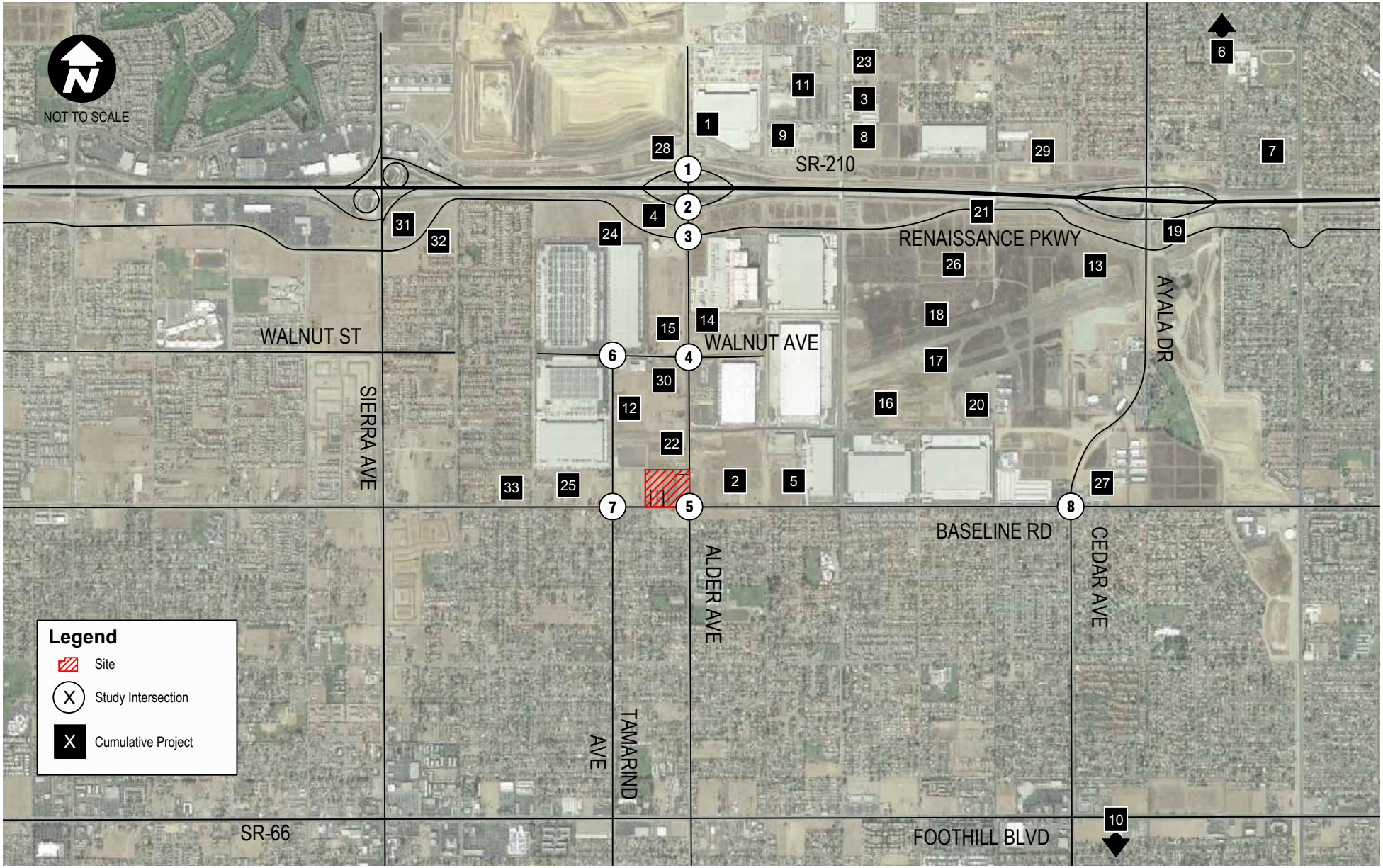
Table 12
Cumulative 2020 Baseline Intersection LOS Summary

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]
1	Alder Avenue/SR-210 westbound ramps	signalized	**112.2**	**F**	**235.5**	**F**
2	Alder Avenue/SR-210 eastbound ramps	signalized	**171.3**	**F**	**227.7**	**F**
3	Alder Avenue/Renaissance Parkway	signalized	**120.1**	**F**	**283.9**	**F**
4	Alder Avenue/ Walnut Avenue	signalized	14.0	B	18.8	B
5	Alder Avenue/Baseline Road	signalized	**266.9**	**F**	**242.3**	**F**
6	Tamarind Avenue/Walnut Avenue	unsignalized	8.6	A	8.7	A
7	Tamarind Avenue/Baseline Road	unsignalized	**169.9**	**F**	**82.3**	**F**
8	Ayala Drive-Cedar Avenue/Baseline Road	signalized	43.6	D	**60.6**	**E**

Source: Dudek 2018
1 Delay in seconds per vehicle calculated per HCM methodology
2 Level of Service (LOS)

As shown in the table, following intersections are forecast to operate with unsatisfactory LOS under Cumulative 2020 Baseline conditions during the peak hours.

- Alder Avenue/SR-210 westbound ramps (LOS F during both peak hours)
- Alder Avenue/SR-210 eastbound ramps (LOS F during both peak hours)
- Alder Avenue/Renaissance Parkway (LOS F during both peak hours)
- Alder Avenue/Baseline Road (LOS F during both peak hours)
- Tamarind Avenue/Baseline Road (LOS F during both peak hours)
- Ayala Drive-Cedar Avenue/Baseline Road (LOS E during the PM peak hour)



Source: City of Rialto, Traffic Division of Public Works Department, Google Earth 10/2016

Locations of Cumulative Projects

Baseline Alder Warehouse - Rialto

FIGURE 15

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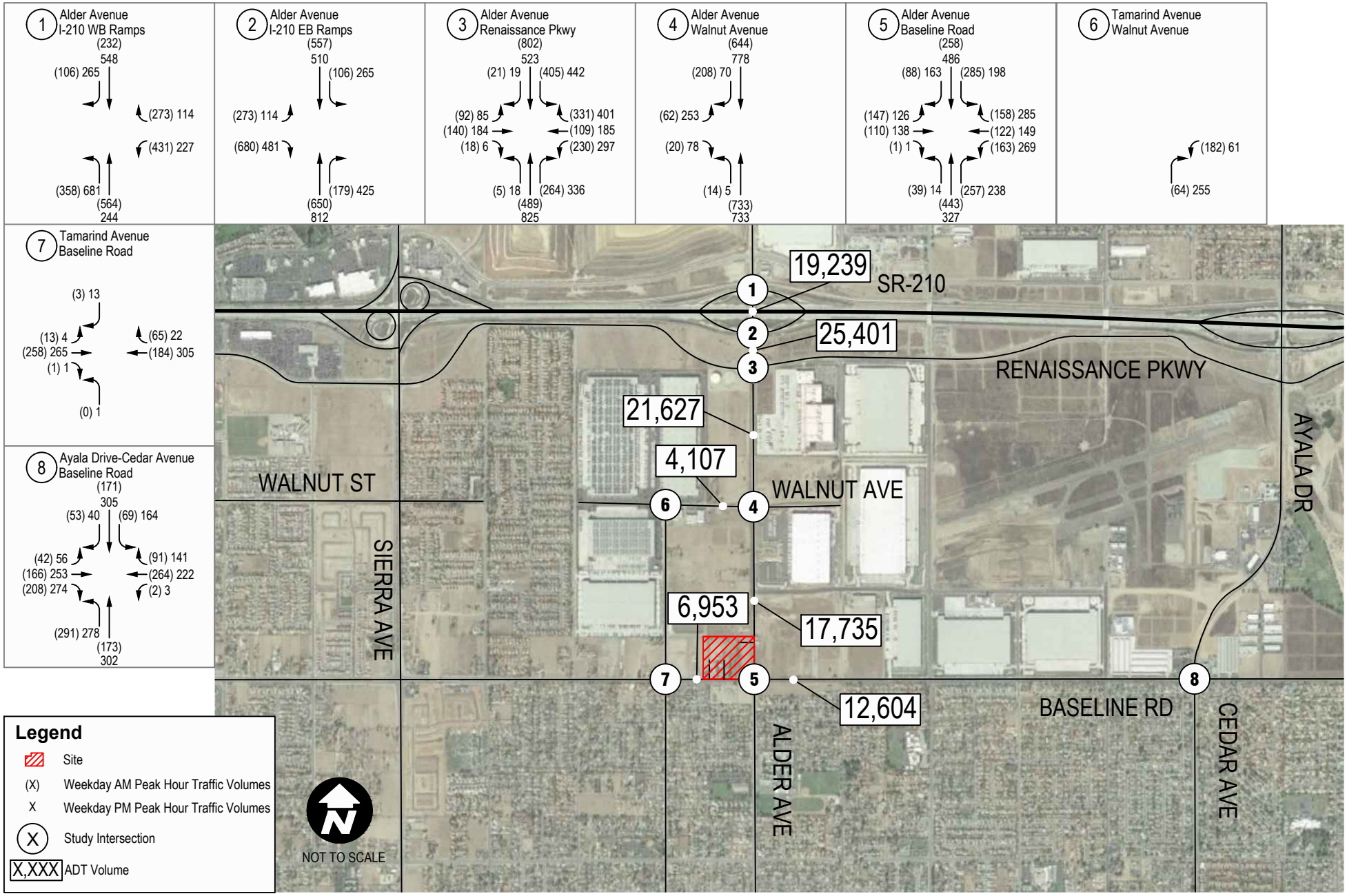

Source: Google Earth, 10/2016

Cumulative Projects Trip Assignment

FIGURE 16

Baseline Alder Warehouse - Rialto

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Per the City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road is forecast to operate at LOS F in both peak hours, with average delays of 169.9 seconds during the AM peak hour, and 82.3 seconds during the PM peak hour, for the most critical approach (northbound left turn). Based on a CA MUTCD peak hour signal warrant analysis, the Cumulative 2020 Baseline traffic volumes at Tamarind Avenue/Baseline Road would satisfy a peak hour signal warrant.

3.4.4 Roadway Segment LOS

A roadway segment LOS analysis was conducted for the Cumulative 2020 Baseline conditions using the roadway segment LOS methodology discussed in Chapter 1. Table 13 shows the results of the Cumulative 2020 Baseline LOS analysis for the study roadway segments.

Table 13
Cumulative 2020 Baseline Roadway Segment LOS Summary

Roadway Segment	Classification	No. of Lanes	Capacity	ADT 1	V/C 2	LOS 3
Alder Avenue						
- SR-210 WB ramps to SR-210 EB ramps	Secondary Hwy	4	24,600	40,400	**1.64**	**F**
- SR-210 EB ramps to Renaissance Pkwy	Secondary Hwy	4	24,600	50,400	**2.05**	**F**
- Renaissance Pkwy to Walnut Ave	Major Arterial	4	36,400	41,100	**1.13**	**F**
- Walnut Ave to Base Line Rd	Major Arterial	3	24,600	30,100	**1.22**	**F**
Baseline Road						
-Alder Ave to Tamarind Ave	Major Arterial	2	19,800	20,800	**1.05**	**F**
-Alder Ave to Locust Ave	Major Arterial	3	24,600	26,000	**1.06**	**F**
Walnut Avenue						
- Alder Ave to Tamarind Ave	Commercial Collector	2	13,800	7,650	0.55	A/B

Source: Dudek 2018
Note: Classification and Capacity is based is on City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements, December 2013, RSP 2010 and RSP Amendment 2016.
1 ADT – Average Daily Traffic
2 V/C– Volume to Capacity Ratio
3 LOS – Level of Service

As shown in the table, following roadway segments are forecast to operate with unsatisfactory LOS conditions:

- Alder Avenue, between SR-210 westbound ramps and SR-210 eastbound ramps (LOS F)
- Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway (LOS F)
- Alder Avenue, between Renaissance Parkway and Walnut Avenue (LOS F)
- Alder Avenue, between Walnut Avenue and Baseline Road (LOS F)

- Baseline Road, between Alder Avenue and Tamarind Avenue (LOS F)
- Baseline Road, Alder Avenue and Locust Avenue (LOS F)

3.5 Cumulative 2020 plus Project Conditions

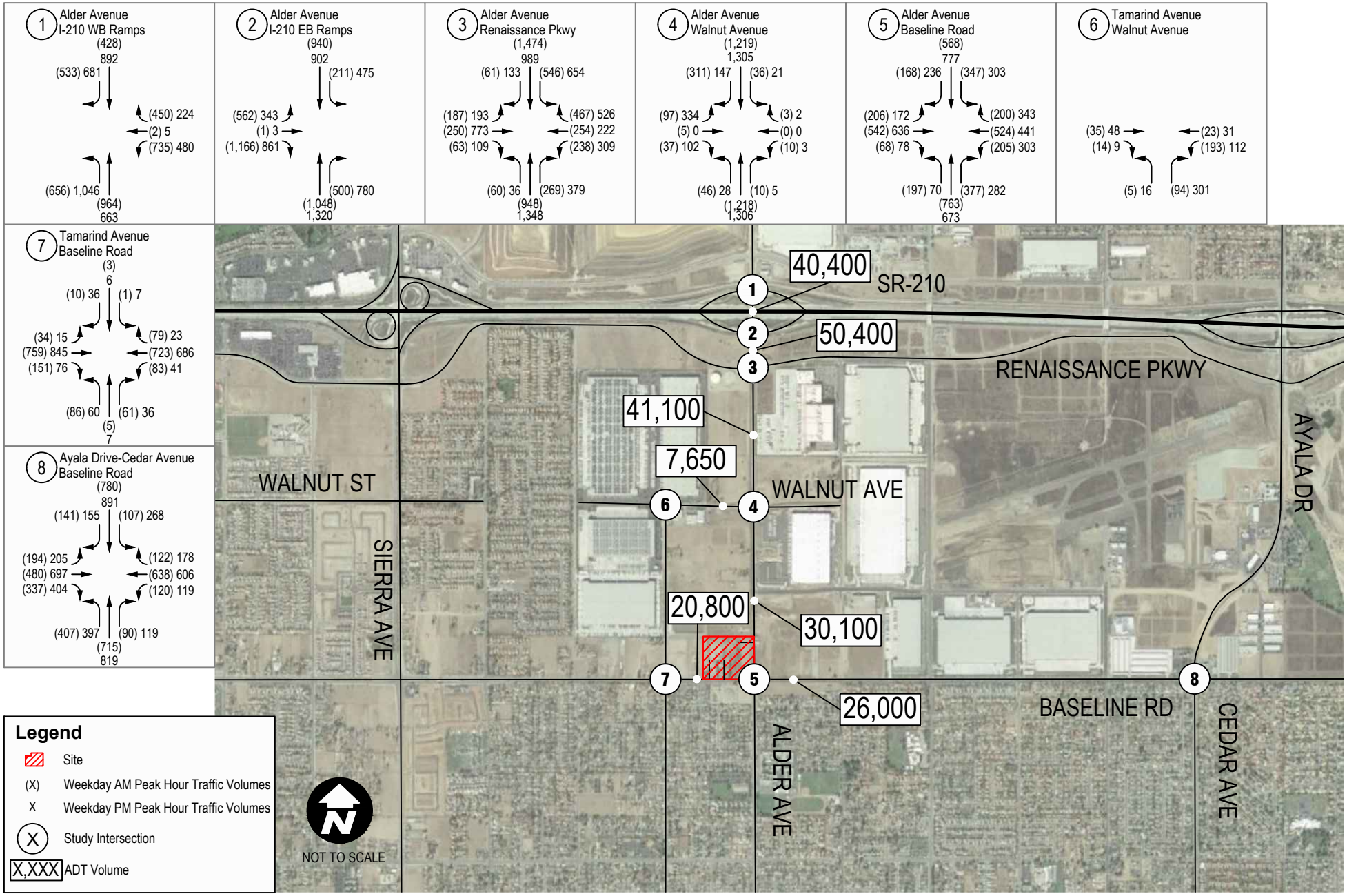
The Cumulative 2020 plus Project condition includes analysis of traffic operations under Cumulative 2020 Baseline conditions with project related traffic added to the AM and PM peak hour traffic volumes, and roadway segment daily traffic volumes. The traffic impacts specific to the project under this condition are the basis for determining the project's cumulative impacts, mitigation measures, fair-share costs, and conditions of approval.

3.5.1 Traffic Volumes

Traffic generated by the proposed project was added to the Cumulative 2020 Baseline traffic volumes resulting in the Cumulative 2020 plus Project traffic volumes for the daily and peak hour conditions. The project trip assignment (in PCE) shown in Figure 12 for project traffic, was added to the Cumulative 2020 Baseline traffic volumes shown in Figure 17 to derive the Cumulative 2020 plus Project traffic volumes. Figure 18 illustrates the Cumulative 2020 plus Project traffic volumes.

3.5.2 Intersection LOS

An intersection operations analysis was prepared for the study area to evaluate the Cumulative 2020 plus Project weekday AM and PM peak hour conditions. Intersection LOS operations were calculated using the HCM 2010 methodology described in Chapter 1. Table 14 shows the results of the Cumulative 2020 plus Project LOS analysis, while detailed LOS worksheets are included in Appendix C.



Source: Google Earth, 10/2016

Cumulative 2020 Baseline Traffic Volumes

FIGURE 17

Baseline Alder Warehouse - Rialto

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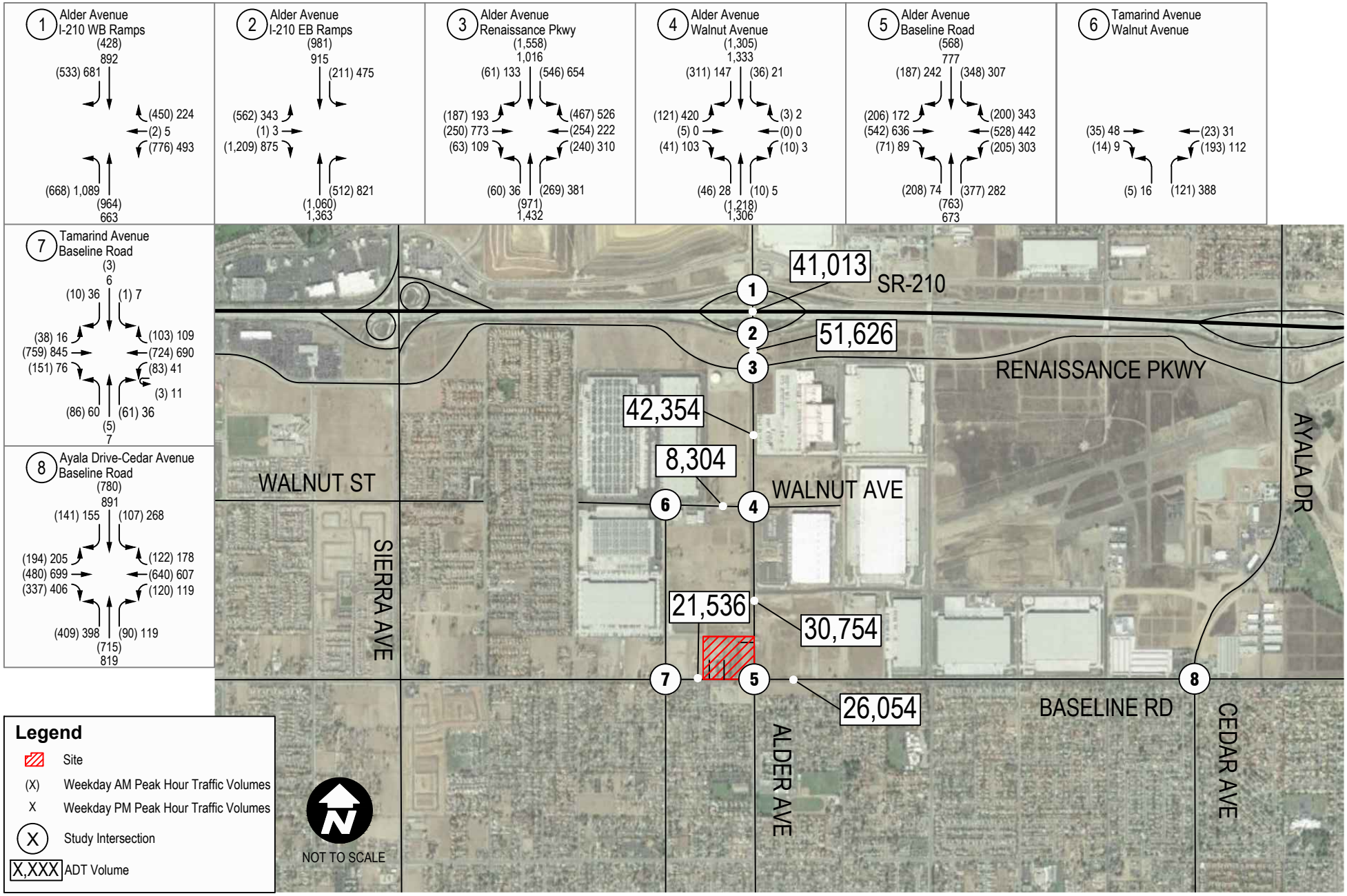

Source: Google Earth, 10/2016

Cumulative 2020 plus Project Traffic Volumes

FIGURE 18

Baseline Alder Warehouse - Rialto

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As shown in the table, the following intersections are forecast to operate with unsatisfactory LOS (LOS E or F) under Cumulative 2020 plus Project conditions, during one or both peak hours.

- Alder Avenue/SR-210 westbound ramps (LOS F during both peak hours)
- Alder Avenue/SR-210 Eastbound Ramps (LOS F during both peak hours)
- Alder Avenue/Renaissance Parkway (LOS F during both peak hours)
- Alder Avenue/Baseline Road (LOS F during both peak hours)
- Tamarind Avenue/Baseline Road (LOS F during both peak hours)
- Ayala Drive-Cedar Avenue/Baseline Road (LOS E in PM peak hour)

Per the City's significance criteria, the proposed project would have a potentially significant impact at the following intersections:

- Alder Avenue/SR-210 westbound ramps (LOS F and ≥1.0 second delay increase during both peak hours)
- Alder Avenue/SR-210 Eastbound Ramps (LOS F and ≥1.0 second delay increase during both peak hours)
- Alder Avenue/Renaissance Parkway (LOS F and ≥1.0 second delay increase during both peak hours)
- Alder Avenue/Walnut Avenue (LOS C and ≥8.0 second increase during the PM peak hour)
- Alder Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours)
- Tamarind Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours)

The proposed project will be required to provide mitigation measures for those potentially significantly impacted intersections.

The intersection of Tamarind Avenue/Baseline Road is forecast to continue to operate at LOS F in both peak hours, with average delays of 169.9 second during the AM peak hour, and 95.8 seconds during the PM peak hour, for the most critical approach (northbound left turn). Based on a CA MUTCD peak hour signal warrant analysis, the Cumulative 2020 plus Project traffic volumes at Tamarind Avenue/Baseline Road would also satisfy a peak hour signal warrant.

3.5.3 Roadway Segment LOS

A roadway segment LOS analysis was prepared for the Cumulative 2020 plus Project conditions using the roadway segment LOS methodology discussed in Chapter 1. Table 15 shows the results of the Cumulative 2020 plus Project LOS analysis for the study roadway segments.

As shown in the table, the proposed project would contribute daily traffic to the following roadway segments that are forecast to continue to operate at LOS F with addition of project traffic:

- Alder Avenue between SR-210 westbound ramps and SR-210 eastbound ramps
- Alder Avenue between SR-210 eastbound ramps and Renaissance Parkway
- Alder Avenue between Renaissance Parkway and Walnut Avenue
- Alder Avenue, between Walnut Avenue and Baseline Road
- Baseline Road, between Alder Avenue and Tamarind Avenue
- Baseline Road, Alder Avenue and Locust Avenue

Per City's LOS standards for roadway segments, if the segment exceeds 1,500 feet and the V/C ratio exceeds 1.0, the segment must be mitigated. The project would have a potentially significant impact at the roadway segment of Alder Avenue, between the SR-210 westbound and eastbound ramps; between the SR-210 eastbound ramps and Renaissance Parkway; and, between Renaissance Parkway and Alder Avenue. The project would also have a potentially significant impact at the roadway segment of Baseline Road between Alder Avenue and Tamarind Avenue and between Alder Avenue and Locust Avenue. The proposed project will be required to provide to mitigate their proportional share of impacts at these potentially significantly impacted roadway segments.

Table 14
Cumulative 2020 plus Project Intersection LOS Summary

No.	Intersection	Traffic Control	Cumulative 2020 Baseline				Cumulative 2020 + Project				Change in Delay (in sec)		Potentially Significant Impact	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour					
			Delay [1]	LOS [2]	Delay [1]	LOS [2]	Delay [1]	LOS [2]	Delay [1]	LOS [2]	AM	PM	AM	PM
1	Alder Ave/SR-210 WB Ramps	signalized	**112.2**	**F**	**235.5**	**F**	**119.8**	**F**	**247.8**	**F**	**7.6**	**12.3**	**Yes**	**Yes**
2	Alder Ave/SR-210 EB Ramps	signalized	**171.3**	**F**	**227.7**	**F**	**182.2**	**F**	**243.0**	**F**	**10.9**	**15.3**	**Yes**	**Yes**
3	Alder Ave/Renaissance Pkwy	signalized	**120.1**	**F**	**283.9**	**F**	**123.3**	**F**	**295.4**	**F**	**3.2**	**11.5**	**Yes**	**Yes**
4	Alder Ave/ Walnut Ave	signalized	14.0	B	18.8	B	19.8	B	29.5	C	5.8	**10.7**	No	**Yes**
5	Alder Ave/Baseline Rd	signalized	**266.9**	**F**	**242.3**	**F**	**267.5**	**F**	**245.4**	**F**	**0.6**	**3.1**	**Yes**	**Yes**
6	Tamarind Ave/Walnut Ave	unsignalized	8.6	A	8.7	A	8.6	A	8.7	A	0.0	0.0	No	No
7	Tamarind Ave/Baseline Rd	unsignalized	**169.9**	**F**	**82.3**	**F**	**183.0**	**F**	**95.8**	**F**	**13.1**	**13.5**	**Yes**	**Yes**
8	Ayala Dr-Cedar Ave/Baseline Rd	signalized	43.6	D	**60.6**	**E**	43.8	D	**61.1**	**E**	0.2	0.5	No	No

HCM = Highway Capacity Manual
[1] Delay in seconds per vehicle
[2] Level of Service (LOS)
* Very high delay

Table 15
Cumulative 2020 Roadway Segment Level of Service

Roadway Segment	Classification	No. of Lanes	Capacity	Cumulative 2020 Baseline			Cumulative 2020 + Project				Potentially Significant Impact
				ADT [1]	*V/C* [2]	*LOS* [3]	*Project Traffic*	*ADT* [1]	*V/C* [2]	*LOS* [3]	
Alder Avenue											
- SR-210 WB Ramps to SR - 210 EB Ramps	Secondary Hwy	4	24,600	40,400	**1.64**	**F**	613	41,013	**1.67**	**F**	**Yes**
- SR-210 EB Ramps to Renaissance Pkwy	Secondary Hwy	4	24,600	50,400	**2.05**	**F**	1,226	51,626	**2.10**	**F**	**Yes**
- Renaissance Pkwy to Walnut Ave	Modified Arterial	4	36,400	41,100	**1.13**	**F**	1,254	42,354	**1.16**	**F**	**Yes**
- Walnut Ave to Base Line Rd	Modified Arterial	3	24,600	30,100	**1.22**	**F**	654	30,754	**1.25**	**F**	**Yes**
Baseline Road											
-Alder Ave to Tamarind Ave	Arterial	2	19,800	20,800	**1.05**	**F**	736	21,536	**1.09**	**F**	**Yes**
-Alder Ave to Locust Ave	Secondary Highway	3	24,600	26,000	**1.06**	**F**	54	26,054	**1.06**	**F**	**Yes**
Walnut Avenue											
- Alder Ave to Tamarind Ave	Commercial Collector	2	13,800	7,650	0.55	A/B	654	8,304	0.60	A/B	No

Source: Dudek 2018
Note: Classification and Capacity is based is on City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements, December 2013, RSP 2010 and RSP Amendment 2016.
1 ADT – Average Daily Traffic
2 V/C– Volume to Capacity Ratio
3 LOS – Level of Service

3.6 On-Site Circulation, Access and Parking

This section discusses the project characteristics and potential impacts in respect to on-site circulation, access, driveway queuing, parking, and traffic signal warrants.

3.6.1 On-Site Circulation

Per the project site plan, internal drive aisles would be provided along the northern, southern, and western sides of the project site. The drive aisle along the northern side of the property would be 40 feet wide to accommodate trucks destined to docking area and trailer parking spaces, and would provide direct access to passenger-car parking spaces on both sides of the drive aisle. The drive aisle leading to the trailer parking area would be 40 feet wide to accommodate trucks, and would widen to 132 feet in the dock area to accommodate truck maneuvers. A 35-foot wide access lane along the western side of the project site connects the northern and southern parking areas.

The drive aisle along the southern side would be approximately 26 feet wide and provide access to passenger-car parking spaces on both sides of the drive aisle. Passenger car parking would be provided on both sides of the drive aisle in the southern section.

Gated entry locations are proposed on both sides of the truck parking and dock areas, on the northern drive aisles. To allow for efficient on-site circulation during the AM and PM peak hours, the proposed project will open both gates to the truck docking area from 7:00 a.m. to 9:00 a.m., and 4:00 p.m. to 6:00 p.m., to allow project-related passenger-cars (employees and visitors) and trucks to circulate around the project site. A reciprocal access easement will be provided by the tenants, should the building be divided between different tenants.

Due to the standard layout of the parking stalls, provision of three project driveways, and drive aisles along the perimeter of the site, the on-site circulation for passenger cars and trucks will be adequate.

3.6.1.1 Truck Turning Analysis

Since the project is an industrial warehouse and 40% of the project traffic is anticipated to be medium and heavy vehicles, a truck turning analysis was conducted to determine the adequacy of on-site circulation for trucks using *AutoTurn* software.

Trucks used in this analysis were based upon the length of the trailer stalls within the site (approximately 53 feet), which correspond to the American Association of State Highway Transportation Officials (AASHTO) vehicle standards. Figure 19 details the inbound truck turning radii. Inbound truck traffic will proceed into the site from Alder Avenue, head westbound through a secured (sliding and swing) gate towards the loading dock area containing 28 docks and 40 trailer stalls, then back into a dock. The analysis shows there is sufficient driveway width

at the Alder Avenue driveway, and within the dock area for the trucks to complete inbound docking maneuvers. Figure 20 details the outbound truck turning radii. Outbound truck traffic will exit the loading dock area, proceed southbound, and finally exit onto Baseline Road. As with the inbound truck analysis, there is sufficient space for trucks to maneuver within the project site.

3.6.2 Project Access and Queuing Analysis

Access to the project site would be provided by three right-turn in/out only driveways:

- Northern corner of the project site, on Alder Avenue, for passenger-cars and trucks
- Southeast part of the project site, on Baseline Road, for passenger-cars only
- Southwest corner of the project site, on Baseline Road, for passenger-cars and trucks

Based on the roadway geometrics for the proposed project access driveways and the Project Completion plus Project and Cumulative 2020 plus Project peak hour traffic volumes, the project access intersections were analyzed for peak hour level of service. Table 16 shows the results of the project driveway LOS.

As shown in the table, all of the project access intersections are forecast to operate with satisfactory LOS at LOS C or better during the AM peak hour and the PM peak hour under Project Completion plus Project conditions and Cumulative 2020 plus Project conditions. The detailed LOS worksheets for project access intersections are included in Appendix C.

A queuing analysis was conducted at the three project driveways and the southbound approach of the adjacent intersection at Alder Avenue/Baseline Road to determine the AM and PM peak hour 95th percentile (design) queues for the Project Completion 2020 plus Project and Cumulative 2020 plus Project conditions. Table 17 provides a summary of the queuing analysis and the detailed worksheets are included in Appendix C.

Table 16
Project Access LOS Analysis

Project Access Intersection	Critical Movement	Project Completion 2020 + Project				Cumulative 2020 + Project			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
		Delay [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]	*Delay* [1]	*LOS* [2]
Alder Ave/Proj Access 1	EB	11.8	B	11.6	B	19.8	C	24.7	C
Baseline Rd/Proj Access 2	SB	13.5	B	11.3	B	16.0	C	14.3	B
Baseline Rd/Proj Access 3	SB	13.8	B	12.2	B	16.4	C	16.2	C

HCM = Highway Capacity Manual
1 Delay in seconds per vehicle
2 Level of Service (LOS)

Table 17
Project Access Queuing Analysis

Project Access	Critical Movement	Existing Pocket Length (in feet)	95th Percentile Queue Length (in feet)			
			Proj Comp 2020 + Proj		*Cumulative 2020 + Proj*	
			AM Peak Hour	*PM Peak Hour*	*AM Peak Hour*	*PM Peak Hour*
Alder Ave/Proj Access 1	EB	on-site [1]	6	15	14	44
Baseline Rd/Proj Access 2	SB	on-site [1]	21	44	20	41
Baseline Rd/Proj Access 3	SB	on-site [1]	42	61	39	54
Alder Ave/Baseline Rd	SBL	65	**101**	**107**	**92**	**97**
	SBR	65	**112**	**91**	**82**	**100**

Note: Queue length expressed in feet.
[1] Vehicular queues would occur on-site.

As shown in the table, peak queues on the southbound approach to Alder Avenue/Baseline Road exceed the length of existing pocket length during the peak hours in the Project Completion 2020 plus Project and Cumulative 2020 plus Project Conditions. The project access on the northern corner of the site on Alder Avenue is located 625 feet from the Alder Avenue/Baseline Road intersection. As shown in Table 17, the peak queues on the southbound approach are less than 625 feet in the Project Completion 2020 plus Project and Cumulative 2020 plus Project conditions. Therefore, vehicular queue on the southbound approach along Alder Avenue would not block the project's access on the northern corner of the site.

All of the project driveways would operate as right-in-right-out only, therefore project-related queuing would occur on-site, as indicated in Table 17. The on-site outbound queues in both peak hours would be approximately two to three vehicles (a passenger car, assumed to be 22 feet, including spacing for front and rear of vehicle) or less in the Project Completion 2020 plus Project and the Cumulative 2020 plus Project conditions.

3.6.3 Parking

The project site would include 137 parking spaces, 28 loading docks, and 40 trailer parking spaces. All of the proposed parking spaces are on-grade, and are 90-degree parking stalls. The proposed number of parking stalls provided, and their layout, are compliant with the City's Municipal Code standards.

3.6.4 Safety and Operational Improvements

The project access driveways and improvements (mitigation measures described below) will be required to be designed per City and industry standards so that adequate sight distance for drivers entering and exiting the site is maintained. The line of sight – a straight line between the driver's

eye and oncoming vehicles on the adjacent roadway defines the Limited Use Area. The Limited Use Area for each driveway will be kept clear of visual obstructions, including project signs, building structures, and landscaping in order to maintain adequate sight distance.

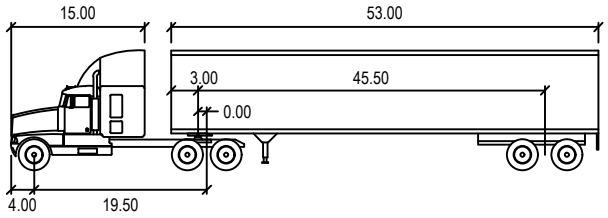
3.6.5 Traffic Signal Warrant Analysis

3.6.5.1 On-Site Intersections

All three-project driveways, including one right-in-right-out driveway along Alder Avenue and two right-in-right-out driveways along Baseline Road, are proposed to be unsignalized. Each project access was analyzed as an unsignalized intersection with project traffic under Project Completion 2020 plus Project, and Cumulative 2020 plus Project conditions. All the project access driveways are forecast operate with satisfactory LOS (LOS C or better).

3.6.5.2 Off-site Intersections

As previously discussed, the Tamarind Avenue/Baseline Road intersection would meet the CA MUTCD peak hour traffic signal warrant for peak hour conditions under the Cumulative 2020 Baseline and Cumulative 2020 plus Project conditions. Signal warrant calculations are provided in Appendix E.



WB-67

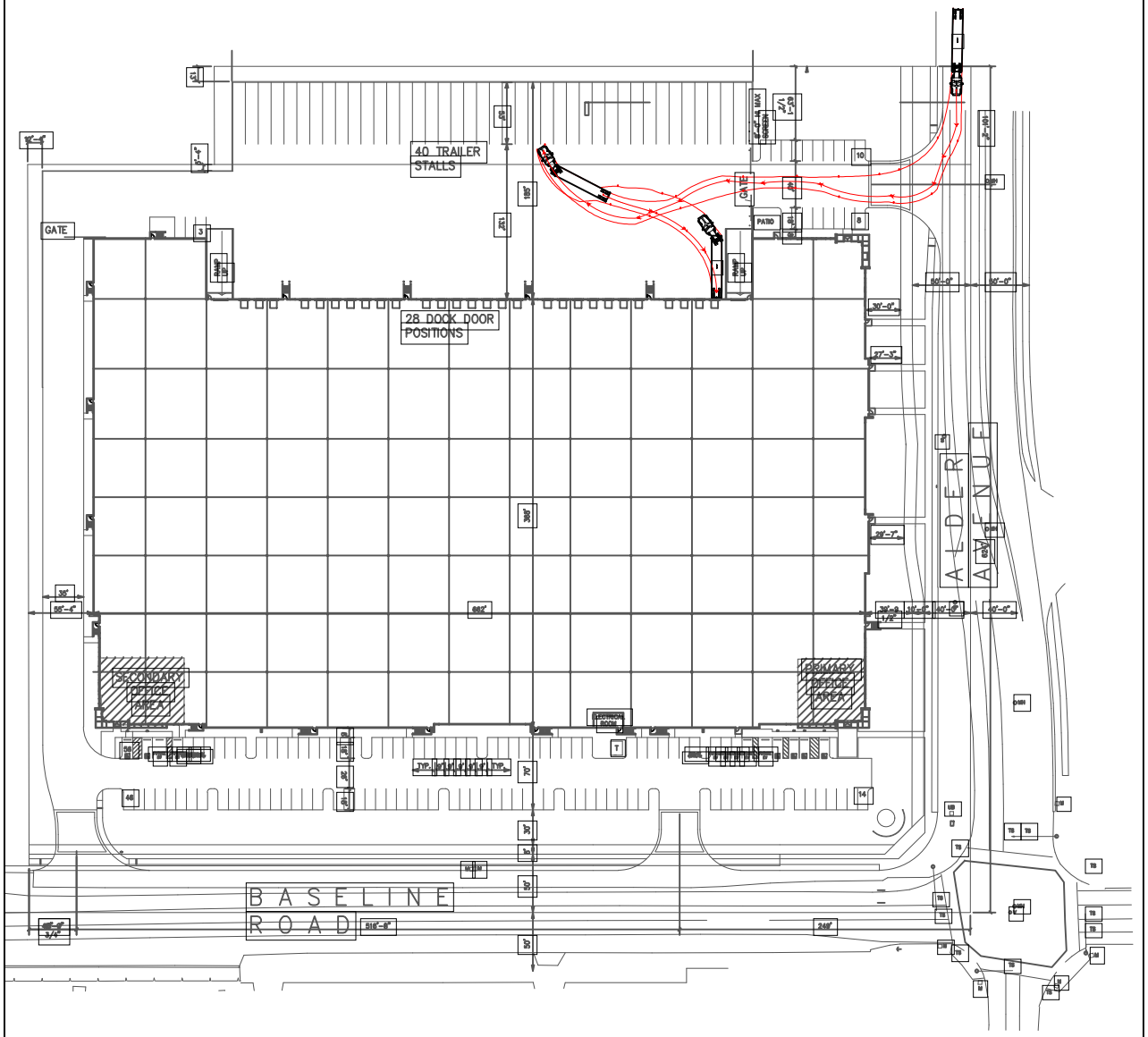
feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Legend

Inbound

NOT TO SCALE



Source: AutoTurn 10.1

Inbound Truck Turning Radii at Project Access Driveway (Alder Avenue)

FIGURE 19

Baseline Alder Warehouse - Rialto

DUDEK

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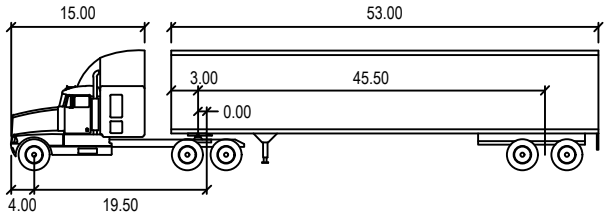


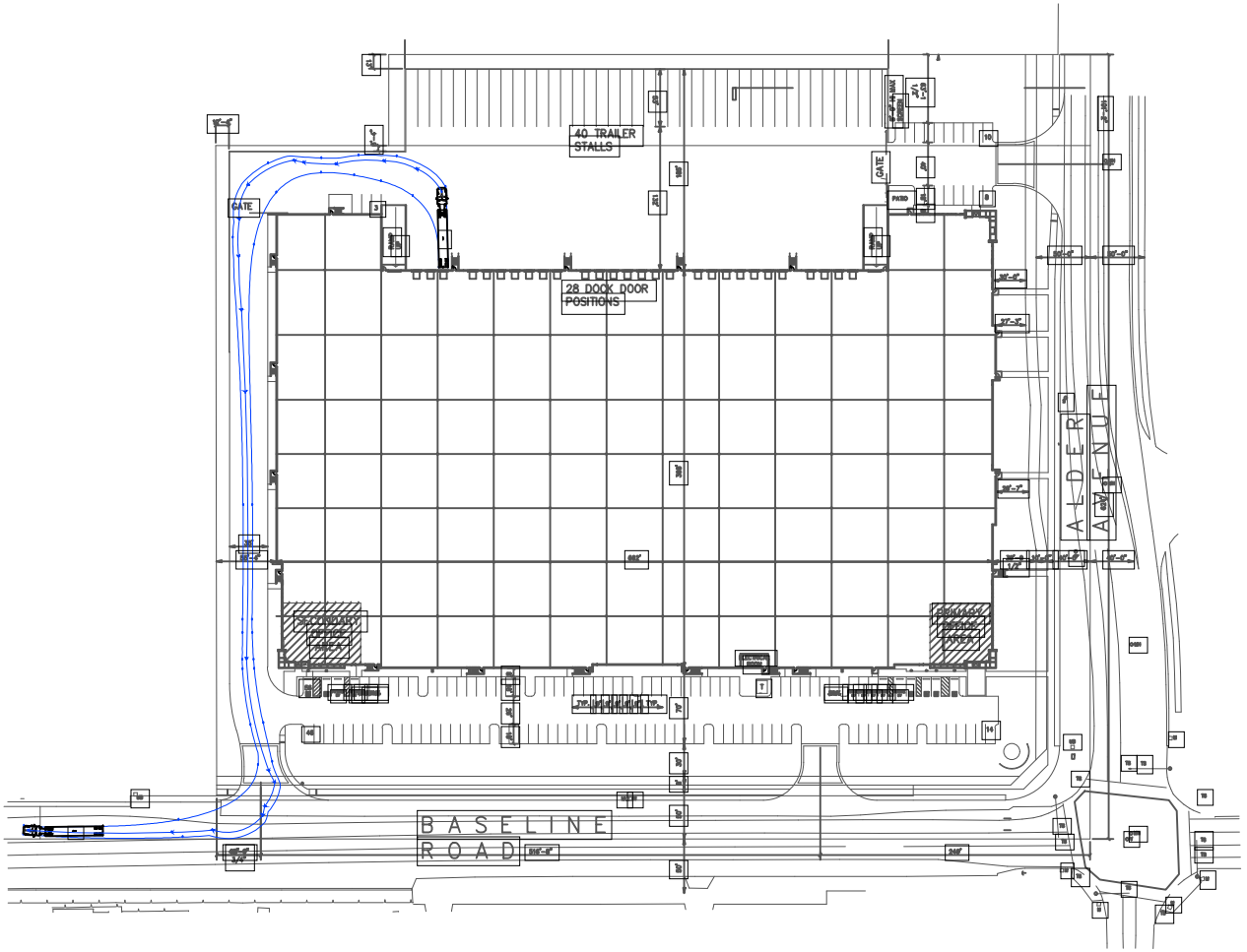
WB-67

	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Legend

Outbound

NOT TO SCALE



Source: AutoTurn 10.1

Outbound Truck Turning Radii at Project Access Driveway (Baseline Road)

FIGURE **20**

Baseline Alder Warehouse - Rialto

DUDEK

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4 MITIGATION MEASURES

The following section describes the mitigation measures required to offset the potentially significant traffic impacts identified above for the Project Completion 2020 plus Project and Cumulative 2020 plus Project conditions.

4.1 Funding Mechanism and Project Fair Share

There are three funding mechanisms for the project area that have been identified and utilized to determine project's fair share towards mitigation of impacts.

The SBCTA (previously known as SANBAG) Nexus Program helps local jurisdictions, in the San Bernardino Valley area, implement development mitigation programs that generate development contributions for regional transportation improvements equal to or greater than fair-share contributions. Each local jurisdiction, including the City of Rialto, has adopted and is required to implement a compliant development mitigation program for the Nexus Study Network based on the requirements of the CMP.

Renaissance Fee Program funds fair-share costs associated with improvements identified in the EIR/TIA for the 2010 Renaissance Specific Plan and the 2016 Renaissance Specific Plan Amendment (RSPA). This fee is used towards cost of improvements at intersections (required due to background growth and new development within the RSP) that are not included in the SANBAG Nexus Study. This fee does not include frontage improvements and/or street segments within the Specific Plan.

A Feasibility Study Report (FSR), dated August 2017 for the SR-210/Alder Avenue Interchange initiated by the City of Rialto has been approved by Caltrans. The study provides an overall cost estimate that includes improvements to roadway segment and intersections along Alder Avenue at SR-210 between Casmalia Street and Renaissance Parkway. The total project cost is estimated to be $2,327,000. Per City's comments, the TIA has utilized this cost to determine project's fair-share for its impact. Preliminary schedule of the project specifies construction start date of June 2020 and completion date of June 2021.

The following is the fair share calculation formula used to determine the proposed project's fair share costs for the proposed mitigation measures below.

$$\frac{Project\ Traffic}{Cumulative\ 2020\ plus\ Project - Existing\ Traffic}$$

Table 18 provides a summary of the fair share percentages calculated for the impacted study area intersections and roadway segments. Based on the table, the project fair share ranges from 0.7% to 3.9%.

Table 18
Project Fair Share Percentages

No.	Intersection	Total Volume		Total Growth	Project Trips	%
		Existing 2018	*Cumulative 2020 plus Project*			
1	Alder Ave/SR-210 WB Ramps					
	AM	1,734	3,821	2,087	53	2.5%
	PM	1,838	4,048	2,210	56	2.5%
2	Alder Ave/SR-210 EB Ramps					
	AM	1,905	4,536	2,631	108	4.1%
	PM	1,994	4,794	2,800	111	4.0%
3	Alder Ave/Renaissance Pkwy					
	AM	1,836	4,925	3,089	109	3.5%
	PM	2,259	5,785	3,526	114	3.2%
4	Alder Ave/Baseline Rd					
	AM	2,011	4,203	2,192	38	1.7%
	PM	1,844	4,341	2,497	26	1.0%
5	Tamarind Ave/Baseline Rd					
	AM	1,415	2,028	613	32	5.2%
	PM	1,179	1,941	762	102	13.4%
No.	**Roadway Segments**					
1	Alder Avenue					
	-SR-210 WB Ramps to SR -210 EB Ramps	20,300	41,013	20,713	613	3.0%
	-SR-210 EB Ramps to Renaissance Pkwy	24,000	51,626	27,626	1226	4.4%
	- Renaissance Pkwy to Walnut Ave.	18,700	42,354	23,654	1254	5.3%
	- Walnut Ave to Baseline Rd	11,900	30743	18,843	443	2.4%
2	Baseline Road					
	-Alder Ave to Tamarind Ave	13,300	21,536	8,236	736	8.9%
	-Alder Ave to Locust Ave	12,900	26,054	13,154	54	0.4%

4.2 Project Completion 2020 plus Project

4.2.1 Intersection LOS

The Tamarind Avenue/Baseline Road intersection is forecast to continue to operate at LOS F during the AM peak hour with the addition of project traffic. Per City's LOS standards for unsignalized intersections, no vehicular movement should have an average delay greater than 120 seconds during

the AM and PM peak hours. The intersection of Tamarind Avenue/Baseline Road is forecast to continue to operate at LOS F with average delay of 192.5 seconds during the AM peak hour for the most critical approach (northbound left turn) with addition of project traffic.

Based on a peak hour signal warrant analysis, conducted per the CA MUTCD, the Project Completion 2020 plus Project traffic volumes at Tamarind Avenue/Baseline Road would not satisfy a peak hour signal warrant. However, since the intersection is currently operating at LOS F (127.3 seconds of delay) and the proposed project would contribute 15.0 seconds of delay, the proposed project would be required to pay its fair-share towards the signalization of the intersection when warranted.

TRAF-1 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to signalize the intersection of Tamarind Avenue/Baseline Road, as deemed by the City Engineer. The project's fair share at this intersection is 13.39 percent, and the resulting fair share cost for this improvement would be $53,543.31.

Once signalized, the intersection would operate with satisfactory LOS (LOS D or better), and the project's impact would be reduced to a level of less than significant.

4.2.2 Roadway Segment LOS

The roadway segment of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway, is forecast to continue to operate at LOS F under the Project Completion 2020 plus Project conditions. The project would not be required to mitigate this roadway segment, however it would be required to pay its fair share towards improvements required for this segment to operate at an acceptable LOS.

TRAF-2 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share along this roadway segment is 4.4 percent, the resulting fair share cost for this improvement would be included in the project's total cost towards SR-210/Alder Avenue Interchange improvement, estimated to be a total of $102,388.00.

4.3 Cumulative 2020 plus Project

4.3.1 Intersection LOS

The following intersections are forecast to operate with unsatisfactory LOS under Cumulative 2020 plus project conditions, during one or both peak hours, and the proposed project would create a potentially significant impact at these locations per the City's Significance Criteria:

- Alder Avenue/SR-210 westbound ramps (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Alder Avenue/SR-210 Eastbound Ramps (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Alder Avenue/Renaissance Parkway (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Alder Avenue/Walnut Avenue (LOS C and ≥8.0 second increase during the PM peak hour)
- Alder Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Tamarind Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)

It should be noted that per City's criteria for peak hour delay increases, the project would have an impact at the Alder Avenue/Walnut Avenue intersection. However, since the intersection operates at LOS C in the Cumulative 2020 plus Project conditions, which is acceptable per City of Rialto 2010 General Plan LOS standards, no mitigation is proposed for this intersection. For the remaining significantly impacted intersections, the proposed project will be required to provide the following mitigation measures for those potentially significantly impacted intersections:

TRAF-3 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Alder Avenue/SR-210 westbound ramps with the following improvements:

- Add second westbound left turn lane
- Add second northbound left turn lane
- Add southbound right turn lane

This intersection is part of the SR-210/Alder Avenue Interchange Improvement and all of the above-mentioned improvements are included in the FSR. The project's fair share at this intersection is 2.5 percent, and the resulting fair share

cost for this improvement would be included in project's total cost towards SR-210/Alder Avenue Interchange, estimated to be a total of $102,388.00.

TRAF-4 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Alder Avenue/SR-210 eastbound ramps with the following improvements:

- Add dedicated eastbound left turn lane
- Restripe eastbound left-through lane to left-through-right lane
- Add dedicated northbound right turn lane
- Signal modification

This intersection is part of the SR-210/Alder Avenue Interchange Improvement and all of the above-mentioned improvements are included in the FSR. The project's fair share at this intersection is 4.1 percent, and the resulting fair share cost for this improvement would be included in project's total cost towards SR-210/Alder Avenue Interchange, estimated to be a total of $102,388.00.

TRAF-5 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Alder Avenue/Renaissance Parkway with the following improvements:

- Add dedicated westbound right turn lane (included in FSR)
- Add second southbound left turn lane (included in FSR)
- Restripe southbound right turn lane to through-right (included in FSR)
- Signal modification (included in FSR)
- Add second westbound left turn lane
- Add dedicated northbound right lane
- Add second eastbound through lane
- Re-stripe westbound right to westbound through lane

This intersection is part of the SR-210/Alder Avenue Interchange Improvement and some of the above-mentioned improvements are included in the FSR. The project's fair share at this intersection is 3.5 percent, and the resulting fair share cost for this improvement would be included in project's total cost towards SR-210/Alder Avenue Interchange, estimated to be a total of $102,388.00.

For the improvements not included in the FSR, the project's fair share at this intersection is 3.5 percent, and the resulting fair share cost for this improvement would be $3,703.11.

TRAF-6 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Alder Avenue/Baseline Road with the following improvements:

- Add eastbound through lane
- Add dedicated eastbound right turn lane
- Add westbound through lane
- Add dedicated westbound right turn lane
- Add northbound through lane
- Add dedicated northbound right turn lane
- Add second southbound left turn lane
- Add southbound through lane
- Signal modification

The project's fair share at this intersection is 1.7 percent, and the resulting fair share cost for this improvement would be $8,180.80.

TRAF-7 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Tamarind Avenue/Baseline Road with the following improvements:

- Install new traffic signal

The project's fair share at this intersection is 13.4 percent, and the resulting fair share cost for this improvement would be $53,543.31.

Once the improvements above are constructed, most of the potentially significantly impacted intersections above would operate with satisfactory LOS (LOS D or better), and the project's impact would be reduced to a level of less than significant. The exception would be the intersection of Alder Avenue/Renaissance Parkway where the PM peak hour is forecast to operate at LOS E (61.9 seconds of delay) with the mitigation measure implemented (from LOS F with 295.4 seconds of delay).

While this intersection is forecast to continue to operate with unsatisfactory conditions with the proposed mitigation measures at LOS E (from LOS F with mitigation), overall delay at the intersection would be significantly improved by 233.5 seconds. The payment of the project's fair share cost to construct the mitigation measure would offset the project's 11.5 second delay increase at the intersection since the improvements would improve delay by 233.5 seconds. Therefore, project impacts at Alder Avenue/Renaissance Parkway would be reduced to a level of less than significant.

4.3.2 Roadway Segment Improvements

The proposed project would create a potentially significant impact by contributing daily traffic to the following roadway segments that are forecast to continue to operate at LOS F with addition of project traffic:

- Alder Avenue between SR-210 westbound ramps and SR-210 eastbound ramps
- Alder Avenue between SR-210 eastbound ramps and Renaissance Parkway
- Alder Avenue between Renaissance Parkway and Walnut Avenue
- Alder Avenue between Walnut Avenue and Baseline Road
- Baseline Road, between Alder Avenue and Tamarind Avenue, and
- Baseline Road, Alder Avenue and Locust Avenue

The project would not be required to mitigate these roadway segments, however it would be required to pay its fair share towards improvements required for them to operate at an acceptable LOS.

TRAF-8 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between SR-210 westbound and eastbound ramps with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share along this roadway segment is 3.0 percent, the resulting fair share cost for this improvement would be included in the project's total cost towards SR-210/Alder Avenue Interchange improvement, estimated to be a total of $102,388.00.

TRAF-2 As described previously under Project Completion 2020 plus conditions, prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment

of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share along this roadway segment is 4.4 percent, the resulting fair share cost for this improvement would be included in the project's total cost towards SR-210/Alder Avenue Interchange improvement, estimated to be a total of $102,388.00.

TRAF-9 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between Renaissance Parkway and Walnut Avenue with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share at this roadway segment is 5.3 percent, and the resulting fair share cost for this improvement would be $15,283.60 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair share cost.

TRAF-10 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between Walnut Avenue and Baseline Road with the following improvements:

- Construct roadway segment to a 4-lane Arterial

The project's fair share at this roadway segment is 2.4 percent, and the resulting fair share cost for this improvement would be $0.00 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair share cost.

TRAF-11 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Baseline Road, west of Alder Avenue between Alder Avenue and Tamarind Avenue with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share at this roadway segment is 8.9 percent, and the resulting fair share cost for this improvement would be $126,531.95 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair share cost.

TRAF-12 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Baseline Road, east of Alder Avenue between Alder Avenue and Locust Avenue with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share at this roadway segment is 0.4 percent, and the resulting fair share cost for this improvement would be $2,820.04 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair share cost.

Figure 20 illustrates mitigation measures described above, while Table 19 provides an LOS summary with the implementation of the mitigation measures for the Cumulative 2020 plus Project condition. Table 20 provides a summary of the fair share costs for the study area intersections and roadway segments.

Table 19
Cumulative 2020 Intersection LOS and Mitigation Measures Summary

No.	Intersection	AM Peak Hour				PM Peak Hour			
		w/o Mitigation		*w Mitigation*		*w/o Mitigation*		*w Mitigation*	
		Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
1.	Alder Ave/SR-210 WB Ramps	**119.8**	**F**	31.9	C	**247.8**	**F**	45.5	D
	• Add 2nd WBL turn lane								
	• Add 2nd NBL turn lane								
	• Add SBR turn lane								
2	Alder Ave/SR-210 EB Ramps	**182.2**	**F**	39.2	D	**243.0**	**F**	42.4	D
	• Add dedicated EBL turn lane								
	• Re-stripe EBL-t to EB-LTR								
	• Add dedicated NBR turn lane								
3	Alder Ave/Renaissance Pkwy	**123.3**	**F**	45.6	D	**295.4**	**F**	61.9	**E**
	• Add 2nd WBL turn lane								
	• Add dedicated WBR turn lane								
	• Add dedicated NBR								
	• Add 2nd SBL turn lane								
	• Re-stripe SBR to SB-TR								
4	Alder Ave/Baseline Rd	**266.9**	**F**	40.3	D	**245.4**	**F**	39.1	D
	• Add EBT lane								
	• Add dedicated EBR turn lane								
	• Add WBT lane								

Table 19
Cumulative 2020 Intersection LOS and Mitigation Measures Summary

No.	Intersection	AM Peak Hour				PM Peak Hour			
		w/o Mitigation		*w Mitigation*		*w/o Mitigation*		*w Mitigation*	
		Delay[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]	*Delay*[1]	*LOS*[2]
	• Add dedicated WBR turn lane								
	• Add NBT lane								
	• Add dedicated NBR turn lane								
	• Add 2nd SBL turn lane								
	• Add SBT lane								
5	Tamarind Ave/Baseline Rd	**183.3**	**E**	24.5	C	**95.8**	**F**	27.1	C
	• Signalization								

HCM = Highway Capacity Manual
1 Delay in seconds per vehicle
2 Level of Service (LOS)

Table 20
Fair Share Cost for Traffic Impact Mitigation Measures

Intersection Improvements	Cost Estimate		SANBAG Nexus	Renaiss-nce Fee Program	Net Cost Estimate	Project Fair-Share %	Project Cost
Alder Ave/SR-210 WB Ramps							
• add 2nd WBL turn lane	Included in $2,327,000	1					
• add 2nd NBL turn lane		1					
• add SBR turn lane		1					
Subtotal						*2.5%*	
Alder Ave/SR-210 EB Ramps							
add dedicated EBL turn lane	Included in $2,327,000	1					
re-stripe EBL-t to EB-LTR		1					
add dedicated NBR turn lane		1					
signal cost (modification)		1					
Subtotal						*4.1%*	
Alder Ave/Renaissance Pkwy							
add dedicated WBR turn lane	Included in $2,327,000	1					
add 2nd SBL turn lane		1					
re-stripe SBR to SB-TR		1					
signal cost (modification)		1					
Subtotal						*3.5%*	
Alder Ave - SR-210 WB ramps to SR-210 EB ramps							
Improve to 6-Lane Arterial	Included in $2,327,000	1				**3.0%**	

Table 20
Fair Share Cost for Traffic Impact Mitigation Measures

Intersection Improvements	Cost Estimate		SANBAG Nexus	Renaiss-nce Fee Program	Net Cost Estimate	Project Fair-Share %	Project Cost
Alder Ave - SR 210 EB Ramps to Renaissance Pkwy							
Improve to 6-Lane Arterial	Included in $2,327,000	1				**4.4%**	
Subtotal	*$2,327,000*					*4.4%*	*$102,388.00*
Alder Ave/Renaissance Pkwy							
add 2nd WBL turn lane	$72,898	3					
add dedicated NBR	$72,898	3					
add 2nd EBT lane	$72,898	3					
re-stripe WBR to WBT	*nominal*	3					
Subtotal	*$218,694*			*$113,750*	*$104,944*	*3.5%*	*$3,703.11*
Alder Ave/Baseline Rd							
add EBT lane	$361,574	2					
add dedicated EBR turn lane	$91,506	2					
add WBT lane	$361,574	2	$580,808				
add dedicated WBR turn lane	$72,898	2	$116,162				
add NBT lane	$361,574	2					
add dedicated NBR turn lane	$72,898	2					
add 2nd SBL turn lane	$72,898	2	$116,162				
add SBT lane	$361,574	2	$580,808				
signal cost (modification)	$109,347	2					
Subtotal	*$1,865,843*		*$1,393,940*		*$471,903*	*1.7%*	*$8,180.80*
Tamarind Ave/Baseline Rd							
new signal	$400,000	2					
Subtotal	*$400,000*				*$400,000*	*13.4%*	*$53,543.31*
Alder Ave - Renaissance Pkwy to Walnut Ave							
4-Lane Arterial to 6-Lane Arterial	$ 2,332,736	4	$2,044,444		$288,290	5.3%	**$15,283.60**
Alder Ave – Walnut Ave to Baseline Rd							
Walnut Ave to Miro Way – 3-Lane Arterial to 4-Lane Arterial	$1,457,960	4	$2,555,556		-	2.4%	$0.00
Miro Way to Baseline Road – 2-Lane Arterial to 4-Lane Arterial							
Baseline Rd – Alder Ave to Tamarind Ave							
2-Lane Arterial to 6-Lane Arterial	$2,915,920	4	$1,500,000		$1,415,920.00	8.9%	**$126,531.95**
Baseline Rd – Alder Ave to Locust Ave							
3-Lane Secondary Highway to 6-Lane Arterial	$2,186,940	4	$1,500,000		$686,940.00	0.4%	**$2,820.04**
						Total Project Share	**$297,167.19**

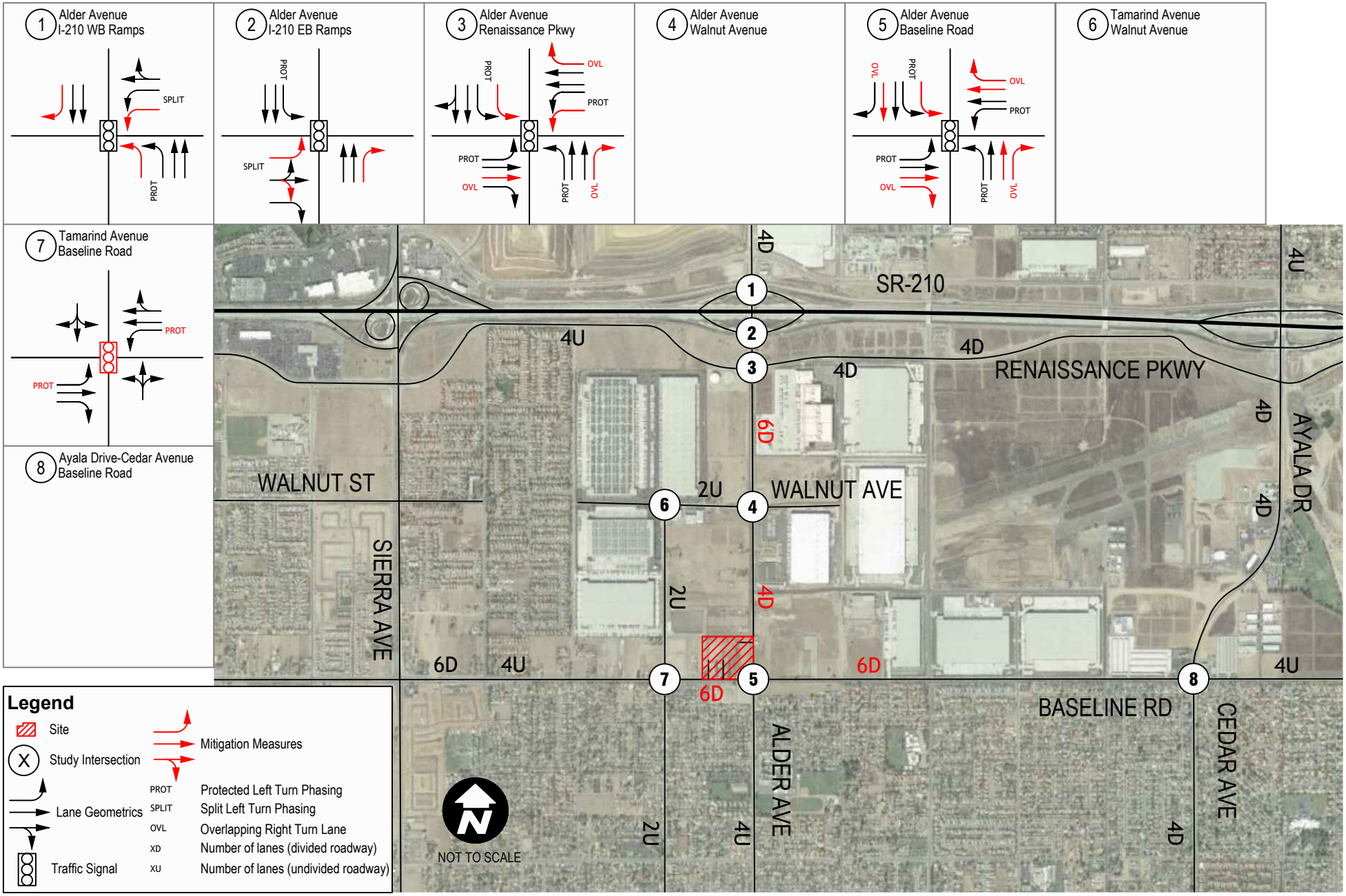
Note:

1 Mitigation and total cost included in the Feasibility Study Report on Alder Avenue/ SR-210 Interchange in the City of Rialto.

2 TIA for Renaissance Specific Plan Amendment (RSPA) 2016, Table 3-F-Year 2035 with RSPA Funding Mechanism and Fair Share Cost Estimates.

3 Based on cost for turn lanes in RSPA 2016.

4 Traffic Impact Assessment for Renaissance Specific Plan Amendment (RSPA) 2016, Table 3-I-Year 2035 with RSPA Roadway Segment Funding Mechanism and Fair Share Cost Estimates.



Source: Google Earth, 10/2016

Mitigation Measures

Baseline Alder Warehouse - Rialto

FIGURE 21

DUDEK

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5 FINDINGS AND RECOMMENDATIONS

Figure 2 illustrates the project's site plan. The proposed project would include construction of a 255,655 square foot (SF, gross floor area), one-story industrial/warehouse building on an approximately 11.48-acre site at the northwest corner of Alder Avenue/Baseline Road. The warehouse building would comprise approximately 255,655 SF of warehouse space. The project would also include 137 standard (passenger vehicle) parking spaces, 40 trailer parking spaces, and 28 loading docks.

Access to project site would be via two right-turn in/out only driveways on Baseline Road, and a right-turn in/out only driveway on Alder Avenue. Inbound truck access for the project site is proposed at the driveway on Alder Avenue, and outbound truck access from the driveway on Baseline Road. All three driveways would provide passenger car access to the proposed project. The project would also include improvements to Baseline Road and Alder Avenue along the project's street frontage, including a landscape, sidewalk, and parkway improvements.

The project would generate 910 daily trips, 77 AM peak hour trips, and 82 PM peak hour trips. With the application of PCE factors to truck trips, the proposed project would generate 1,526 PCE daily trips, and 132 PCE trips during the AM peak hour (104 inbound and 28 outbound), and138 PCE trips during the PM peak hour (34 inbound and 104 outbound).

5.1 Project Impacts

5.1.1 Project Completion 2020 plus Project

5.1.1.1 Intersection LOS

The Tamarind Avenue/Baseline Road intersection is forecast to continue to operate at LOS F during the AM peak hour with addition of project traffic. Based on a peak hour signal warrant analysis, conducted per the CA MUTCD, the Project Completion 2020 plus Project traffic volumes at Tamarind Avenue/Baseline Road would not satisfy a peak hour signal warrant. However, since the intersection is currently operating at LOS F (127.3 seconds of delay) and the proposed project would contribute 15.0 seconds of delay, the proposed project would be required to pay its fair-share towards the signalization of the intersection.

5.1.1.2 Roadway Segment LOS

The roadway segment of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway, is forecast to continue to operate at LOS F under the Project Completion 2020 plus Project conditions. The project would not be required to mitigate this roadway segment, however

it would be required to pay its fair share towards improvements required for this segment to operate at an acceptable LOS.

5.1.2 Cumulative 2020 plus Project

5.1.2.1 Intersection LOS

The following intersections are forecast to operate with unsatisfactory LOS under Cumulative 2020 plus project conditions, during one or both peak hours, and the proposed project would create a potentially significant impact at these locations, as addition of project volumes would cause an increase of ≥1.0 seconds at LOS F:

- Alder Avenue/SR-210 westbound ramps (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Alder Avenue/SR-210 Eastbound Ramps (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Alder Avenue/Renaissance Parkway (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Alder Avenue/Walnut Avenue (LOS C and ≥8.0 second increase during the PM peak hour)
- Alder Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)
- Tamarind Avenue/Baseline Road (LOS F and ≥1.0 second delay increase during both peak hours; significant impact)

It should be noted that per City's criteria for peak hour delay increases, the project would have an impact at the Alder Avenue/Walnut Avenue intersection. However, since the intersection operates at LOS C in the Cumulative 2020 plus Project conditions, which is acceptable per City of Rialto 2010 General Plan LOS standards, no mitigation is proposed for this intersection. For the remaining significantly impacted intersections, the proposed project will be required to provide the mitigation measures.

5.1.2.2 Roadway Segment LOS

The proposed project would create a potentially significant impact by contributing daily traffic to the following roadway segments that are forecast to continue to operate at LOS F with addition of project traffic:

- Alder Avenue between SR-210 westbound ramps and SR-210 eastbound ramps
- Alder Avenue between SR-210 eastbound ramps and Renaissance Parkway

- Alder Avenue between Renaissance Parkway and Walnut Avenue
- Alder Avenue between Walnut Avenue and Baseline Road
- Baseline Road, between Alder Avenue and Tamarind Avenue, and
- Baseline Road, Alder Avenue and Locust Avenue

The project would not be required to mitigate these roadway segments; however, it would be required to pay its fair share towards improvements required for them to operate at an acceptable LOS.

5.1.3 On-Site Circulation, Project Access and Parking

Per the project site plan, paved internal drive aisles would be provided along the northern, southern, and western sides of the project site. Gated entry locations are proposed on both sides of the truck parking and dock areas, on the southern and western drive aisles. The project site would include 137 parking spaces, 28 loading docks, and 40 trailer parking spaces.

The truck turning analysis shows there is sufficient driveway width at the Alder Avenue driveway, and within the dock area for the trucks to complete inbound docking maneuvers. Inbound truck traffic will proceed into the site from Alder Avenue, head westbound through a secured (sliding and swing) gate towards the loading dock area, then backing into a dock. The truck turning analysis shows there is sufficient driveway width at the Alder Avenue driveway, and within the dock area for the trucks to complete inbound docking maneuvers. Outbound truck traffic will exit the loading dock area, proceed southbound, and finally exit onto Baseline Road.

All of the project access intersections are forecast to operate with satisfactory LOS at LOS C or better during the AM peak hour and the PM peak hour under Project Completion plus Project conditions and Cumulative 2020 plus Project conditions.

All of the proposed parking spaces are on-grade and are 90-degree parking stalls that meet the City's standards. Due to the standard layout of the parking stalls, provision of three project access driveways, and drive aisles along the perimeter of the site, the on-site circulation for passenger cars and trucks is expected to be adequate.

5.2 Mitigation Measures

Based on the traffic analyses conducted for the Project Completion 2020 plus Project and Cumulative 2020 plus Project conditions, the following mitigation measures are proposed to offset the potentially significant traffic impacts of the proposed project:

TRAF-1 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to signalize the intersection of

Tamarind Avenue/Baseline Road, as deemed by the City Engineer. The project's fair share at this intersection is 13.39 percent, and the resulting fair share cost for this improvement would be $53,543.31.

Once signalized, the intersection would operate with satisfactory LOS (LOS D or better), and the project's impact would be reduced to a level of less than significant.

TRAF-2 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between SR-210 eastbound ramps and Renaissance Parkway with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share along this roadway segment is 4.4 percent; the resulting fair share cost for this improvement would be included in the project's total cost towards SR-210/Alder Avenue Interchange improvement, estimated to be a total of $102,388.00.

TRAF-3 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Alder Avenue/SR-210 westbound ramps with the following improvements:

- Add second westbound left turn lane
- Add second northbound left turn lane
- Add southbound right turn lane

This intersection is part of the SR-210/Alder Avenue Interchange Improvement and all of the above-mentioned improvements are included in the FSR. The project's fair share at this intersection is 2.5 percent, and the resulting fair share cost for this improvement would be included in project's total cost towards SR-210/Alder Avenue Interchange, estimated to be a total of $102,388.00.

TRAF-4 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Alder Avenue/SR-210 eastbound ramps with the following improvements:

- Add dedicated eastbound left turn lane
- Restripe eastbound left-through lane to left-through-right lane
- Add dedicated northbound right turn lane

- Signal modification

This intersection is part of the SR-210/Alder Avenue Interchange Improvement and all of the above-mentioned improvements are included in the FSR. The project's fair share at this intersection is 4.1 percent, and the resulting fair share cost for this improvement would be included in project's total cost towards SR-210/Alder Avenue Interchange, estimated to be a total of $102,388.00.

TRAF-5 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Alder Avenue/Renaissance Parkway with the following improvements:

- Add dedicated westbound right turn lane (included in FSR)
- Add second southbound left turn lane (included in FSR)
- Restripe southbound right turn lane to through-right (included in FSR)
- Signal modification (included in FSR)
- Add second westbound left turn lane
- Add dedicated northbound right lane
- Add second eastbound through lane
- Re-stripe westbound right to westbound through lane

This intersection is part of the SR-210/Alder Avenue Interchange Improvement and some of the above-mentioned improvements are included in the FSR. The project's fair share at this intersection is 3.5 percent, and the resulting fair share cost for this improvement would be included in project's total cost towards SR-210/Alder Avenue Interchange, estimated to be a total of $102,388.00.

For the improvements not included in the FSR, the project's fair share at this intersection is 3.5 percent, and the resulting fair share cost for this improvement would be$3,703.11.

TRAF-6 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Alder Avenue/Baseline Road with the following improvements:

- Add eastbound through lane
- Add dedicated eastbound right turn lane

- Add westbound through lane
- Add dedicated westbound right turn lane
- Add northbound through lane
- Add dedicated northbound right turn lane
- Add second southbound left turn lane
- Add southbound through lane
- Signal modification

The project's fair share at this intersection is 1.7 percent, and the resulting fair share cost for this improvement would be $8,180.80.

TRAF-7 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the intersection of Tamarind Avenue/Baseline Road with the following improvements:

- Install new traffic signal

The project's fair share at this intersection is 13.4 percent, and the resulting fair share cost for this improvement would be $53,543.31.

Once the improvements above are constructed, most of the potentially significantly impacted intersections above would operate with satisfactory LOS (LOS D or better), and the project's impact would be reduced to a level of less than significant. The exception would be the intersection of Alder Avenue/Renaissance Parkway where the PM peak hour is forecast to operate at LOS E (61.9 seconds of delay) with the mitigation measure implemented (from LOS F with 295.4 seconds of delay).

While this intersection is forecast to continue to operate with unsatisfactory conditions with the proposed mitigation measures at LOS E (from LOS F with mitigation), overall delay at the intersection would be significantly improved by 233.5 seconds. The payment of the project's fair share cost to construct the mitigation measure would offset the project's 11.5 second delay increase at the intersection since the improvements would improve delay by 233.5 seconds. Therefore, project impacts at Alder Avenue/Renaissance Parkway would be reduced to a level of less than significant.

TRAF-8 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between SR-210 westbound and eastbound ramps with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share along this roadway segment is 3.0 percent, the resulting fair share cost for this improvement would be included in the project's total cost towards SR-210/Alder Avenue Interchange improvement, estimated to be a total of $102,388.00.

TRAF-9 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between Renaissance Parkway and Walnut Avenue with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share at this roadway segment is 5.3 percent, and the resulting fair share cost for this improvement would be $15,283.60 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair share cost.

TRAF-10 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Alder Avenue, between Walnut Avenue and Baseline Road with the following improvements:

- Construct roadway segment to a 4-lane Arterial

The project's fair share at this roadway segment is 2.4 percent, and the resulting fair share cost for this improvement would be $0.00 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair share cost.

TRAF-11 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Baseline Road, west of Alder Avenue between Alder Avenue and Tamarind Avenue with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share at this roadway segment is 8.9 percent, and the resulting fair share cost for this improvement would be $126,531.95 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair share cost.

TRAF-12 Prior to issuance of a Certificate of Occupancy, the project applicant shall pay the City's required fees, and contribute their fair-share cost to improve the roadway segment of Baseline Road, east of Alder Avenue between Alder Avenue and Locust Avenue with the following improvements:

- Construct roadway segment to a 6-lane Arterial

The project's fair share at this roadway segment is 0.4 percent, and the resulting fair share cost for this improvement would be $2,820.04 as payment to the SANBAG Nexus Fee and Renaissance Specific Plan Fee would cover their fair share cost.

APPENDIX A

Scoping Agreement

Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT ANALYSIS

This following form shall be used to acknowledge preliminary approval of the scope for the traffic impact analysis (TIA) of the following project. The TIA must follow the City of Rialto Traffic Impact Analysis – Report Guidelines and Requirements, adopted by the City Council on February 5, 2014 .

City of Rialto

Traffic Impact Analysis

Scoping Agreement

Case No. _____

Related Cases -

SP No. _____

EIR No. _____

GPA No. _____

ZC No. _____

Project Name: Baseline/ Alder Warehouse Project

Project Address: Northwest corner of Alder Avenue and Baseline Road (see attached Figure 4 – Site Plan)

Project Description: 251,042 square foot warehouse

	Consultant	Developer
Name:	Dudek c/o Dennis Pascua	Pacific Industrial
Address:	605 Third St. Encinitas, CA 92024	6272 Pacific Coast Highway, Ste E Long Beach, California 90803
Telephone:	(760) 479-4256	(858) 952-4134
Fax:	(760) 632-0164	N/A

1. **Trip Generation Source:** ITE Trip Generation, 9th Edition, and City of Rialto Traffic Impact Analysis Report Guidelines and Requirements for Special Uses

Existing GP Land Use Specific Plan Proposed Land Use Specific Plan

Current Zoning: Renaissance Specific Plan (16 and 17 Employment w/ Commercial Overlay)

Proposed Zoning: Renaissance Specific Plan (16 and 17 Employment w/ Commercial Overlay)

Total Daily Project Trips: 1,497 PCE trips (See attached Table 1)

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	0 PCE	0 PCE	0 PCE	103 PCE	28 PCE	131 PCE
PM Trips	0 PCE	0 PCE	0 PCE	34 PCE	100 PCE	134 PCE
Internal Trip Allowance		Yes	No	(N/A % Trip Discount)		
Pass-By Trip Allowance		Yes	No	(N/A % Trip Discount)		

For appropriate land uses, a pass-by trip discount may be allowed not to exceed 25%. Discount trips shall be indicated on a report figure for intersections and access locations.

2. **Trip Geographic Distribution:** N % S % E % W %

See attached Figures 1 and 2 for passenger-car inbound and outbound trip distribution percentages, respectively; and, Figure 3 for truck traffic distribution percentages. There are two proposed driveways: one right-turn in/out driveway on Alder Avenue; and, one right-turn in/out driveway on Baseline Road. All trucks are distributed to SR-210 with 50% traveling east and 50% traveling west (Figure 3).

(Detailed exhibits of trip distribution must be attached with Trucks as a separate exhibit)

3. **Background Growth Traffic**

Project Completion Year: 2020 Annual Background Growth Rate: 2%

Other Phase Years none

Other area projects to be considered: Cumulative projects list will be requested from Planning Department and Public Works Department.

(Contact Planning for Lists. Correlate projects to exhibit map and also indicate which projects have been included in study area forecasts for existing + background growth + project + cumulative)

Model/Forecast methodology: Buildup Method (add background growth + traffic from cumulative projects)

4. Study Intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies received.)

1. Alder Avenue/ I-210 WB ramps
2. Alder Avenue/ I-210 EB ramps
3. Alder Avenue/Renaissance Parkway
4. Alder Avenue/Walnut Avenue
5. Alder Avenue/Baseline Road
6. Tamarind Avenue/Baseline Road
7. Tamarind Avenue/Walnut Avenue
8. Ayala Dr – Cedar Ave/Baseline Road
9. _____
10. _____

5. Study Roadway Segments: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies received.)

1. Alder Avenue, between SR-210 WB ramps and EB ramps
2. Alder Avenue, between SR-210 EB ramps and Renaissance Parkway
3. Alder Avenue, between Renaissance Parkway and Walnut Avenue
4. Alder Avenue, between Walnut Avenue and Baseline Road
5. Baseline Road, west of Alder Avenue
6. Baseline Road, east of Alder Avenue

6. Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of Influence or within one-mile of another jurisdictional boundary? X **YES** _____ NO

If so, name of Jurisdiction: Caltrans

7. Site Plan (please attach 11" x 17" legible copy) See Figure 4 for proposed site plan.

8. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (to be filled out by the City of Rialto Public Works Department) (NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing un-signalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

1. Analysis of queues at Alder Avenue/Project Access Driveways and Baseline Road/ Project Access Driveway, and their potential impacts to Alder Avenue/Baseline Road intersection.

2. Analysis of driveway lane geometrics and potential access restrictions.

3. Truck turning template diagrams for movements in and out of project access driveways to show the movements can be made without encroachment into other through or driving lanes.

4. A discussion of truck access through designated passenger vehicle parking areas

9. Existing Conditions

Traffic count data must be new or within one year. Provide traffic count dates if using other than new counts.

Date of counts: New counts will be collected in 2018 for study area intersections and roadway segments per scoping agreement.

NOTE Fees are due and must be submitted with, or prior to submittal of this form. The City will not process the Scoping Agreement prior to the receipt of the processing fee.

Fees Paid: See attached receipt Date February 26, 2018

Recommended:

Scoping Agreement Submittal date 2/27/18

Scoping Agreement Resubmittal date 4/17/18

Applicant/Engineer — Date: 4/17/18

Land Use Concurrence:

Development Services Department — Date: 4/17/18

Approved by:

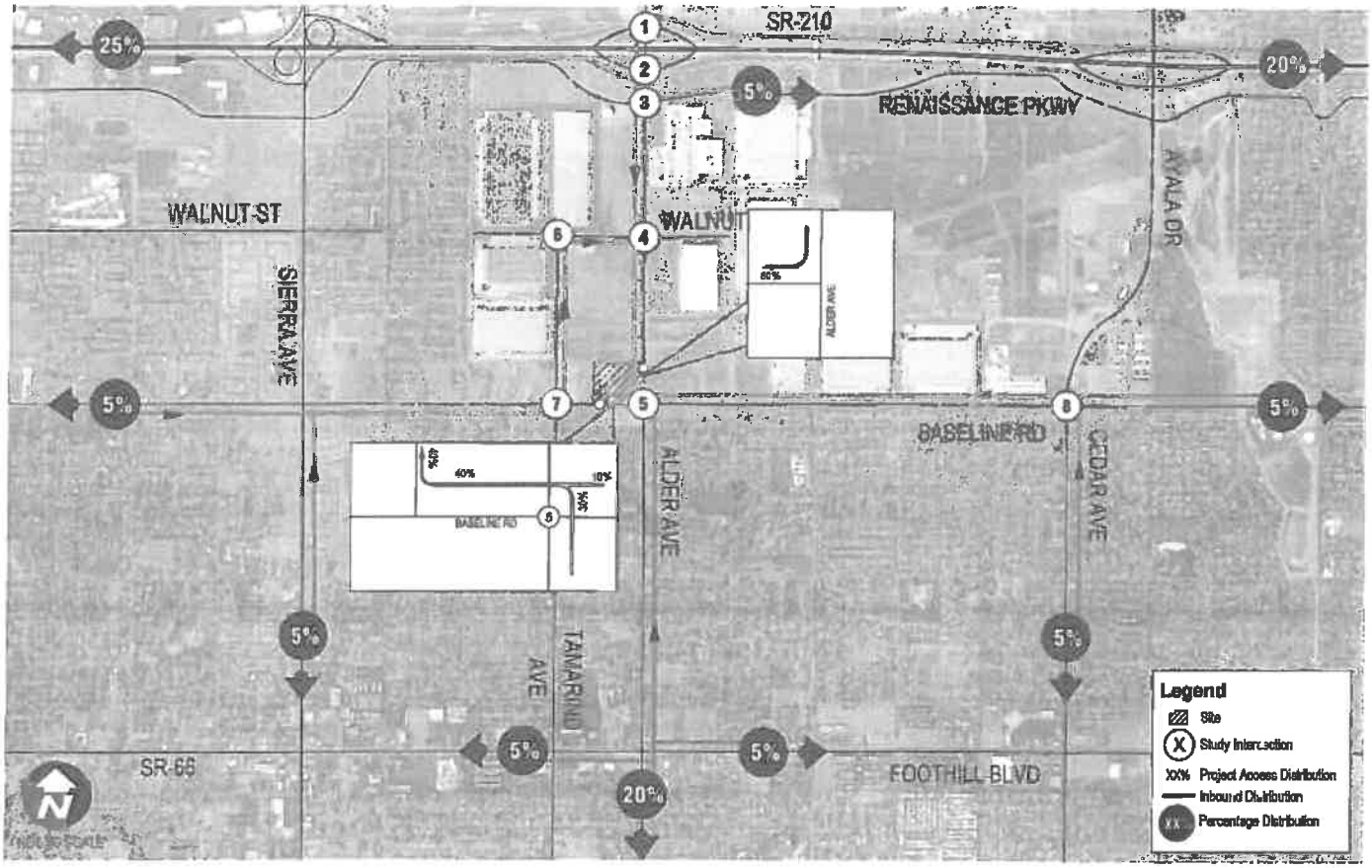
Public Works Department — Date: 4/17/18

NOTE:

The Applicant/Engineer acknowledges that the Scoping Agreement is intended to assist in the preparation of any required TIA. It is preliminary in nature and the City does not have sufficient data to determine the ultimate conditions that may be imposed for the project. It does not provide nor limit the requirements imposed on the Project but is intended only to provide initial input into the parameters for review of the traffic generated by the Project and the initial areas to be considered and studied. Subsequent changes to scope of required analysis to be included in the TIA may be required by the Transportation Commission, Planning Commission, and/or the City Council upon Public Works Director/City Engineer review and approval.

Table 1. Proposed Baseline-Alder Warehouse Trip Generation Estimates

				AM Peak Hour			PM Peak Hour		
Land Use		**Units**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Trip Rates									
Warehouse1 total		TSF	3.56	0.24	0.06	0.30	0.08	0.24	0.32
Passenger Vehicles			2.136	0.145	0.035	0.180	0.048	0.144	0.192
2-Axle Trucks			0.028	0.002	0.000	0.002	0.001	0.002	0.003
3-Axle Trucks			0.389	0.027	0.007	0.034	0.009	0.027	0.036
4+-Axle Trucks			0.997	0.066	0.018	0.084	0.022	0.067	0.089
Trip Generation for Proposed Warehouse Facility									
Walnut Alder Warehouse	251.042	TSF	894	59	16	75	20	60	80
Vehicle Mix2		*Percent*							
Passenger Vehicles		60.00%	536	36	9	45	12	36	48
2-Axle Trucks		0.80%	7	1	0	1	0	1	1
3-Axle Trucks		11.20%	100	7	2	9	2	7	9
4+-Axle Trucks		28.00%	250	17	5	21	6	16	22
		100%	893	61	16	75	20	60	80
PCE Trip Generation		*PCE Factor*							
Passenger Vehicles		1.0	536	36	9	45	12	36	48
2-Axle Trucks		1.5	11	2	0	2	0	2	2
3-Axle Trucks		2.0	200	14	4	18	4	14	18
4+-Axle Trucks		3.0	750	51	15	66	18	48	66
Proposed Trip Generation W/PCE			**1497**	**103**	**28**	**131**	**34**	**100**	**134**



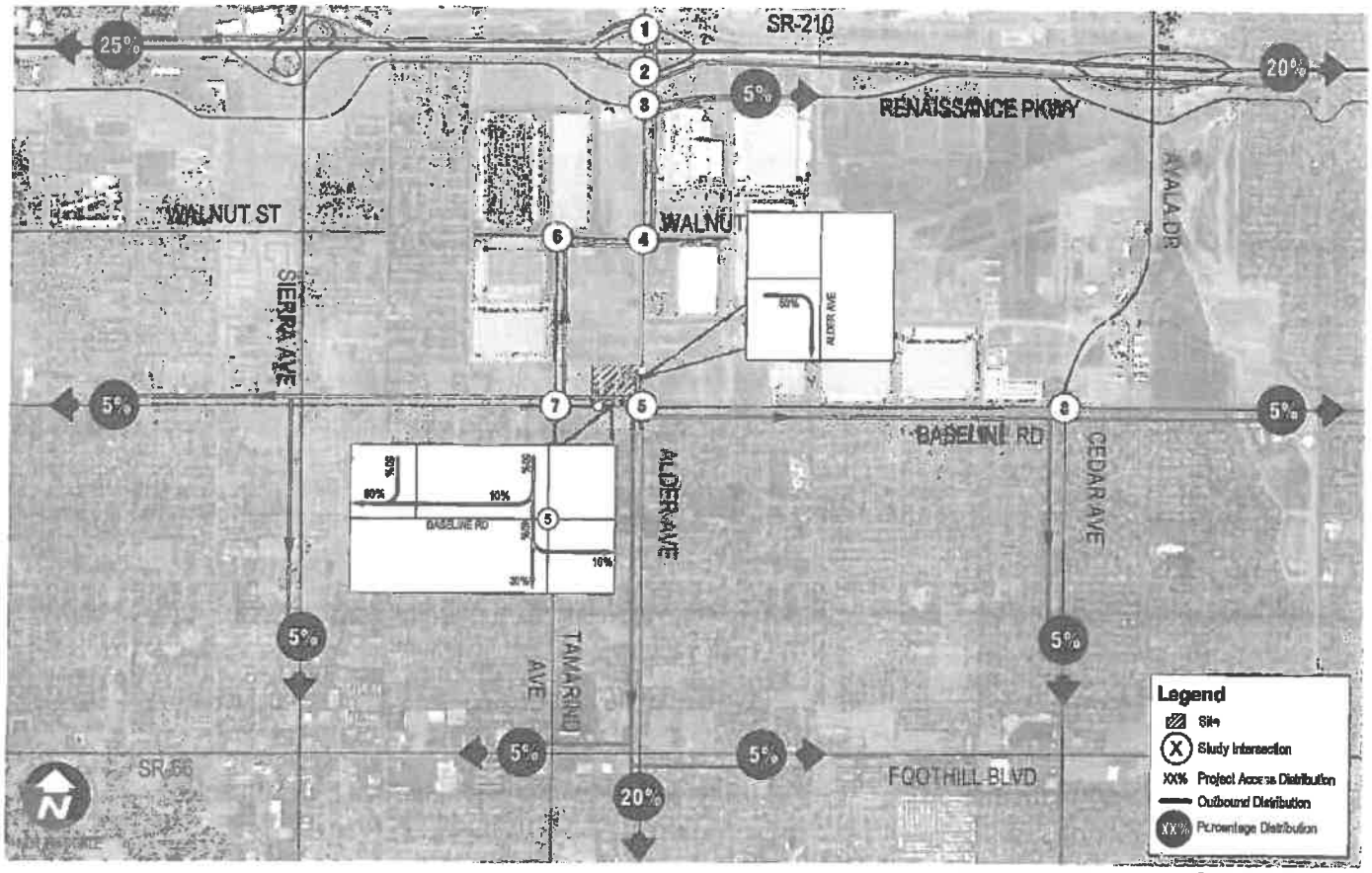
Source: Google Maps, 10/2016

Inbound Project Trip Distribution - Passenger Cars

FIGURE 1

Baseline Alder Warehouse - Rialto

DUDEK



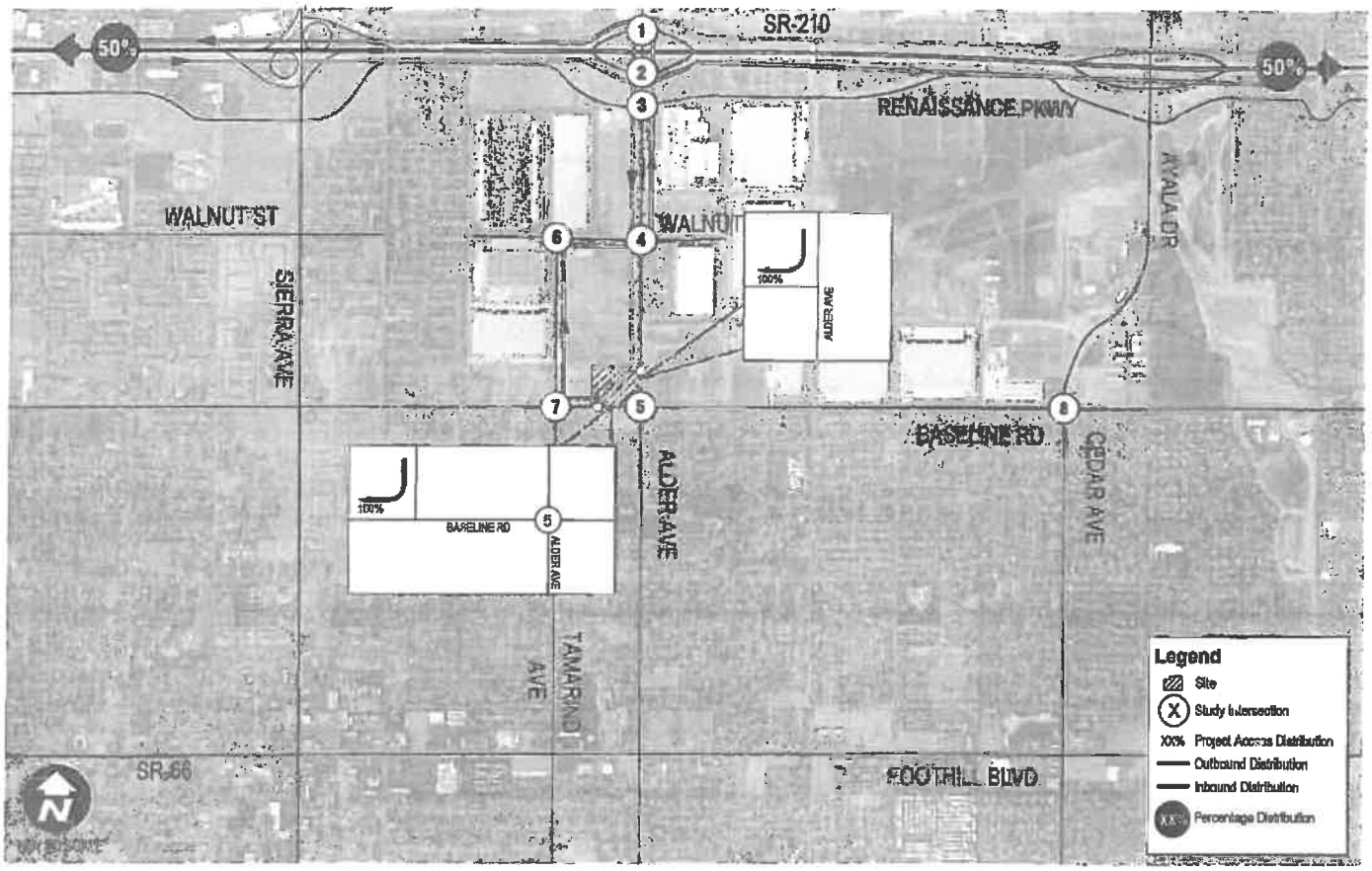
Source: Google Maps, 10/2016

Outbound Project Trip Distribution - Passenger Cars

FIGURE 2

Baseline Alder Warehouse - Rialto

DUDEK



Source: Google Maps, 10/2016

Project Trip Distribution - Trucks

FIGURE 3

Baseline Alder Warehouse - Rialto

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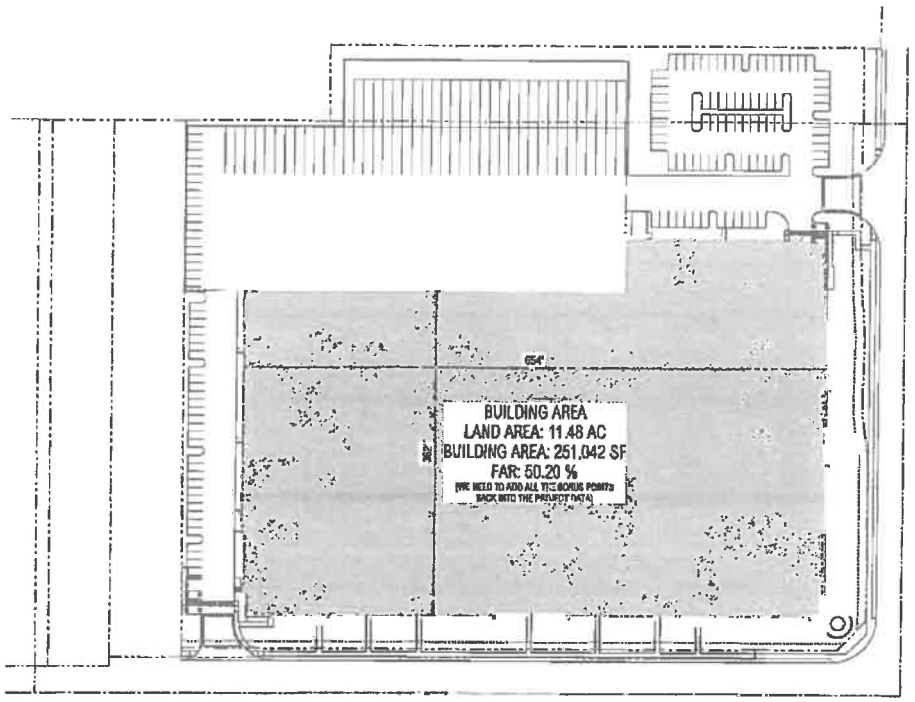


RGA

NEW INDUSTRIAL BUILDING

PACIFIC

A1-1P

APPENDIX B

Traffic Counts

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 (I-210) WB Ramps
City: Rialto
Control: Signalized

Project ID: 18-06025-001
Date: 3/6/2018

Total

NS/EW Streets:	Alder Ave				Alder Ave				I 210 (I-210) WB Ramps				I 210 (I-210) WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	80	96	0	0	0	26	100	0	0	0	0	0	62	1	19	0	384
7:15 AM	67	57	0	0	0	35	76	0	0	0	0	0	75	0	32	0	342
7:30 AM	45	67	0	0	0	54	60	0	0	0	0	0	65	0	32	0	323
7:45 AM	42	61	0	0	0	30	60	0	0	0	0	0	79	1	36	0	309
8:00 AM	47	51	0	0	0	34	56	0	0	0	0	0	63	1	29	0	281
8:15 AM	67	48	0	0	0	31	67	0	0	0	0	0	45	0	21	0	279
8:30 AM	59	49	0	0	0	43	51	0	0	0	0	0	28	4	33	0	267
8:45 AM	46	48	0	0	0	33	36	0	0	0	0	0	46	0	24	0	233
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	453	477	0	0	0	286	506	0	0	0	0	0	463	7	226	0	2418
APPROACH %'s :	48.71%	51.29%	0.00%	0.00%	0.00%	36.11%	63.89%	0.00%					66.52%	1.01%	32.47%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	234	281	0	0	0	145	296	0	0	0	0	0	281	2	119	0	1358
PEAK HR FACTOR :	0.731	0.732	0.000	0.000	0.000	0.671	0.740	0.000	0.000	0.000	0.000	0.000	0.889	0.500	0.826	0.000	0.884
	0.732				0.875								0.866				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	66	89	0	0	0	51	65	0	0	0	0	0	56	2	26	0	355
4:15 PM	67	73	0	0	0	61	60	0	0	0	0	0	46	1	23	0	331
4:30 PM	95	78	0	0	0	86	86	0	0	0	0	0	52	1	16	0	414
4:45 PM	59	63	0	0	0	58	74	0	0	0	0	0	71	1	19	0	345
5:00 PM	82	62	0	0	0	68	50	0	0	0	0	0	54	1	19	0	336
5:15 PM	57	59	0	0	0	42	62	0	0	0	0	0	69	1	18	0	308
5:30 PM	64	77	0	0	0	56	42	0	0	0	0	0	61	1	25	0	326
5:45 PM	64	66	0	0	0	48	49	0	0	0	0	0	64	0	15	0	306
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	554	567	0	0	0	470	488	0	0	0	0	0	473	8	161	0	2721
APPROACH %'s :	49.42%	50.58%	0.00%	0.00%	0.00%	49.06%	50.94%	0.00%					73.68%	1.25%	25.08%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	287	303	0	0	0	256	285	0	0	0	0	0	225	5	84	0	1445
PEAK HR FACTOR :	0.755	0.851	0.000	0.000	0.000	0.744	0.828	0.000	0.000	0.000	0.000	0.000	0.792	0.625	0.808	0.000	0.873
	0.853				0.786								0.863				

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 (I-210) WB Ramps
City: Rialto
Control: Signalized

Project ID: 18-06025-001
Date: 3/6/2018

PV

NS/EW Streets:	Alder Ave				Alder Ave				I 210 (I-210) WB Ramps				I 210 (I-210) WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	72	78	0	0	0	24	81	0	0	0	0	0	60	1	16	0	332
7:15 AM	61	40	0	0	0	31	68	0	0	0	0	0	71	0	22	0	293
7:30 AM	39	50	0	0	0	42	37	0	0	0	0	0	65	0	24	0	257
7:45 AM	33	50	0	0	0	21	37	0	0	0	0	0	77	1	30	0	249
8:00 AM	41	45	0	0	0	25	39	0	0	0	0	0	58	1	19	0	228
8:15 AM	57	33	0	0	0	24	46	0	0	0	0	0	40	0	15	0	215
8:30 AM	51	32	0	0	0	30	37	0	0	0	0	0	24	4	23	0	201
8:45 AM	37	32	0	0	0	22	20	0	0	0	0	0	42	0	10	0	163
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	391	360	0	0	0	219	365	0	0	0	0	0	437	7	159	0	1938
APPROACH %'s :	52.06%	47.94%	0.00%	0.00%	0.00%	37.50%	62.50%	0.00%					72.47%	1.16%	26.37%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	205	218	0	0	0	118	223	0	0	0	0	0	273	2	92	0	1131
PEAK HR FACTOR :	0.712	0.699	0.000	0.000	0.000	0.702	0.688	0.000	0.000	0.000	0.000	0.000	0.886	0.500	0.767	0.000	0.852
		0.705				0.812								0.850			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	53	65	0	0	0	42	52	0	0	0	0	0	55	2	23	0	292
4:15 PM	58	55	0	0	0	47	43	0	0	0	0	0	43	1	22	0	269
4:30 PM	85	63	0	0	0	80	65	0	0	0	0	0	49	1	10	0	353
4:45 PM	51	54	0	0	0	45	60	0	0	0	0	0	68	1	18	0	297
5:00 PM	76	58	0	0	0	57	38	0	0	0	0	0	54	1	19	0	303
5:15 PM	49	51	0	0	0	41	55	0	0	0	0	0	67	1	17	0	281
5:30 PM	57	68	0	0	0	54	34	0	0	0	0	0	58	1	25	0	297
5:45 PM	57	58	0	0	0	48	39	0	0	0	0	0	62	0	12	0	276
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	486	472	0	0	0	414	386	0	0	0	0	0	456	8	146	0	2368
APPROACH %'s :	50.73%	49.27%	0.00%	0.00%	0.00%	51.75%	48.25%	0.00%					74.75%	1.31%	23.93%	0.00%	
PEAK HR :	**04:00 PM - 05:00 PM**																TOTAL
PEAK HR VOL :	247	237	0	0	0	214	220	0	0	0	0	0	215	5	73	0	1211
PEAK HR FACTOR :	0.73	0.912	0.000	0.000	0.000	0.669	0.846	0.000	0.000	0.000	0.000	0.000	0.790	0.625	0.793	0.000	0.858
		0.818				0.748								0.842			

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 (I-210) WB Ramps
City: Rialto
Control: Signalized

Project ID: 18-06025-001
Date: 3/6/2018

HT

NS/EW Streets:	Alder Ave				Alder Ave				I 210 (I-210) WB Ramps				I 210 (I-210) WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	6	12	0	0	0	0	8	0	0	0	0	0	1	0	2	0	29
7:15 AM	4	11	0	0	0	2	7	0	0	0	0	0	2	0	9	0	35
7:30 AM	5	14	0	0	0	9	15	0	0	0	0	0	0	0	7	0	50
7:45 AM	9	8	0	0	0	7	15	0	0	0	0	0	1	0	6	0	46
8:00 AM	4	2	0	0	0	7	10	0	0	0	0	0	4	0	10	0	37
8:15 AM	10	10	0	0	0	6	13	0	0	0	0	0	5	0	3	0	47
8:30 AM	6	12	0	0	0	11	8	0	0	0	0	0	3	0	7	0	47
8:45 AM	9	10	0	0	0	9	8	0	0	0	0	0	3	0	10	0	49
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	53	79	0	0	0	51	84	0	0	0	0	0	19	0	54	0	340
APPROACH %'s :	40.15%	59.85%	0.00%	0.00%	0.00%	37.78%	62.22%	0.00%					26.03%	0.00%	73.97%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	24	45	0	0	0	18	45	0	0	0	0	0	4	0	24	0	160
PEAK HR FACTOR :	0.667	0.804	0.000	0.000	0.000	0.500	0.750	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.667	0.000	0.800
	0.908				0.656								0.636				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	16	0	0	0	7	8	0	0	0	0	0	1	0	3	0	44
4:15 PM	5	7	0	0	0	11	16	0	0	0	0	0	3	0	1	0	43
4:30 PM	6	9	0	0	0	4	16	0	0	0	0	0	2	0	6	0	43
4:45 PM	7	6	0	0	0	12	10	0	0	0	0	0	2	0	1	0	38
5:00 PM	5	3	0	0	0	5	8	0	0	0	0	0	0	0	0	0	21
5:15 PM	5	5	0	0	0	1	4	0	0	0	0	0	2	0	1	0	18
5:30 PM	4	6	0	0	0	1	6	0	0	0	0	0	2	0	0	0	19
5:45 PM	3	6	0	0	0	0	8	0	0	0	0	0	1	0	2	0	20
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	44	58	0	0	0	41	76	0	0	0	0	0	13	0	14	0	246
APPROACH %'s :	43.14%	56.86%	0.00%	0.00%	0.00%	35.04%	64.96%	0.00%					48.15%	0.00%	51.85%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	27	38	0	0	0	34	50	0	0	0	0	0	8	0	11	0	168
PEAK HR FACTOR :	0.75	0.594	0.000	0.000	0.000	0.708	0.781	0.000	0.000	0.000	0.000	0.000	0.667	0.000	0.458	0.000	0.955
	0.650				0.778								0.594				

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 (I-210) WB Ramps
City: Rialto
Control: Signalized

Project ID: 18-06025-001
Date: 3/6/2018

MT

NS/EW Streets:	Alder Ave				Alder Ave				I 210 (I-210) WB Ramps				I 210 (I-210) WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	2	0	0	0	0	9	0	0	0	0	0	0	0	1	0	13
7:15 AM	2	4	0	0	0	1	1	0	0	0	0	0	1	0	1	0	10
7:30 AM	1	2	0	0	0	2	6	0	0	0	0	0	0	0	0	0	11
7:45 AM	0	2	0	0	0	2	6	0	0	0	0	0	0	0	0	0	10
8:00 AM	0	3	0	0	0	2	3	0	0	0	0	0	1	0	0	0	9
8:15 AM	0	3	0	0	0	1	5	0	0	0	0	0	0	0	2	0	11
8:30 AM	1	4	0	0	0	2	3	0	0	0	0	0	1	0	3	0	14
8:45 AM	0	4	0	0	0	1	7	0	0	0	0	0	1	0	2	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	24	0	0	0	11	40	0	0	0	0	0	4	0	9	0	93
APPROACH %'s :	17.24%	82.76%	0.00%	0.00%	0.00%	21.57%	78.43%	0.00%					30.77%	0.00%	69.23%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	4	10	0	0	0	5	22	0	0	0	0	0	1	0	2	0	44
PEAK HR FACTOR :	0.500	0.625	0.000	0.000	0.000	0.625	0.611	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.500	0.000	0.846
	0.583				0.750								0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	7	0	0	0	2	5	0	0	0	0	0	0	0	0	0	16
4:15 PM	1	9	0	0	0	1	0	0	0	0	0	0	0	0	0	0	11
4:30 PM	2	3	0	0	0	2	5	0	0	0	0	0	0	0	0	0	12
4:45 PM	1	1	0	0	0	1	4	0	0	0	0	0	1	0	0	0	8
5:00 PM	1	0	0	0	0	6	4	0	0	0	0	0	0	0	0	0	11
5:15 PM	1	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6
5:30 PM	2	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	6
5:45 PM	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	25	0	0	0	13	22	0	0	0	0	0	1	0	1	0	75
APPROACH %'s :	34.21%	65.79%	0.00%	0.00%	0.00%	37.14%	62.86%	0.00%					50.00%	0.00%	50.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	6	20	0	0	0	6	14	0	0	0	0	0	1	0	0	0	47
PEAK HR FACTOR :	0.75	0.556	0.000	0.000	0.000	0.750	0.700	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.734
	0.650				0.714								0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 (I-210) WB Ramps
City: Rialto
Control: Signalized

Project ID: 18-06025-001
Date: 3/6/2018

ST

NS/EW Streets:	Alder Ave				Alder Ave				I 210 (I-210) WB Ramps				I 210 (I-210) WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	0	0	0	2	2	0	0	0	0	0	1	0	0	0	10
7:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	4
7:30 AM	0	1	0	0	0	1	2	0	0	0	0	0	0	0	1	0	5
7:45 AM	0	1	0	0	0	0	2	0	0	0	0	0	1	0	0	0	4
8:00 AM	2	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7
8:15 AM	0	2	0	0	0	0	3	0	0	0	0	0	0	0	1	0	6
8:30 AM	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5
8:45 AM	0	2	0	0	0	1	1	0	0	0	0	0	0	0	2	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	14	0	0	0	5	17	0	0	0	0	0	3	0	4	0	47
APPROACH %'s :	22.22%	77.78%	0.00%	0.00%	0.00%	22.73%	77.27%	0.00%					42.86%	0.00%	57.14%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	1	8	0	0	0	4	6	0	0	0	0	0	3	0	1	0	23
PEAK HR FACTOR :	0.250	0.500	0.000	0.000	0.000	0.500	0.750	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.250	0.000	0.575
	0.450				0.625								1.000				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
4:15 PM	3	2	0	0	0	2	1	0	0	0	0	0	0	0	0	0	8
4:30 PM	2	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	1	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	4
5:45 PM	1	1	0	0	0	0	2	0	0	0	0	0	1	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	12	0	0	0	2	4	0	0	0	0	0	3	0	0	0	32
APPROACH %'s :	47.83%	52.17%	0.00%	0.00%	0.00%	33.33%	66.67%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	**04:00 PM - 05:00 PM**																TOTAL
PEAK HR VOL :	7	8	0	0	0	2	1	0	0	0	0	0	1	0	0	0	19
PEAK HR FACTOR :	0.58	0.667	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.594
	0.750				0.250								0.250				

Prepared by National Data & Surveying Services

Alder Ave & I 210 (I-210) WB Ramps

Peak Hour Turning Movement Count

ID: 18-06025-001
City: Rialto

Day: Tuesday
Date: 03/06/2018

PEAK HOURS

AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Alder Ave — SOUTHBOUND

AM	296	145	0	0	400	AM
NOON	0	0	0	0	0	NOON
PM	285	256	0	0	387	PM

0 2 0 0

I 210 (I-210) WB Ramps — EASTBOUND

AM	NOON	PM	
532	0	577	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

CONTROL

Signalized

TEV	1358	0	1445
	AM	NOON	PM
PHF	0.88		0.87

I 210 (I-210) WB Ramps — WESTBOUND

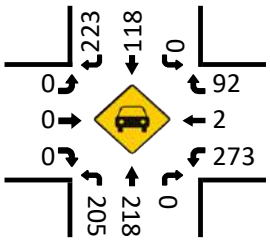
PM	NOON	AM	
84	0	119	0.5
5	0	2	0.5
225	0	281	1
0	0	0	0
0	0	0	
PM	NOON	AM	

Alder Ave — NORTHBOUND

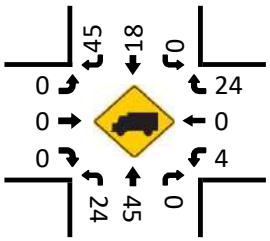
PM	481	0	287	303	0	PM
NOON	0	0	0	0	0	NOON
AM	426	0	234	281	0	AM

0 1 2 0

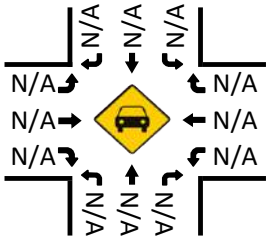
PV (AM)



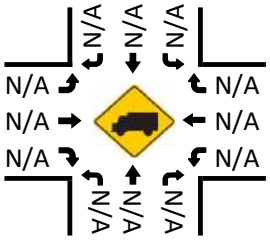
HT (AM)



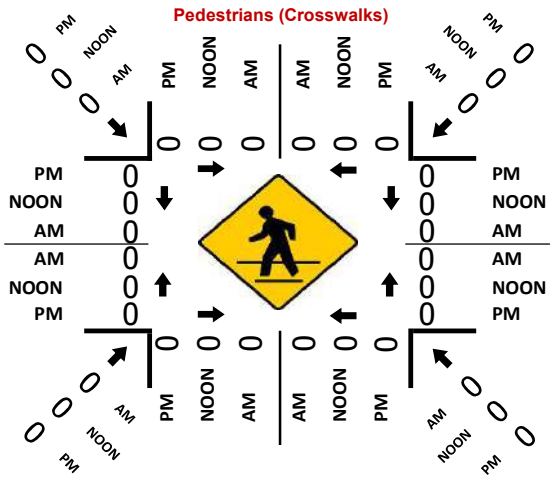
PV (NOON)



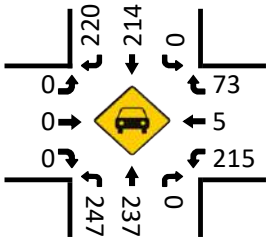
HT (NOON)



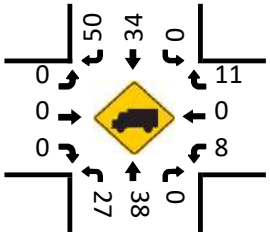
Pedestrians (Crosswalks)



PV (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 EB Ramp
City: Rialto
Control: Signalized

Project ID: 18-06025-002
Date: 3/6/2018

Total

NS/EW Streets:	Alder Ave				Alder Ave				I 210 EB Ramp				I 210 EB Ramp				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	106	56	0	7	81	0	0	68	0	91	0	0	0	0	0	409
7:15 AM	0	86	71	0	14	95	0	0	31	0	103	0	0	0	0	0	400
7:30 AM	0	61	77	0	29	90	0	0	43	0	98	0	0	0	0	0	398
7:45 AM	0	65	73	0	13	87	0	0	43	1	91	0	0	0	0	0	373
8:00 AM	0	68	35	0	19	81	0	0	29	1	45	0	0	0	0	0	278
8:15 AM	0	86	55	0	22	61	0	0	28	3	73	0	0	0	0	0	328
8:30 AM	0	69	39	0	21	51	0	0	40	2	75	0	0	0	0	0	297
8:45 AM	0	65	39	0	17	63	0	0	30	0	56	0	0	0	0	0	270
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	606	445	0	142	609	0	0	312	7	632	0	0	0	0	0	2753
APPROACH %'s :	0.00%	57.66%	42.34%	0.00%	18.91%	81.09%	0.00%	0.00%	32.81%	0.74%	66.46%	0.00%					
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	318	277	0	63	353	0	0	185	1	383	0	0	0	0	0	1580
PEAK HR FACTOR :	0.000	0.750	0.899	0.000	0.543	0.929	0.000	0.000	0.680	0.250	0.930	0.000	0.000	0.000	0.000	0.000	0.966
		0.918				0.874				0.895							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	96	67	0	40	71	0	0	52	0	73	0	0	0	0	0	399
4:15 PM	0	103	71	0	31	76	0	0	45	1	93	0	0	0	0	0	420
4:30 PM	0	124	74	0	49	81	0	0	47	0	72	0	0	0	0	0	447
4:45 PM	0	80	60	0	30	105	0	0	40	1	100	0	0	0	0	0	416
5:00 PM	0	113	107	0	29	85	0	0	32	1	67	0	0	0	0	0	434
5:15 PM	0	76	80	0	20	101	0	0	37	0	90	0	0	0	0	0	404
5:30 PM	0	95	87	0	20	94	0	0	45	1	81	0	0	0	0	0	423
5:45 PM	0	71	65	0	29	82	0	0	53	0	100	0	0	0	0	0	400
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	758	611	0	248	695	0	0	351	4	676	0	0	0	0	0	3343
APPROACH %'s :	0.00%	55.37%	44.63%	0.00%	26.30%	73.70%	0.00%	0.00%	34.04%	0.39%	65.57%	0.00%					
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	420	312	0	139	347	0	0	164	3	332	0	0	0	0	0	1717
PEAK HR FACTOR :	0.000	0.847	0.729	0.000	0.709	0.826	0.000	0.000	0.872	0.750	0.830	0.000	0.000	0.000	0.000	0.000	0.960
		0.832				0.900				0.885							

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 EB Ramp
City: Rialto
Control: Signalized

Project ID: 18-06025-002
Date: 3/6/2018

PV

NS/EW Streets:	Alder Ave				Alder Ave				I 210 EB Ramp				I 210 EB Ramp				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	97	52	0	5	78	0	0	51	0	83	0	0	0	0	0	366
7:15 AM	0	76	68	0	10	91	0	0	18	0	87	0	0	0	0	0	350
7:30 AM	0	53	71	0	20	88	0	0	29	0	88	0	0	0	0	0	349
7:45 AM	0	52	69	0	5	85	0	0	34	1	80	0	0	0	0	0	326
8:00 AM	0	62	31	0	12	73	0	0	26	0	37	0	0	0	0	0	241
8:15 AM	0	73	51	0	15	56	0	0	17	3	60	0	0	0	0	0	275
8:30 AM	0	59	36	0	12	43	0	0	22	2	56	0	0	0	0	0	230
8:45 AM	0	52	38	0	9	56	0	0	18	0	45	0	0	0	0	0	218
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	524	416	0	88	570	0	0	215	6	536	0	0	0	0	0	2355
APPROACH %'s :	0.00%	55.74%	44.26%	0.00%	13.37%	86.63%	0.00%	0.00%	28.40%	0.79%	70.81%	0.00%					
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	278	260	0	40	342	0	0	132	1	338	0	0	0	0	0	1391
PEAK HR FACTOR :	0.000	0.716	0.915	0.000	0.500	0.940	0.000	0.000	0.647	0.250	0.960	0.000	0.000	0.000	0.000	0.000	0.950
		0.903				0.884				0.879							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	81	63	0	31	70	0	0	32	0	70	0	0	0	0	0	347
4:15 PM	0	83	67	0	18	71	0	0	36	1	88	0	0	0	0	0	364
4:30 PM	0	110	69	0	45	76	0	0	33	0	68	0	0	0	0	0	401
4:45 PM	0	72	58	0	20	100	0	0	33	1	93	0	0	0	0	0	377
5:00 PM	0	108	101	0	22	79	0	0	28	1	62	0	0	0	0	0	401
5:15 PM	0	67	77	0	18	100	0	0	29	0	83	0	0	0	0	0	374
5:30 PM	0	83	80	0	19	91	0	0	38	1	77	0	0	0	0	0	389
5:45 PM	0	67	64	0	29	81	0	0	46	0	94	0	0	0	0	0	381
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	671	579	0	202	668	0	0	275	4	635	0	0	0	0	0	3034
APPROACH %'s :	0.00%	53.68%	46.32%	0.00%	23.22%	76.78%	0.00%	0.00%	30.09%	0.44%	69.47%	0.00%					
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	373	295	0	105	326	0	0	130	3	311	0	0	0	0	0	1543
PEAK HR FACTOR :	0.00	0.848	0.730	0.000	0.583	0.815	0.000	0.000	0.903	0.750	0.836	0.000	0.000	0.000	0.000	0.000	0.962
		0.799				0.890				0.874							

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 EB Ramp
City: Rialto
Control: Signalized

Project ID: 18-06025-002
Date: 3/6/2018

HT

NS/EW Streets:	Alder Ave				Alder Ave				I 210 EB Ramp				I 210 EB Ramp				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	6	4	0	0	1	0	0	12	0	7	0	0	0	0	0	30
7:15 AM	0	5	2	0	3	2	0	0	10	0	14	0	0	0	0	0	36
7:30 AM	0	6	5	0	8	1	0	0	13	0	9	0	0	0	0	0	42
7:45 AM	0	10	4	0	6	1	0	0	7	0	10	0	0	0	0	0	38
8:00 AM	0	4	2	0	5	6	0	0	2	1	6	0	0	0	0	0	26
8:15 AM	0	9	3	0	7	4	0	0	9	0	11	0	0	0	0	0	43
8:30 AM	0	8	3	0	9	5	0	0	12	0	16	0	0	0	0	0	53
8:45 AM	0	12	1	0	6	6	0	0	7	0	10	0	0	0	0	0	42
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	60	24	0	44	26	0	0	72	1	83	0	0	0	0	0	310
APPROACH %'s :	0.00%	71.43%	28.57%	0.00%	62.86%	37.14%	0.00%	0.00%	46.15%	0.64%	53.21%	0.00%					
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	27	15	0	17	5	0	0	42	0	40	0	0	0	0	0	146
PEAK HR FACTOR :	0.000	0.675	0.750	0.000	0.531	0.625	0.000	0.000	0.808	0.000	0.714	0.000	0.000	0.000	0.000	0.000	0.869
		0.750				0.611				0.854							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	8	4	0	7	1	0	0	15	0	2	0	0	0	0	0	37
4:15 PM	0	7	3	0	11	3	0	0	7	0	5	0	0	0	0	0	36
4:30 PM	0	6	4	0	3	3	0	0	10	0	2	0	0	0	0	0	28
4:45 PM	0	8	1	0	9	3	0	0	4	0	2	0	0	0	0	0	27
5:00 PM	0	4	5	0	6	1	0	0	3	0	4	0	0	0	0	0	23
5:15 PM	0	6	3	0	2	1	0	0	5	0	6	0	0	0	0	0	23
5:30 PM	0	8	4	0	1	2	0	0	4	0	4	0	0	0	0	0	23
5:45 PM	0	2	0	0	0	1	0	0	5	0	3	0	0	0	0	0	11
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	49	24	0	39	15	0	0	53	0	28	0	0	0	0	0	208
APPROACH %'s :	0.00%	67.12%	32.88%	0.00%	72.22%	27.78%	0.00%	0.00%	65.43%	0.00%	34.57%	0.00%					
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	25	13	0	29	10	0	0	24	0	13	0	0	0	0	0	114
PEAK HR FACTOR :	0.00	0.781	0.650	0.000	0.659	0.833	0.000	0.000	0.600	0.000	0.650	0.000	0.000	0.000	0.000	0.000	0.792
		0.950				0.696				0.771							

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 EB Ramp
City: Rialto
Control: Signalized

Project ID: 18-06025-002
Date: 3/6/2018

MT

NS/EW Streets:	Alder Ave				Alder Ave				I 210 EB Ramp				I 210 EB Ramp				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	0	0	0	2	0	1	0	0	0	0	0	5
7:15 AM	0	3	0	0	0	1	0	0	2	0	1	0	0	0	0	0	7
7:30 AM	0	2	1	0	1	1	0	0	0	0	0	0	0	0	0	0	5
7:45 AM	0	1	0	0	1	1	0	0	2	0	0	0	0	0	0	0	5
8:00 AM	0	1	1	0	2	2	0	0	1	0	0	0	0	0	0	0	7
8:15 AM	0	3	0	0	0	1	0	0	0	0	1	0	0	0	0	0	5
8:30 AM	0	1	0	0	0	3	0	0	5	0	2	0	0	0	0	0	11
8:45 AM	0	1	0	0	1	1	0	0	3	0	1	0	0	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	14	2	0	5	10	0	0	15	0	6	0	0	0	0	0	52
APPROACH %'s :	0.00%	87.50%	12.50%	0.00%	33.33%	66.67%	0.00%	0.00%	71.43%	0.00%	28.57%	0.00%					
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	8	1	0	2	3	0	0	6	0	2	0	0	0	0	0	22
PEAK HR FACTOR :	0.000	0.667	0.250	0.000	0.500	0.750	0.000	0.000	0.750	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.786
		0.750				0.625				0.667							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	5	0	0	2	0	0	0	4	0	1	0	0	0	0	0	12
4:15 PM	0	8	0	0	1	0	0	0	2	0	0	0	0	0	0	0	11
4:30 PM	0	4	0	0	1	1	0	0	2	0	1	0	0	0	0	0	9
4:45 PM	0	0	1	0	1	2	0	0	2	0	3	0	0	0	0	0	9
5:00 PM	0	1	1	0	1	5	0	0	0	0	1	0	0	0	0	0	9
5:15 PM	0	1	0	0	0	0	0	0	2	0	1	0	0	0	0	0	4
5:30 PM	0	3	2	0	0	0	0	0	2	0	0	0	0	0	0	0	7
5:45 PM	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	23	4	0	6	8	0	0	15	0	8	0	0	0	0	0	64
APPROACH %'s :	0.00%	85.19%	14.81%	0.00%	42.86%	57.14%	0.00%	0.00%	65.22%	0.00%	34.78%	0.00%					
PEAK HR :	**04:15 PM - 05:15 PM**																TOTAL
PEAK HR VOL :	0	13	2	0	4	8	0	0	6	0	5	0	0	0	0	0	38
PEAK HR FACTOR :	0.00	0.406	0.500	0.000	1.000	0.400	0.000	0.000	0.750	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.864
		0.469				0.500				0.550							

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & I 210 EB Ramp
City: Rialto
Control: Signalized

Project ID: 18-06025-002
Date: 3/6/2018

ST

NS/EW Streets:	Alder Ave				Alder Ave				I 210 EB Ramp				I 210 EB Ramp				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	2	2	0	0	3	0	0	0	0	0	0	0	8
7:15 AM	0	2	1	0	1	1	0	0	1	0	1	0	0	0	0	0	7
7:30 AM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
7:45 AM	0	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0	4
8:00 AM	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0	4
8:15 AM	0	1	1	0	0	0	0	0	2	0	1	0	0	0	0	0	5
8:30 AM	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
8:45 AM	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	3	0	5	3	0	0	10	0	7	0	0	0	0	0	36
APPROACH %'s :	0.00%	72.73%	27.27%	0.00%	62.50%	37.50%	0.00%	0.00%	58.82%	0.00%	41.18%	0.00%					
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	5	1	0	4	3	0	0	5	0	3	0	0	0	0	0	21
PEAK HR FACTOR :	0.000	0.625	0.250	0.000	0.500	0.375	0.000	0.000	0.417	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.656
		0.500				0.438				0.667							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
4:15 PM	0	5	1	0	1	2	0	0	0	0	0	0	0	0	0	0	9
4:30 PM	0	4	1	0	0	1	0	0	2	0	1	0	0	0	0	0	9
4:45 PM	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
5:30 PM	0	1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	4
5:45 PM	0	1	1	0	0	0	0	0	1	0	2	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	4	0	1	4	0	0	8	0	5	0	0	0	0	0	37
APPROACH %'s :	0.00%	78.95%	21.05%	0.00%	20.00%	80.00%	0.00%	0.00%	61.54%	0.00%	38.46%	0.00%					
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	9	2	0	1	3	0	0	4	0	3	0	0	0	0	0	22
PEAK HR FACTOR :	0.00	0.450	0.500	0.000	0.250	0.375	0.000	0.000	0.500	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.611
		0.458				0.333				0.583							

Prepared by National Data & Surveying Services

Alder Ave & I 210 EB Ramp

Peak Hour Turning Movement Count

ID: 18-06025-002
City: Rialto

Day: Tuesday
Date: 03/06/2018

PEAK HOURS

AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 04:15 PM - 05:15 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Alder Ave — SOUTHBOUND

AM	0	353	63	0	503	AM
NOON	0	0	0	0	0	NOON
PM	0	347	139	0	584	PM

I 210 EB Ramp — EASTBOUND

AM	NOON	PM	
0	0	0	
0	0	0	0
185	0	164	0.5
1	0	3	0.5
383	0	332	1

WESTBOUND — I 210 EB Ramp

PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
454	0	341	

Alder Ave — NORTHBOUND

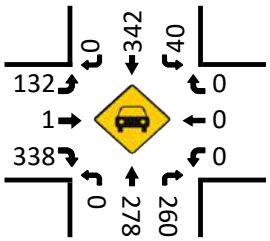
PM	679	0	0	420	312	PM
NOON	0	0	0	0	0	NOON
AM	736	0	0	318	277	AM

0	2	1	0
0	0	2	0

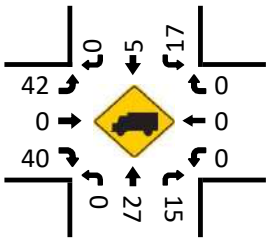
CONTROL: Signalized

TEV	1580	0	1717
	AM	NOON	PM
PHF	0.97		0.96

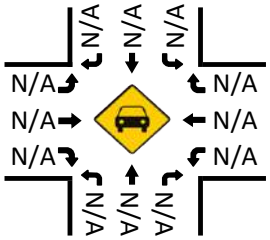
PV (AM)



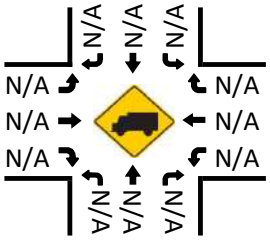
HT (AM)



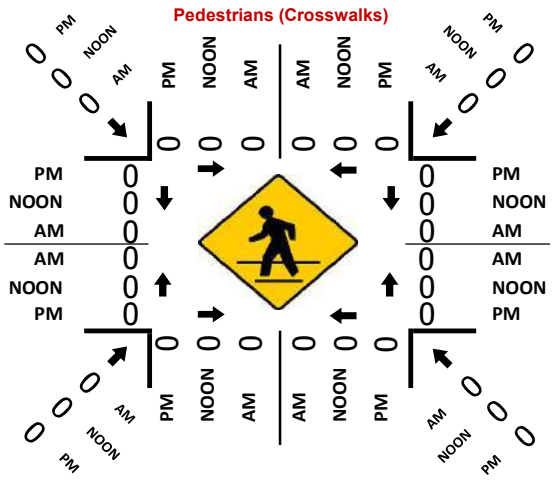
PV (NOON)



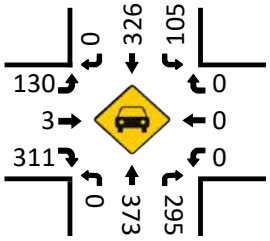
HT (NOON)



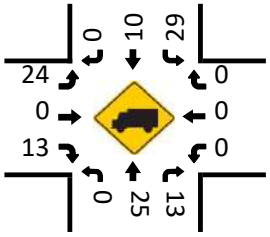
Pedestrians (Crosswalks)



PV (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 18-06025-003
Date: 3/6/2018

Total

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	19	107	1	0	26	141	8	0	20	29	9	0	3	46	28	0	437
7:15 AM	24	88	0	0	21	145	11	0	23	25	14	0	4	59	32	0	446
7:30 AM	2	100	3	0	26	154	10	0	23	34	15	0	1	19	26	0	413
7:45 AM	5	99	1	0	29	140	8	0	22	16	2	0	0	10	8	0	340
8:00 AM	0	78	1	0	23	104	6	0	12	14	1	0	2	7	24	0	272
8:15 AM	3	86	2	0	20	96	9	0	13	6	5	0	2	5	18	0	265
8:30 AM	4	66	0	0	19	97	10	0	18	7	0	0	0	4	26	0	251
8:45 AM	1	79	1	0	15	96	9	0	15	8	3	0	0	6	18	0	251
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	58	703	9	0	179	973	71	0	146	139	49	0	12	156	180	0	2675
APPROACH %'s :	7.53%	91.30%	1.17%	0.00%	14.64%	79.56%	5.81%	0.00%	43.71%	41.62%	14.67%	0.00%	3.45%	44.83%	51.72%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	50	394	5	0	102	580	37	0	88	104	40	0	8	134	94	0	1636
PEAK HR FACTOR :	0.521	0.921	0.417	0.000	0.879	0.942	0.841	0.000	0.957	0.765	0.667	0.000	0.500	0.568	0.734	0.000	0.917
	0.884				0.946				0.806				0.621				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	126	8	0	26	110	18	0	23	27	7	0	5	11	24	0	391
4:15 PM	3	140	7	0	25	131	8	0	17	28	8	0	2	9	27	0	405
4:30 PM	3	142	3	0	20	132	22	0	28	19	8	0	3	10	36	0	426
4:45 PM	3	119	7	0	20	125	28	0	26	30	5	0	2	9	24	0	398
5:00 PM	1	97	9	0	42	113	27	0	19	89	11	0	4	8	23	0	443
5:15 PM	2	145	13	0	49	118	30	0	24	149	19	0	1	8	26	0	584
5:30 PM	5	120	12	0	43	95	21	0	22	160	32	0	1	9	29	0	549
5:45 PM	7	101	7	0	53	97	26	0	30	160	31	0	0	9	15	0	536
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	30	990	66	0	278	921	180	0	189	662	121	0	18	73	204	0	3732
APPROACH %'s :	2.76%	91.16%	6.08%	0.00%	20.16%	66.79%	13.05%	0.00%	19.44%	68.11%	12.45%	0.00%	6.10%	24.75%	69.15%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	15	463	41	0	187	423	104	0	95	558	93	0	6	34	93	0	2112
PEAK HR FACTOR :	0.536	0.798	0.788	0.000	0.882	0.896	0.867	0.000	0.792	0.872	0.727	0.000	0.375	0.944	0.802	0.000	0.904
	0.811				0.906				0.844				0.853				

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 18-06025-003
Date: 3/6/2018

PV

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	17	100	1	0	21	129	7	0	20	28	6	0	3	44	24	0	400
7:15 AM	24	84	0	0	18	136	11	0	21	25	14	0	4	59	25	0	421
7:30 AM	2	96	3	0	20	145	10	0	23	34	15	0	1	18	19	0	386
7:45 AM	5	88	1	0	24	131	8	0	21	15	2	0	0	9	6	0	310
8:00 AM	0	72	1	0	14	99	5	0	11	14	1	0	2	7	18	0	244
8:15 AM	2	77	2	0	12	85	9	0	13	6	5	0	1	5	13	0	230
8:30 AM	4	57	0	0	13	81	10	0	17	6	0	0	0	4	18	0	210
8:45 AM	1	73	1	0	7	85	8	0	12	8	3	0	0	6	9	0	213
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	55	647	9	0	129	891	68	0	138	136	46	0	11	152	132	0	2414
APPROACH %'s :	7.74%	91.00%	1.27%	0.00%	11.86%	81.89%	6.25%	0.00%	43.13%	42.50%	14.38%	0.00%	3.73%	51.53%	44.75%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	48	368	5	0	83	541	36	0	85	102	37	0	8	130	74	0	1517
PEAK HR FACTOR :	0.500	0.920	0.417	0.000	0.865	0.933	0.818	0.000	0.924	0.750	0.617	0.000	0.500	0.551	0.740	0.000	0.901
		0.892				0.943				0.778				0.602			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	111	7	0	20	109	18	0	21	25	7	0	4	10	21	0	359
4:15 PM	3	125	7	0	22	125	8	0	15	27	8	0	1	9	24	0	374
4:30 PM	3	130	3	0	16	128	22	0	24	18	6	0	3	10	33	0	396
4:45 PM	2	110	6	0	17	119	25	0	24	30	4	0	1	8	22	0	368
5:00 PM	1	91	9	0	39	108	25	0	17	88	11	0	3	8	20	0	420
5:15 PM	2	136	13	0	47	111	26	0	23	147	18	0	0	7	20	0	550
5:30 PM	5	117	12	0	41	93	21	0	22	159	30	0	0	9	24	0	533
5:45 PM	6	95	7	0	50	94	26	0	28	157	31	0	0	9	11	0	514
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	28	915	64	0	252	887	171	0	174	651	115	0	12	70	175	0	3514
APPROACH %'s :	2.78%	90.86%	6.36%	0.00%	19.24%	67.71%	13.05%	0.00%	18.51%	69.26%	12.23%	0.00%	4.67%	27.24%	68.09%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	14	439	41	0	177	406	98	0	90	551	90	0	3	33	75	0	2017
PEAK HR FACTOR :	0.58	0.807	0.788	0.000	0.885	0.914	0.942	0.000	0.804	0.866	0.726	0.000	0.250	0.917	0.781	0.000	0.917
		0.818				0.925				0.846				0.841			

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 18-06025-003
Date: 3/6/2018

HT

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	6	0	0	4	10	0	0	0	0	0	0	0	0	4	0	25
7:15 AM	0	2	0	0	3	7	0	0	1	0	0	0	0	0	6	0	19
7:30 AM	0	3	0	0	5	5	0	0	0	0	0	0	0	0	6	0	19
7:45 AM	0	10	0	0	4	7	0	0	0	0	0	0	0	1	1	0	23
8:00 AM	0	5	0	0	8	4	0	0	0	0	0	0	0	0	4	0	21
8:15 AM	1	6	0	0	7	8	0	0	0	0	0	0	1	0	5	0	28
8:30 AM	0	6	0	0	6	14	0	0	0	0	0	0	0	0	6	0	32
8:45 AM	0	4	0	0	8	9	0	0	2	0	0	0	0	0	7	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	42	0	0	45	64	0	0	3	0	0	0	1	1	39	0	197
APPROACH %'s :	4.55%	95.45%	0.00%	0.00%	41.28%	58.72%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	2.44%	2.44%	95.12%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	1	21	0	0	16	29	0	0	1	0	0	0	0	1	17	0	86
PEAK HR FACTOR :	0.250	0.525	0.000	0.000	0.800	0.725	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.708	0.000	0.860
		0.550				0.804				0.250				0.750			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	11	0	0	5	1	0	0	0	1	0	0	1	0	1	0	20
4:15 PM	0	8	0	0	3	2	0	0	0	0	0	0	1	0	2	0	16
4:30 PM	0	7	0	0	4	3	0	0	0	0	2	0	0	0	3	0	19
4:45 PM	1	5	0	0	3	5	0	0	2	0	1	0	1	0	2	0	20
5:00 PM	0	6	0	0	2	3	0	0	2	1	0	0	1	0	1	0	16
5:15 PM	0	5	0	0	1	3	0	0	0	0	1	0	1	1	4	0	16
5:30 PM	0	2	0	0	2	1	0	0	0	0	2	0	1	0	2	0	10
5:45 PM	1	4	0	0	3	2	0	0	2	1	0	0	0	0	4	0	17
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	48	0	0	23	20	0	0	6	3	6	0	6	1	19	0	134
APPROACH %'s :	4.00%	96.00%	0.00%	0.00%	53.49%	46.51%	0.00%	0.00%	40.00%	20.00%	40.00%	0.00%	23.08%	3.85%	73.08%	0.00%	
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	1	17	0	0	8	9	0	0	4	2	3	0	3	1	11	0	59
PEAK HR FACTOR :	0.25	0.708	0.000	0.000	0.667	0.750	0.000	0.000	0.500	0.500	0.375	0.000	0.750	0.250	0.688	0.000	0.868
		0.750				0.850				0.750				0.625			

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 18-06025-003
Date: 3/6/2018

MT

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	1	1	0	0	1	3	0	0	2	0	0	9
7:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
7:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	1	0	5
7:45 AM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	1	0	5
8:00 AM	0	0	0	0	1	1	1	0	1	0	0	0	0	0	1	0	5
8:15 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
8:45 AM	0	1	0	0	0	2	0	0	1	0	0	0	0	0	1	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	0	0	2	12	2	0	2	2	3	0	0	3	6	0	40
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	12.50%	75.00%	12.50%	0.00%	28.57%	28.57%	42.86%	0.00%	0.00%	33.33%	66.67%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	4	0	0	1	6	1	0	0	2	3	0	0	3	3	0	23
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.250	0.500	0.250	0.000	0.000	0.500	0.250	0.000	0.000	0.375	0.750	0.000	0.639
		0.500				0.667				0.313				0.750			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	1	0	0	0	0	0	2	0	0	0	0	0	1	0	6
4:15 PM	0	4	0	0	0	1	0	0	2	1	0	0	0	0	0	0	8
4:30 PM	0	3	0	0	0	0	0	0	4	1	0	0	0	0	0	0	8
4:45 PM	0	2	0	0	0	1	3	0	0	0	0	0	0	0	0	0	6
5:00 PM	0	0	0	0	0	2	2	0	0	0	0	0	0	0	1	0	5
5:15 PM	0	2	0	0	0	3	4	0	0	1	0	0	0	0	0	0	10
5:30 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	0	2	0	5
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	1	0	0	8	9	0	8	4	0	0	0	0	4	0	49
APPROACH %'s :	0.00%	93.75%	6.25%	0.00%	0.00%	47.06%	52.94%	0.00%	66.67%	33.33%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	4	0	0	0	6	6	0	0	2	0	0	0	0	3	0	21
PEAK HR FACTOR :	0.00	0.500	0.000	0.000	0.000	0.500	0.375	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.375	0.000	0.525
		0.500				0.429				0.500				0.375			

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 18-06025-003
Date: 3/6/2018

ST

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
8:15 AM	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	4
8:30 AM	0	1	0	0	0	1	0	0	1	1	0	0	0	0	1	0	5
8:45 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	6	0	0	3	6	1	0	3	1	0	0	0	0	3	0	24
APPROACH %'s :	14.29%	85.71%	0.00%	0.00%	30.00%	60.00%	10.00%	0.00%	75.00%	25.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	1	0	0	2	4	0	0	2	0	0	0	0	0	0	0	10
PEAK HR FACTOR :	0.250	0.250	0.000	0.000	0.500	1.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.833
	0.500				0.750				0.500								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	1	0	0	0	0	1	0	0	0	1	1	0	6
4:15 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	1	0	7
4:30 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	4
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2
5:15 PM	0	2	0	0	1	1	0	0	1	1	0	0	0	0	2	0	8
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	12	1	0	3	6	0	0	1	4	0	0	0	2	6	0	35
APPROACH %'s :	0.00%	92.31%	7.69%	0.00%	33.33%	66.67%	0.00%	0.00%	20.00%	80.00%	0.00%	0.00%	0.00%	25.00%	75.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	2	2	0	0	1	3	0	0	0	0	4	0	15
PEAK HR FACTOR :	0.00	0.375	0.000	0.000	0.500	0.500	0.000	0.000	0.250	0.375	0.000	0.000	0.000	0.000	0.500	0.000	0.469
	0.375				0.500				0.500				0.500				

Prepared by National Data & Surveying Services

Alder Ave & Renaissance Pkwy

Peak Hour Turning Movement Count

ID: 18-06025-003
City: Rialto

Day: Tuesday
Date: 03/06/2018

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Alder Ave — SOUTHBOUND

AM	37	580	102	0	576	AM
NOON	0	0	0	0	0	NOON
PM	104	423	187	0	651	PM
	0.5	1.5	1	0		

Renaissance Pkwy — EASTBOUND

AM	NOON	PM	
221	0	153	
0	0	0	0
88	0	95	1
104	0	558	2
40	0	93	0
AM	NOON	PM	

Renaissance Pkwy — WESTBOUND

PM	NOON	AM	
93	0	94	0
34	0	134	2
6	0	8	1
0	0	0	0
786	0	211	
PM	NOON	AM	

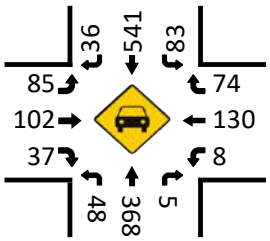
CONTROL: Signalized

TEV	1636 AM	0 NOON	2112 PM
PHF	0.92		0.90

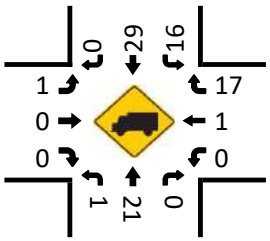
Alder Ave — NORTHBOUND

PM	522	0	15	463	41	PM
NOON	0	0	0	0	0	NOON
AM	628	0	50	394	5	AM
		0	1	2	0	

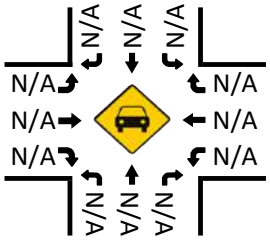
PV (AM)



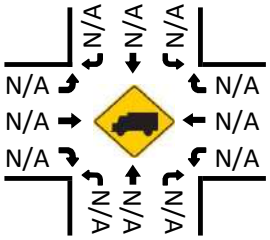
HT (AM)



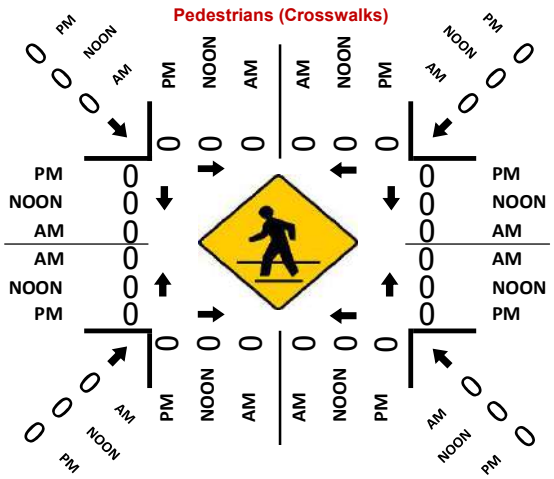
PV (NOON)



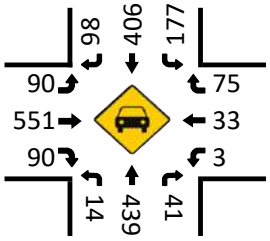
HT (NOON)



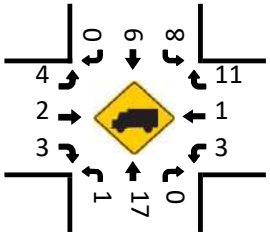
Pedestrians (Crosswalks)



PV (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Walnut Ave
City: Rialto
Control: Signalized

Project ID: 18-06025-004
Date: 3/6/2018

Total

NS/EW Streets:	Alder Ave				Alder Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	7	126	1	0	2	112	31	0	8	2	5	0	0	0	0	0	294
7:15 AM	13	120	2	0	7	133	31	0	7	0	3	0	1	0	1	0	318
7:30 AM	6	89	1	1	4	142	11	0	4	2	0	0	4	0	1	0	265
7:45 AM	2	87	4	0	6	139	13	0	3	0	1	0	2	0	0	0	257
8:00 AM	1	77	0	0	5	91	9	0	3	0	5	0	0	0	0	0	191
8:15 AM	2	98	3	0	10	92	7	0	1	0	1	0	5	1	2	0	222
8:30 AM	1	66	1	0	6	80	11	0	10	0	1	0	2	0	0	0	178
8:45 AM	2	74	2	0	7	95	4	1	7	0	3	0	2	0	0	0	197
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	34	737	14	1	47	884	117	1	43	4	19	0	16	1	4	0	1922
APPROACH %'s :	4.33%	93.77%	1.78%	0.13%	4.48%	84.27%	11.15%	0.10%	65.15%	6.06%	28.79%	0.00%	76.19%	4.76%	19.05%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	28	422	8	1	19	526	86	0	22	4	9	0	7	0	2	0	1134
PEAK HR FACTOR :	0.538	0.837	0.500	0.250	0.679	0.926	0.694	0.000	0.688	0.500	0.450	0.000	0.438	0.000	0.500	0.000	0.892
	0.850				0.923				0.583				0.450				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	115	1	0	3	98	7	0	23	0	12	0	2	0	1	0	265
4:15 PM	3	103	2	0	3	132	2	0	19	1	2	0	1	1	2	0	271
4:30 PM	2	133	2	0	2	115	15	0	24	0	5	0	2	0	0	0	300
4:45 PM	3	110	1	0	1	130	23	0	14	0	5	0	0	0	1	0	288
5:00 PM	3	149	0	0	0	123	7	0	14	0	2	0	1	0	1	0	300
5:15 PM	6	116	2	0	5	125	11	0	7	0	5	0	0	0	0	0	277
5:30 PM	4	106	1	0	3	117	17	0	25	0	9	0	1	0	3	0	286
5:45 PM	8	103	3	0	0	138	18	0	18	1	7	0	2	0	0	0	298
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	32	935	12	0	17	978	100	0	144	2	47	0	9	1	8	0	2285
APPROACH %'s :	3.27%	95.51%	1.23%	0.00%	1.55%	89.32%	9.13%	0.00%	74.61%	1.04%	24.35%	0.00%	50.00%	5.56%	44.44%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	14	508	5	0	8	493	56	0	59	0	17	0	3	0	2	0	1165
PEAK HR FACTOR :	0.583	0.852	0.625	0.000	0.400	0.948	0.609	0.000	0.615	0.000	0.850	0.000	0.375	0.000	0.500	0.000	0.971
	0.867				0.904				0.655				0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Walnut Ave
City: Rialto
Control: Signalized

Project ID: 18-06025-004
Date: 3/6/2018

PV

NS/EW Streets:	Alder Ave				Alder Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	116	1	0	1	105	29	0	6	1	3	0	0	0	0	0	267
7:15 AM	12	117	2	0	3	127	28	0	4	0	2	0	1	0	0	0	296
7:30 AM	5	82	1	1	2	139	9	0	3	2	0	0	2	0	1	0	247
7:45 AM	2	82	3	0	4	135	13	0	2	0	0	0	2	0	0	0	243
8:00 AM	0	74	0	0	3	90	5	0	2	0	5	0	0	0	0	0	179
8:15 AM	1	95	3	0	2	90	4	0	1	0	0	0	5	1	1	0	203
8:30 AM	0	60	0	0	1	75	7	0	6	0	1	0	2	0	0	0	152
8:45 AM	2	68	0	0	1	88	2	1	6	0	2	0	2	0	0	0	172
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	27	694	10	1	17	849	97	1	30	3	13	0	14	1	2	0	1759
APPROACH %'s :	3.69%	94.81%	1.37%	0.14%	1.76%	88.07%	10.06%	0.10%	65.22%	6.52%	28.26%	0.00%	82.35%	5.88%	11.76%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	24	397	7	1	10	506	79	0	15	3	5	0	5	0	1	0	1053
PEAK HR FACTOR :	0.500	0.848	0.583	0.250	0.625	0.910	0.681	0.000	0.625	0.375	0.417	0.000	0.625	0.000	0.250	0.000	0.889
		0.819				0.941				0.575				0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	106	1	0	0	98	6	0	21	0	11	0	2	0	1	0	248
4:15 PM	2	98	0	0	1	129	1	0	11	0	2	0	0	0	0	0	244
4:30 PM	1	123	2	0	0	114	13	0	20	0	4	0	2	0	0	0	279
4:45 PM	2	106	1	0	0	128	17	0	12	0	4	0	0	0	1	0	271
5:00 PM	2	143	0	0	0	120	6	0	11	0	1	0	1	0	1	0	285
5:15 PM	5	111	2	0	2	122	9	0	3	0	3	0	0	0	0	0	257
5:30 PM	3	99	0	0	1	114	17	0	22	0	9	0	1	0	3	0	269
5:45 PM	7	99	3	0	0	136	14	0	17	1	6	0	2	0	0	0	285
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	24	885	9	0	4	961	83	0	117	1	40	0	8	0	6	0	2138
APPROACH %'s :	2.61%	96.41%	0.98%	0.00%	0.38%	91.70%	7.92%	0.00%	74.05%	0.63%	25.32%	0.00%	57.14%	0.00%	42.86%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	10	483	5	0	2	484	45	0	46	0	12	0	3	0	2	0	1092
PEAK HR FACTOR :	0.50	0.844	0.625	0.000	0.250	0.945	0.662	0.000	0.575	0.000	0.750	0.000	0.375	0.000	0.500	0.000	0.958
		0.859				0.916				0.604				0.625			

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Walnut Ave
City: Rialto
Control: Signalized

Project ID: 18-06025-004
Date: 3/6/2018

HT

NS/EW Streets:	Alder Ave				Alder Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	8	0	0	0	2	2	0	2	0	1	0	0	0	0	0	15
7:15 AM	0	2	0	0	3	4	3	0	2	0	1	0	0	0	0	0	15
7:30 AM	0	6	0	0	2	1	1	0	1	0	0	0	1	0	0	0	12
7:45 AM	0	4	1	0	2	2	0	0	0	0	1	0	0	0	0	0	10
8:00 AM	0	1	0	0	2	1	3	0	1	0	0	0	0	0	0	0	8
8:15 AM	0	1	0	0	7	2	2	0	0	0	1	0	0	0	1	0	14
8:30 AM	1	5	1	0	4	5	4	0	3	0	0	0	0	0	0	0	23
8:45 AM	0	6	2	0	6	5	2	0	1	0	1	0	0	0	0	0	23
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	33	4	0	26	22	17	0	10	0	5	0	1	0	1	0	120
APPROACH %'s :	2.63%	86.84%	10.53%	0.00%	40.00%	33.85%	26.15%	0.00%	66.67%	0.00%	33.33%	0.00%	50.00%	0.00%	50.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	20	1	0	7	9	6	0	5	0	3	0	1	0	0	0	52
PEAK HR FACTOR :	0.000	0.625	0.250	0.000	0.583	0.563	0.500	0.000	0.625	0.000	0.750	0.000	0.250	0.000	0.000	0.000	0.867
		0.656				0.550				0.667				0.250			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	5	0	0	3	0	0	0	2	0	1	0	0	0	0	0	12
4:15 PM	1	2	2	0	2	2	0	0	6	0	0	0	1	1	0	0	17
4:30 PM	1	5	0	0	2	0	1	0	2	0	1	0	0	0	0	0	12
4:45 PM	1	4	0	0	1	0	3	0	1	0	1	0	0	0	0	0	11
5:00 PM	1	6	0	0	0	2	1	0	1	0	0	0	0	0	0	0	11
5:15 PM	1	5	0	0	3	3	2	0	2	0	0	0	0	0	0	0	16
5:30 PM	1	4	1	0	2	2	0	0	2	0	0	0	0	0	0	0	12
5:45 PM	1	3	0	0	0	1	2	0	0	0	0	0	0	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	34	3	0	13	10	9	0	16	0	3	0	1	1	0	0	98
APPROACH %'s :	17.78%	75.56%	6.67%	0.00%	40.63%	31.25%	28.13%	0.00%	84.21%	0.00%	15.79%	0.00%	50.00%	50.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	4	20	0	0	6	5	7	0	6	0	2	0	0	0	0	0	50
PEAK HR FACTOR :	1.00	0.833	0.000	0.000	0.500	0.417	0.583	0.000	0.750	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.781
		0.857				0.563				0.667							

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Walnut Ave
City: Rialto
Control: Signalized

Project ID: 18-06025-004
Date: 3/6/2018

MT

NS/EW Streets:	Alder Ave				Alder Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	1	4	0	0	0	0	1	0	0	0	0	0	7
7:15 AM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
8:00 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	0	0	4	8	3	0	1	0	1	0	0	0	0	0	23
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	26.67%	53.33%	20.00%	0.00%	50.00%	0.00%	50.00%	0.00%					
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	3	0	0	2	6	1	0	1	0	1	0	0	0	0	0	14
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.500	0.375	0.250	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500
		0.750				0.450				0.500							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	1	0	0	0	1	1	0	2	0	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	0	1	3	0	1	0	0	0	0	0	0	0	5
5:00 PM	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:30 PM	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	0	0	0	3	6	0	7	0	1	0	0	0	0	0	25
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	33.33%	66.67%	0.00%	87.50%	0.00%	12.50%	0.00%					
PEAK HR :	**04:30 PM - 05:30 PM**																TOTAL
PEAK HR VOL :	0	1	0	0	0	3	4	0	6	0	0	0	0	0	0	0	14
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.750	0.333	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.700
		0.250				0.438				0.750							

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Walnut Ave
City: Rialto
Control: Signalized

Project ID: 18-06025-004
Date: 3/6/2018

ST

NS/EW Streets:	Alder Ave				Alder Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	5
7:15 AM	1	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	4
7:30 AM	1	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	4
7:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	4	0	0	0	5	0	0	2	1	0	0	1	0	1	0	20
APPROACH %'s :	60.00%	40.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	4	2	0	0	0	5	0	0	1	1	0	0	1	0	1	0	15
PEAK HR FACTOR :	0.500	0.500	0.000	0.000	0.000	0.625	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.750
	0.500				0.625				0.500				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	2	0	0	0	1	1	0	2	1	0	0	0	0	2	0	9
4:30 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	3
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	0	0	0	4	2	0	4	1	3	0	0	0	2	0	24
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	50.00%	12.50%	37.50%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	4	0	0	0	1	0	0	1	0	3	0	0	0	0	0	9
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.563
	0.250				0.250				0.333								

Prepared by National Data & Surveying Services

Alder Ave & Walnut Ave

Peak Hour Turning Movement Count

ID: 18-06025-004
City: Rialto

Day: Tuesday
Date: 03/06/2018

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Alder Ave — SOUTHBOUND

AM	86	526	19	0	446	AM
NOON	0	0	0	0	0	NOON
PM	56	493	8	0	569	PM
	0	2	1	0		

Walnut Ave — EASTBOUND

AM	NOON	PM	
114	0	70	
0	0	0	0
22	0	59	1
4	0	0	1
9	0	17	1
AM	NOON	PM	

CONTROL

Signalized

TEV	1134	0	1165
	AM	NOON	PM
PHF	0.89		0.97

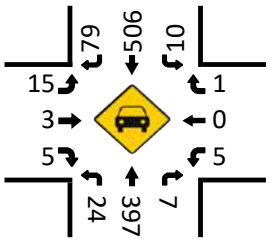
Walnut Ave — WESTBOUND

PM	NOON	AM	
2	0	2	0
0	0	0	1
3	0	7	1
0	0	0	0
13	0	31	
PM	NOON	AM	

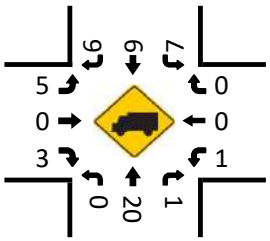
Alder Ave — NORTHBOUND

PM	513	0	14	508	5	PM
NOON	0	0	0	0	0	NOON
AM	543	1	28	422	8	AM
		0	1	2	0	

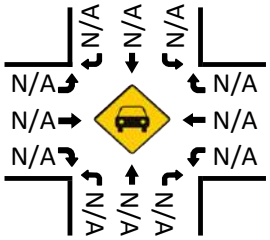
PV (AM)



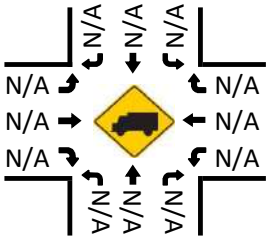
HT (AM)



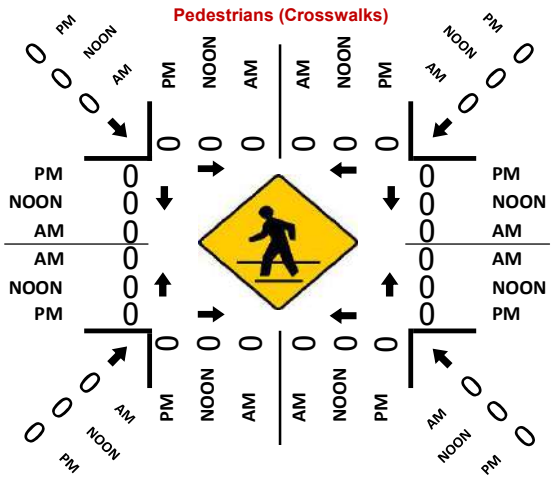
PV (NOON)



HT (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-005
Date: 3/6/2018

Total

NS/EW Streets:	Alder Ave				Alder Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	68	88	31	0	19	55	12	0	6	87	10	0	11	96	11	0	494
7:15 AM	51	90	62	0	11	82	23	0	21	123	21	0	11	103	11	0	609
7:30 AM	20	68	17	0	12	82	16	0	14	117	13	0	10	100	11	0	480
7:45 AM	11	56	3	0	14	78	23	0	16	80	18	0	7	74	6	0	386
8:00 AM	8	47	10	0	6	69	13	0	9	50	10	0	6	64	10	0	302
8:15 AM	10	67	3	0	11	59	15	0	12	54	21	0	8	73	14	0	347
8:30 AM	15	53	7	0	10	52	6	0	6	42	13	0	5	69	7	0	285
8:45 AM	11	56	9	0	15	54	13	0	3	55	9	0	12	74	7	0	318
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	194	525	142	0	98	531	121	0	87	608	115	0	70	653	77	0	3221
APPROACH %'s :	22.53%	60.98%	16.49%	0.00%	13.07%	70.80%	16.13%	0.00%	10.74%	75.06%	14.20%	0.00%	8.75%	81.63%	9.63%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	150	302	113	0	56	297	74	0	57	407	62	0	39	373	39	0	1969
PEAK HR FACTOR :	0.551	0.839	0.456	0.000	0.737	0.905	0.804	0.000	0.679	0.827	0.738	0.000	0.886	0.905	0.886	0.000	0.808
	0.696				0.920				0.797				0.902				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	68	18	0	20	72	19	0	17	125	13	0	7	74	8	0	450
4:15 PM	10	69	13	0	16	73	12	0	16	122	9	0	9	77	16	0	442
4:30 PM	20	93	7	0	20	64	18	0	14	92	7	0	8	74	13	0	430
4:45 PM	7	57	6	0	17	85	16	0	19	120	15	0	10	84	10	0	446
5:00 PM	13	105	13	0	26	71	13	0	6	103	16	0	5	56	16	0	443
5:15 PM	17	81	8	0	28	69	17	0	14	112	18	0	13	71	11	0	459
5:30 PM	14	64	10	0	21	63	19	0	14	114	19	0	8	69	13	0	428
5:45 PM	8	80	11	0	22	76	17	0	8	138	20	0	7	79	11	0	477
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	98	617	86	0	170	573	131	0	108	926	117	0	67	584	98	0	3575
APPROACH %'s :	12.23%	77.03%	10.74%	0.00%	19.45%	65.56%	14.99%	0.00%	9.38%	80.45%	10.17%	0.00%	8.95%	77.97%	13.08%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	52	330	42	0	97	279	66	0	42	467	73	0	33	275	51	0	1807
PEAK HR FACTOR :	0.765	0.786	0.808	0.000	0.866	0.918	0.868	0.000	0.750	0.846	0.913	0.000	0.635	0.870	0.797	0.000	0.947
	0.809				0.961				0.877				0.925				

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-005
Date: 3/6/2018

PV

NS/EW Streets:	Alder Ave				Alder Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	66	86	31	0	16	54	12	0	6	87	10	0	11	92	10	0	481
7:15 AM	51	89	62	0	11	82	22	0	21	120	21	0	11	103	11	0	604
7:30 AM	20	66	15	0	11	82	15	0	14	115	13	0	9	96	11	0	467
7:45 AM	11	56	3	0	14	78	23	0	16	76	16	0	7	70	6	0	376
8:00 AM	8	45	8	0	6	69	13	0	9	49	10	0	6	64	10	0	297
8:15 AM	10	65	3	0	11	59	14	0	12	51	21	0	8	67	14	0	335
8:30 AM	15	52	6	0	7	51	6	0	4	40	13	0	5	67	6	0	272
8:45 AM	11	56	9	0	14	53	12	0	3	54	9	0	11	70	6	0	308
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	192	515	137	0	90	528	117	0	85	592	113	0	68	629	74	0	3140
APPROACH %'s :	22.75%	61.02%	16.23%	0.00%	12.24%	71.84%	15.92%	0.00%	10.76%	74.94%	14.30%	0.00%	8.82%	81.58%	9.60%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	148	297	111	0	52	296	72	0	57	398	60	0	38	361	38	0	1928
PEAK HR FACTOR :	0.561	0.834	0.448	0.000	0.813	0.902	0.783	0.000	0.679	0.829	0.714	0.000	0.864	0.876	0.864	0.000	0.798
	0.688				0.913				0.795				0.874				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	65	18	0	18	72	19	0	17	124	13	0	7	71	7	0	440
4:15 PM	10	68	13	0	15	72	11	0	14	119	9	0	9	73	15	0	428
4:30 PM	20	91	7	0	19	63	18	0	14	89	7	0	8	73	12	0	421
4:45 PM	7	57	6	0	17	85	15	0	18	119	14	0	10	81	10	0	439
5:00 PM	13	105	13	0	25	71	13	0	5	103	16	0	5	56	16	0	441
5:15 PM	16	81	8	0	27	69	17	0	14	107	17	0	13	69	10	0	448
5:30 PM	14	62	10	0	21	62	17	0	14	109	19	0	8	68	12	0	416
5:45 PM	8	80	11	0	21	76	17	0	8	137	20	0	7	78	10	0	473
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	97	609	86	0	163	570	127	0	104	907	115	0	67	569	92	0	3506
APPROACH %'s :	12.25%	76.89%	10.86%	0.00%	18.95%	66.28%	14.77%	0.00%	9.24%	80.55%	10.21%	0.00%	9.20%	78.16%	12.64%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	51	328	42	0	94	278	64	0	41	456	72	0	33	271	48	0	1778
PEAK HR FACTOR :	0.80	0.781	0.808	0.000	0.870	0.914	0.941	0.000	0.732	0.832	0.900	0.000	0.635	0.869	0.750	0.000	0.940
	0.803				0.956				0.862				0.926				

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-005
Date: 3/6/2018

HT

NS/EW Streets:	Alder Ave				Alder Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	2	1	0	0	2	0	0	0	0	1	1	0	7
8:45 AM	0	0	0	0	1	0	1	0	0	1	0	0	0	4	1	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	3	1	3	0	2	2	0	0	0	10	2	0	25
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	42.86%	14.29%	42.86%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	83.33%	16.67%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	0	1	0	0	0	0	0	0	4	0	0	7
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.583
	0.500				0.250				0.000				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	1	0	4
4:15 PM	0	0	0	0	0	0	1	0	1	2	0	0	0	1	0	0	5
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	3
5:00 PM	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2
5:15 PM	1	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	4
5:30 PM	0	1	0	0	0	0	2	0	0	1	0	0	0	1	1	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	3	0	0	4	0	4	0	3	5	0	0	0	4	3	0	27
APPROACH %'s :	25.00%	75.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	37.50%	62.50%	0.00%	0.00%	0.00%	57.14%	42.86%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	1	0	0	1	0	2	0	1	3	0	0	0	2	2	0	13
PEAK HR FACTOR :	0.25	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.375	0.000	0.000	0.000	0.500	0.500	0.000	0.542
	0.500				0.375				0.500				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-005
Date: 3/6/2018

MT

NS/EW Streets:	Alder Ave				Alder Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	5
7:15 AM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
7:30 AM	0	0	2	0	1	0	0	0	0	2	0	0	0	3	0	0	8
7:45 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	4
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	4	0	0	7
8:30 AM	0	1	1	0	1	0	0	0	0	2	0	0	0	0	0	0	5
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	4	3	0	5	2	0	0	0	10	2	0	0	8	0	0	35
APPROACH %'s :	12.50%	50.00%	37.50%	0.00%	71.43%	28.57%	0.00%	0.00%	0.00%	83.33%	16.67%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	1	2	0	4	1	0	0	0	6	2	0	0	4	0	0	21
PEAK HR FACTOR :	0.250	0.250	0.250	0.000	0.333	0.250	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.333	0.000	0.000	0.656
		0.500				0.313				0.667				0.333			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
4:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
4:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	1	1	0	0	0	7	0	0	0	6	1	0	18
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	85.71%	14.29%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	0	3	0	0	0	1	1	0	6
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.250	0.250	0.000	0.500
						0.250				0.375				0.500			

National Data & Surveying Services Intersection Turning Movement Count

Location: Alder Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-005
Date: 3/6/2018

ST

NS/EW Streets:	Alder Ave				Alder Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	5
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	3
7:45 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
8:00 AM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	4	2	0	0	0	1	0	0	4	0	0	2	6	1	0	21
APPROACH %'s :	14.29%	57.14%	28.57%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	22.22%	66.67%	11.11%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	2	0	0	0	0	1	0	0	3	0	0	1	4	1	0	13
PEAK HR FACTOR :	0.250	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.500	0.250	0.000	0.650
	0.375				0.250				0.250				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
4:15 PM	0	0	0	0	1	1	0	0	1	0	0	0	0	2	1	0	6
4:30 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	1	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	4
5:30 PM	0	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	2	2	0	0	1	7	2	0	0	5	2	0	24
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	10.00%	70.00%	20.00%	0.00%	0.00%	71.43%	28.57%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	1	1	0	0	0	5	1	0	0	1	0	0	10
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.625	0.250	0.000	0.000	0.250	0.000	0.000	0.625
	0.250				0.500				0.500				0.250				

Prepared by National Data & Surveying Services

Alder Ave & Base Line Rd

Peak Hour Turning Movement Count

ID: 18-06025-005
City: Rialto

Day: Tuesday
Date: 03/06/2018

PEAK HOURS

AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Alder Ave — SOUTHBOUND

AM	74	297	56	0	398	AM
NOON	0	0	0	0	0	NOON
PM	66	279	97	0	423	PM
	1	1	1	0		

Base Line Rd — EASTBOUND

AM	NOON	PM	
597	0	393	
0	0	0	0
57	0	42	1
407	0	467	1
62	0	73	0
AM	NOON	PM	

Base Line Rd — WESTBOUND

PM	NOON	AM	
51	0	39	0
275	0	373	1
33	0	39	1
0	0	0	0
606	0	576	
PM	NOON	AM	

CONTROL: Signalized

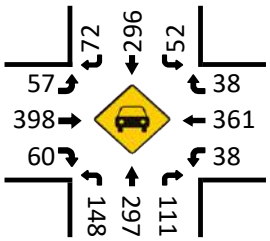
TEV	1969	0	1807
	AM	NOON	PM
PHF	0.81		0.95

Alder Ave — NORTHBOUND

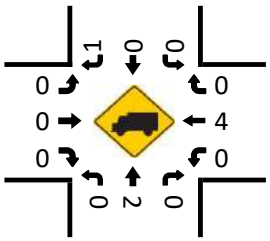
	0	1	1	0		
PM	385	0	52	330	42	PM
NOON	0	0	0	0	0	NOON
AM	398	0	150	302	113	AM

Alder Ave

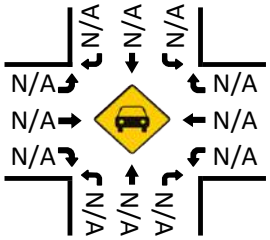
PV (AM)



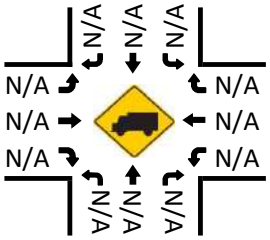
HT (AM)



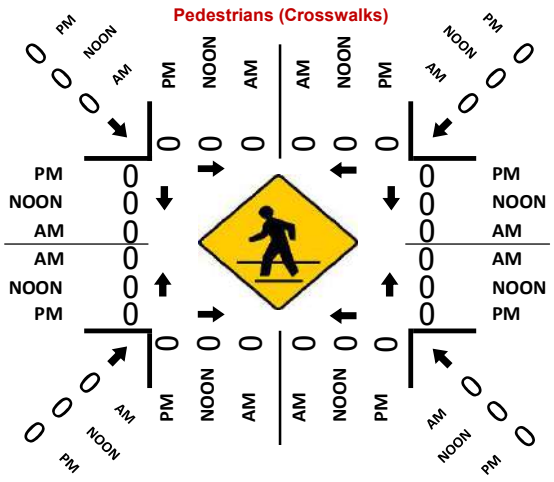
PV (NOON)



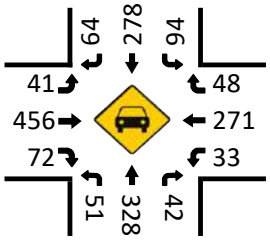
HT (NOON)



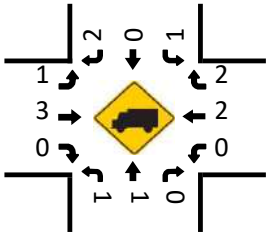
Pedestrians (Crosswalks)



PV (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Base Line Rd
City: Rialto
Control: 2-Way Stop(NB/SB)

Project ID: 18-06025-006
Date: 3/6/2018

Total

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	36	2	14	0	0	1	2	0	4	99	22	0	16	152	3	0	351
7:15 AM	25	1	19	0	0	0	1	0	11	152	45	0	17	161	3	0	435
7:30 AM	10	2	18	0	0	2	1	0	4	116	55	0	25	111	1	0	345
7:45 AM	11	0	7	0	1	0	1	0	1	104	20	0	22	80	2	0	249
8:00 AM	8	2	5	0	0	0	3	0	2	70	10	0	13	77	1	0	191
8:15 AM	16	0	8	0	2	0	2	0	2	74	7	0	9	85	3	0	208
8:30 AM	8	2	9	0	0	0	0	0	0	56	8	0	2	82	3	0	170
8:45 AM	5	6	6	0	0	1	2	0	0	59	3	0	6	87	3	1	179
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	119	15	86	0	3	4	12	0	24	730	170	0	110	835	19	1	2128
APPROACH %'s :	54.09%	6.82%	39.09%	0.00%	15.79%	21.05%	63.16%	0.00%	2.60%	79.00%	18.40%	0.00%	11.40%	86.53%	1.97%	0.10%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	82	5	58	0	1	3	5	0	20	471	142	0	80	504	9	0	1380
PEAK HR FACTOR :	0.569	0.625	0.763	0.000	0.250	0.375	0.625	0.000	0.455	0.775	0.645	0.000	0.800	0.783	0.750	0.000	0.793
	0.697				0.750				0.761				0.819				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	1	12	0	5	2	7	0	1	144	27	0	9	93	4	0	320
4:15 PM	8	5	8	0	0	0	0	0	2	133	21	1	9	82	1	0	270
4:30 PM	7	1	9	0	2	4	8	0	4	112	13	0	11	102	3	0	276
4:45 PM	9	1	7	0	2	2	2	0	2	134	16	0	9	88	4	0	276
5:00 PM	17	1	6	0	2	1	7	0	3	134	15	0	11	77	0	0	274
5:15 PM	11	1	9	0	1	1	5	0	1	136	14	0	9	94	1	0	283
5:30 PM	16	3	10	1	1	0	3	0	2	123	16	0	9	91	0	0	275
5:45 PM	12	2	10	0	0	4	3	0	5	153	26	0	10	92	0	0	317
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	95	15	71	1	13	14	35	0	20	1069	148	1	77	719	13	0	2291
APPROACH %'s :	52.20%	8.24%	39.01%	0.55%	20.97%	22.58%	56.45%	0.00%	1.62%	86.35%	11.95%	0.08%	9.52%	88.88%	1.61%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	56	7	35	1	4	6	18	0	11	546	71	0	39	354	1	0	1149
PEAK HR FACTOR :	0.824	0.583	0.875	0.250	0.500	0.375	0.643	0.000	0.550	0.892	0.683	0.000	0.886	0.941	0.250	0.000	0.906
	0.825				0.700				0.853				0.947				

National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Base Line Rd
City: Rialto
Control: 2-Way Stop(NB/SB)

Project ID: 18-06025-006
Date: 3/6/2018

PV

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	36	2	14	0	0	1	1	0	4	99	22	0	16	148	2	0	345
7:15 AM	25	1	18	0	0	0	1	0	11	149	44	0	17	160	3	0	429
7:30 AM	10	2	18	0	0	2	1	0	4	115	55	0	25	107	1	0	340
7:45 AM	10	0	7	0	1	0	1	0	1	97	19	0	22	75	1	0	234
8:00 AM	8	2	5	0	0	0	1	0	1	69	9	0	13	77	1	0	186
8:15 AM	16	0	8	0	2	0	2	0	1	72	7	0	9	79	2	0	198
8:30 AM	8	2	9	0	0	0	0	0	0	52	8	0	2	81	2	0	164
8:45 AM	5	6	6	0	0	1	1	0	0	58	3	0	6	83	3	1	173
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	118	15	85	0	3	4	8	0	22	711	167	0	110	810	15	1	2069
APPROACH %'s :	54.13%	6.88%	38.99%	0.00%	20.00%	26.67%	53.33%	0.00%	2.44%	79.00%	18.56%	0.00%	11.75%	86.54%	1.60%	0.11%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	81	5	57	0	1	3	4	0	20	460	140	0	80	490	7	0	1348
PEAK HR FACTOR :	0.563	0.625	0.792	0.000	0.250	0.375	1.000	0.000	0.455	0.772	0.636	0.000	0.800	0.766	0.583	0.000	0.786
	0.688				0.667				0.760				0.801				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	1	12	0	4	2	6	0	1	143	27	0	9	90	4	0	314
4:15 PM	8	5	8	0	0	0	0	0	2	129	21	1	9	78	0	0	261
4:30 PM	7	1	8	0	2	4	8	0	4	110	13	0	11	101	3	0	272
4:45 PM	8	1	7	0	1	2	2	0	1	132	16	0	9	85	3	0	267
5:00 PM	17	1	6	0	1	1	5	0	3	132	15	0	11	77	0	0	269
5:15 PM	11	1	9	0	1	1	4	0	1	132	14	0	9	91	1	0	275
5:30 PM	16	3	10	1	0	0	3	0	2	119	16	0	9	88	0	0	267
5:45 PM	12	2	10	0	0	4	3	0	5	151	25	0	10	91	0	0	313
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	94	15	70	1	9	14	31	0	19	1048	147	1	77	701	11	0	2238
APPROACH %'s :	52.22%	8.33%	38.89%	0.56%	16.67%	25.93%	57.41%	0.00%	1.56%	86.26%	12.10%	0.08%	9.76%	88.85%	1.39%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	56	7	35	1	2	6	15	0	11	534	70	0	39	347	1	0	1124
PEAK HR FACTOR :	0.82	0.583	0.875	0.250	0.500	0.375	0.750	0.000	0.550	0.884	0.700	0.000	0.886	0.953	0.250	0.000	0.898
	0.825				0.821				0.849				0.958				

National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Base Line Rd
City: Rialto
Control: 2-Way Stop(NB/SB)

Project ID: 18-06025-006
Date: 3/6/2018

HT

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	3
8:00 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	2	0	2	4	0	0	0	9	3	0	20
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	33.33%	66.67%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	1	0	0	0	3	2	0	7
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.750	0.500	0.000	0.583
							0.250				0.250				0.625		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	1	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	1	0	0	0	0	2	0	0	4
5:00 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	3	0	1	0	1	5	0	0	0	8	1	0	19
APPROACH %'s :					75.00%	0.00%	25.00%	0.00%	16.67%	83.33%	0.00%	0.00%	0.00%	88.89%	11.11%	0.00%	
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	1	0	0	3	0	0	0	5	0	0	10
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.750	0.000	0.000	0.000	0.417	0.000	0.000	0.625
							0.500				0.750				0.417		

National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Base Line Rd
City: Rialto
Control: 2-Way Stop(NB/SB)

Project ID: 18-06025-006
Date: 3/6/2018

MT

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	1	0	0	0	0	0	0	3	1	0	0	0	0	0	5
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
7:45 AM	1	0	0	0	0	0	0	0	0	3	1	0	0	2	0	0	7
8:00 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	1	0	5
8:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	1	0	0	0	2	0	0	11	3	0	0	8	1	0	27
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	78.57%	21.43%	0.00%	0.00%	88.89%	11.11%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	0	1	0	0	0	0	0	0	7	2	0	0	5	0	0	16
PEAK HR FACTOR :	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.500	0.000	0.000	0.625	0.000	0.000	0.571
	0.500								0.563				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	3
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	2	0	0	6	0	0	0	5	1	0	15
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	83.33%	16.67%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	3	0	0	0	1	0	0	5
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.375	0.000	0.000	0.000	0.250	0.000	0.000	0.625
					0.250				0.375				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Base Line Rd
City: Rialto
Control: 2-Way Stop(NB/SB)

Project ID: 18-06025-006
Date: 3/6/2018

ST

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	4	0	0	0	8	0	0	12
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	3	0	0	0	6	0	0	9
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.450
										0.250				0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:45 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	1	0	1	0	0	10	1	0	0	5	0	0	19
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	90.91%	9.09%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	1	0	0	6	1	0	0	1	0	0	10
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.750	0.250	0.000	0.000	0.250	0.000	0.000	0.833
							0.500				0.583				0.250		

Prepared by National Data & Surveying Services

Tamarind Ave & Base Line Rd

Peak Hour Turning Movement Count

ID: 18-06025-006
City: Rialto

Day: Tuesday
Date: 03/06/2018

PEAK HOURS
AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS
AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Tamarind Ave — SOUTHBOUND

AM	5	3	1	0	34	AM
NOON	0	0	0	0	0	NOON
PM	18	6	4	0	19	PM

Base Line Rd — EASTBOUND

AM	NOON	PM	
591	0	428	
0	0	0	0
20	0	11	0
471	0	546	1
142	0	71	1
AM	NOON	PM	

CONTROL

2-Way Stop(NB/SB)

TEV	1380	0	1149
	AM	NOON	PM
PHF	0.79		0.91

Base Line Rd — WESTBOUND

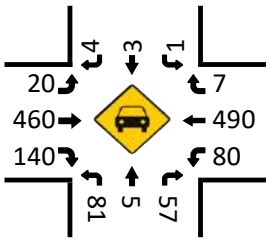
PM	NOON	AM	
1	0	9	0
354	0	504	2
39	0	80	0
0	0	0	0
585	0	530	
PM	NOON	AM	

Tamarind Ave — NORTHBOUND

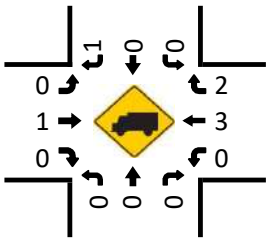
PM	117	1	56	7	35	PM
NOON	0	0	0	0	0	NOON
AM	225	0	82	5	58	AM

0 1 0 0 (EB) — 0 0 1 0 (NB)

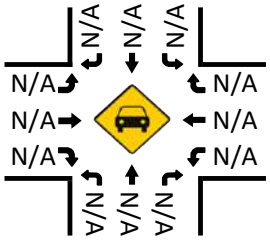
PV (AM)



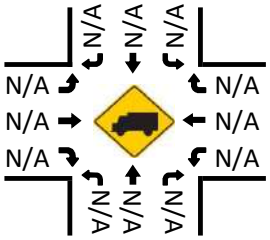
HT (AM)



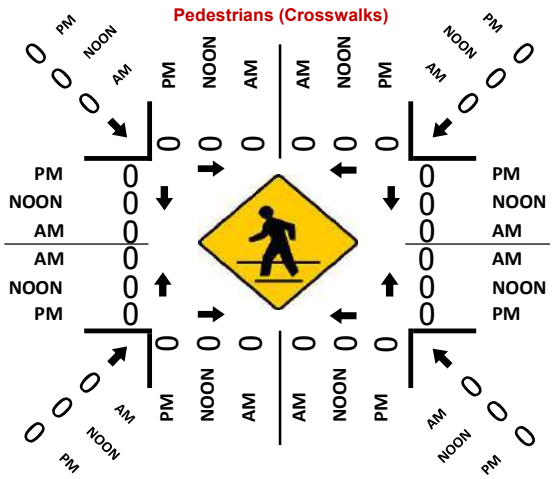
PV (NOON)



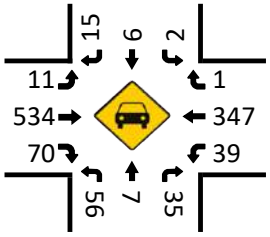
HT (NOON)



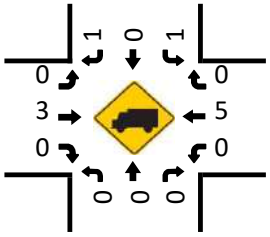
Pedestrians (Crosswalks)



PV (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Walnut Ave
City: Rialto
Control: 1-Way Stop(EB)

Project ID: 18-06025-007
Date: 3/6/2018

Total

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	6	0	0	0	0	0	0	5	1	0	2	2	0	1	18
7:15 AM	2	0	13	0	0	0	0	0	0	5	1	0	0	6	0	0	27
7:30 AM	1	0	6	0	0	0	0	0	0	7	1	0	3	5	0	0	23
7:45 AM	0	0	2	0	0	0	0	0	0	4	7	0	1	0	0	0	14
8:00 AM	0	0	3	0	0	0	0	0	0	4	2	0	2	5	0	0	16
8:15 AM	0	0	3	0	0	0	0	0	0	2	1	0	4	4	0	0	14
8:30 AM	3	0	6	0	0	0	0	0	0	3	1	0	1	5	0	0	19
8:45 AM	2	0	5	0	0	0	0	0	0	3	4	0	1	5	0	0	20
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	0	44	0	0	0	0	0	0	33	18	0	14	32	0	1	151
APPROACH %'s :	16.98%	0.00%	83.02%	0.00%					0.00%	64.71%	35.29%	0.00%	29.79%	68.09%	0.00%	2.13%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	4	0	27	0	0	0	0	0	0	21	10	0	6	13	0	1	82
PEAK HR FACTOR :	0.500	0.000	0.519	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.357	0.000	0.500	0.542	0.000	0.250	0.759
	0.517								0.705				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	0	6	0	0	0	0	0	0	8	2	0	4	5	0	0	27
4:15 PM	3	0	7	0	0	0	0	0	0	8	2	0	3	4	0	0	27
4:30 PM	5	0	8	0	0	0	0	0	0	9	2	0	16	4	0	0	44
4:45 PM	2	0	7	0	0	0	0	0	0	4	3	0	18	3	0	0	37
5:00 PM	2	0	4	0	0	0	0	0	0	6	0	0	5	2	0	0	19
5:15 PM	1	0	2	0	0	0	0	0	0	10	0	0	4	2	0	0	19
5:30 PM	1	0	4	0	0	0	0	0	0	7	0	0	4	1	0	0	17
5:45 PM	1	0	9	0	0	0	0	0	0	4	0	0	10	4	0	1	29
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	0	47	0	0	0	0	0	0	56	9	0	64	25	0	1	219
APPROACH %'s :	26.56%	0.00%	73.44%	0.00%					0.00%	86.15%	13.85%	0.00%	71.11%	27.78%	0.00%	1.11%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	12	0	28	0	0	0	0	0	0	29	9	0	41	16	0	0	135
PEAK HR FACTOR :	0.600	0.000	0.875	0.000	0.000	0.000	0.000	0.000	0.000	0.806	0.750	0.000	0.569	0.800	0.000	0.000	0.767
	0.769								0.864				0.679				

National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Walnut Ave
City: Rialto
Control: 1-Way Stop(EB)

Project ID: 18-06025-007
Date: 3/6/2018

PV

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	6	0	0	0	0	0	0	2	1	0	2	0	0	0	12
7:15 AM	1	0	12	0	0	0	0	0	0	2	1	0	0	3	0	0	19
7:30 AM	1	0	6	0	0	0	0	0	0	7	1	0	2	3	0	0	20
7:45 AM	0	0	2	0	0	0	0	0	0	2	5	0	1	0	0	0	10
8:00 AM	0	0	3	0	0	0	0	0	0	3	0	0	1	1	0	0	8
8:15 AM	0	0	2	0	0	0	0	0	0	1	1	0	4	0	0	0	8
8:30 AM	2	0	4	0	0	0	0	0	0	1	0	0	1	4	0	0	12
8:45 AM	2	0	4	0	0	0	0	0	0	1	3	0	0	2	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	0	39	0	0	0	0	0	0	19	12	0	11	13	0	0	101
APPROACH %'s :	15.22%	0.00%	84.78%	0.00%					0.00%	61.29%	38.71%	0.00%	45.83%	54.17%	0.00%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	3	0	26	0	0	0	0	0	0	13	8	0	5	6	0	0	61
PEAK HR FACTOR :	0.750	0.000	0.542	0.000	0.000	0.000	0.000	0.000	0.000	0.464	0.400	0.000	0.625	0.500	0.000	0.000	0.763
			0.558								0.656				0.550		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	0	2	0	0	0	0	0	0	7	2	0	4	4	0	0	21
4:15 PM	1	0	5	0	0	0	0	0	0	2	2	0	2	1	0	0	13
4:30 PM	5	0	6	0	0	0	0	0	0	7	2	0	16	1	0	0	37
4:45 PM	2	0	5	0	0	0	0	0	0	3	3	0	14	1	0	0	28
5:00 PM	2	0	3	0	0	0	0	0	0	3	0	0	5	0	0	0	13
5:15 PM	1	0	2	0	0	0	0	0	0	5	0	0	3	0	0	0	11
5:30 PM	1	0	2	0	0	0	0	0	0	5	0	0	4	0	0	0	12
5:45 PM	1	0	9	0	0	0	0	0	0	1	0	0	7	2	0	1	21
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	15	0	34	0	0	0	0	0	0	33	9	0	55	9	0	1	156
APPROACH %'s :	30.61%	0.00%	69.39%	0.00%					0.00%	78.57%	21.43%	0.00%	84.62%	13.85%	0.00%	1.54%	
PEAK HR :	**04:00 PM - 05:00 PM**																TOTAL
PEAK HR VOL :	10	0	18	0	0	0	0	0	0	19	9	0	36	7	0	0	99
PEAK HR FACTOR :	0.50	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.679	0.750	0.000	0.563	0.438	0.000	0.000	0.669
			0.636								0.778				0.632		

National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Walnut Ave
City: Rialto
Control: 1-Way Stop(EB)

Project ID: 18-06025-007
Date: 3/6/2018

HT

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	1	4
7:15 AM	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	0	5
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	1	2	0	0	5
8:15 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	4
8:30 AM	0	0	1	0	0	0	0	0	0	2	0	0	0	1	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	1	3	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	3	0	0	0	0	0	0	11	2	0	3	11	0	1	31
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	84.62%	15.38%	0.00%	20.00%	73.33%	0.00%	6.67%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	5	1	0	1	3	0	1	12
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.250	0.000	0.250	0.375	0.000	0.250	0.600
	0.250								0.750				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	3	0	0	0	0	0	0	1	0	0	0	1	0	0	5
4:15 PM	1	0	2	0	0	0	0	0	0	4	0	0	1	1	0	0	9
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
4:45 PM	0	0	1	0	0	0	0	0	0	1	0	0	2	1	0	0	5
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	1	2	0	0	5
5:30 PM	0	0	2	0	0	0	0	0	0	1	0	0	0	1	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	9	0	0	0	0	0	0	12	0	0	5	12	0	0	39
APPROACH %'s :	10.00%	0.00%	90.00%	0.00%					0.00%	100.00%	0.00%	0.00%	29.41%	70.59%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	0	6	0	0	0	0	0	0	8	0	0	3	5	0	0	23
PEAK HR FACTOR :	0.25	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.375	0.625	0.000	0.000	0.639
	0.583								0.500				0.667				

National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Walnut Ave
City: Rialto
Control: 1-Way Stop(EB)

Project ID: 18-06025-007
Date: 3/6/2018

MT

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
8:45 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	1	0	0	0	0	0	0	2	3	0	0	3	0	0	10
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%					0.00%	40.00%	60.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.750
									0.500				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	3
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	3	0	0	0	0	0	0	4	0	0	3	3	0	0	13
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	3	0	0	0	0	0	0	0	0	0	2	3	0	0	8
PEAK HR FACTOR :	0.00	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.750	0.000	0.000	0.500
			0.375											0.417			

National Data & Surveying Services Intersection Turning Movement Count

Location: Tamarind Ave & Walnut Ave
City: Rialto
Control: 1-Way Stop(EB)

Project ID: 18-06025-007
Date: 3/6/2018

ST

NS/EW Streets:	Tamarind Ave				Tamarind Ave				Walnut Ave				Walnut Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	1	0	0	0	0	0	0	1	1	0	0	5	0	0	9
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%					0.00%	50.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	1	1	0	0	3	0	0	6
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.750	0.000	0.000	0.500
	0.250								0.500				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	1	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	1	0	0	0	0	0	0	7	0	0	1	1	0	0	11
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%					0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	0	1	0	0	0	0	0	0	2	0	0	0	1	0	0	5
PEAK HR FACTOR :	0.25	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.313
	0.500								0.250				0.250				

Prepared by National Data & Surveying Services

Tamarind Ave & Walnut Ave

Peak Hour Turning Movement Count

ID: 18-06025-007
City: Rialto

Day: Tuesday
Date: 03/06/2018

PEAK HOURS
07:00 AM - 08:00 AM
NONE
04:00 PM - 05:00 PM

COUNT PERIODS
07:00 AM - 09:00 AM
NONE
04:00 PM - 06:00 PM

Tamarind Ave — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

Walnut Ave — EASTBOUND

AM	NOON	PM		
17	0	28	⇦	
0	0	0	↶	0
0	0	0	↱	0
21	0	29	→	1
10	0	9	↴	0
AM	NOON	PM		

Walnut Ave — WESTBOUND

PM	NOON	AM		
0	0	0	↰	0
16	0	13	←	1
41	0	6	↶	0
0	0	1	↱	0
57	0	49	⇨	
PM	NOON	AM		

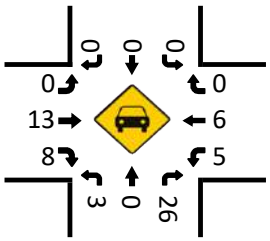
CONTROL: 1-Way Stop(EB)

TEV	82	0	135
	AM	NOON	PM
PHF	0.76		0.77

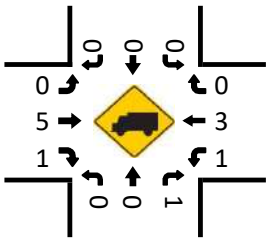
Tamarind Ave — NORTHBOUND

PM	50	0	12	0	28	PM
NOON	0	0	0	0	0	NOON
AM	16	0	4	0	27	AM

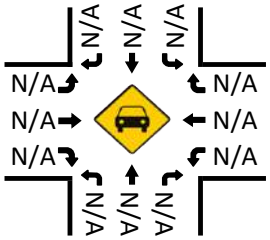
PV (AM)



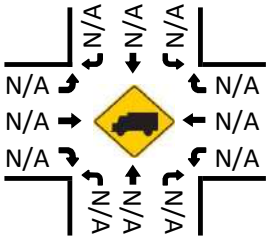
HT (AM)



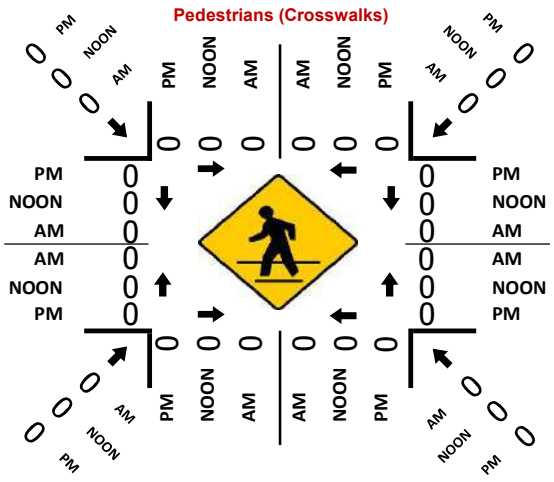
PV (NOON)



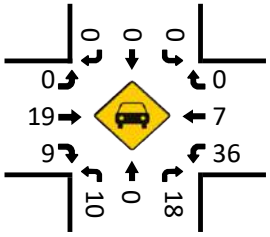
HT (NOON)



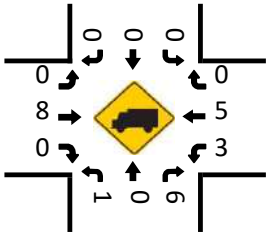
Pedestrians (Crosswalks)



PV (PM)



HT (PM)



Tamarind Ave — NORTHBOUND

Tamarind Ave

National Data & Surveying Services Intersection Turning Movement Count

Location: Ayala Dr/Cedar Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-008
Date: 3/6/2018

Total

NS/EW Streets:	Ayala Dr/Cedar Ave				Ayala Dr/Cedar Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	28	148	12	0	9	125	16	2	30	86	30	0	23	106	8	0	623
7:15 AM	19	96	14	0	8	158	18	3	28	70	36	2	35	73	7	0	567
7:30 AM	25	101	20	0	6	127	21	1	45	78	32	0	16	94	5	0	571
7:45 AM	27	147	34	0	6	152	26	2	36	59	22	4	30	74	8	1	628
8:00 AM	23	139	15	0	6	137	14	5	20	57	20	0	12	69	6	0	523
8:15 AM	14	108	13	0	8	100	18	2	25	57	14	1	21	78	5	1	465
8:30 AM	15	95	17	0	6	67	14	1	23	46	11	2	28	71	5	0	401
8:45 AM	12	97	8	0	7	85	13	4	17	54	12	2	26	61	8	0	406
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	163	931	133	0	56	951	140	20	224	507	177	11	191	626	52	2	4184
APPROACH %'s :	13.28%	75.88%	10.84%	0.00%	4.80%	81.49%	12.00%	1.71%	24.37%	55.17%	19.26%	1.20%	21.93%	71.87%	5.97%	0.23%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	99	492	80	0	29	562	81	8	139	293	120	6	104	347	28	1	2389
PEAK HR FACTOR :	0.884	0.831	0.588	0.000	0.806	0.889	0.779	0.667	0.772	0.852	0.833	0.375	0.743	0.818	0.875	0.250	0.951
	0.806				0.909				0.900				0.876				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	23	132	34	0	13	132	29	7	32	92	30	5	24	90	6	1	650
4:15 PM	29	113	27	0	12	138	33	7	29	121	20	4	26	106	9	0	674
4:30 PM	32	104	18	0	19	124	23	11	34	101	25	3	26	81	11	4	616
4:45 PM	22	137	33	0	17	145	18	13	32	109	32	4	27	82	10	2	683
5:00 PM	14	160	29	0	16	121	18	3	29	112	37	3	31	62	8	0	643
5:15 PM	24	117	27	0	21	138	20	6	23	127	27	3	23	85	15	0	656
5:30 PM	21	125	31	0	16	116	23	4	31	101	27	3	24	79	9	0	610
5:45 PM	20	138	24	0	21	128	18	7	26	125	25	11	26	92	9	1	671
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	185	1026	223	0	135	1042	182	58	236	888	223	36	207	677	77	8	5203
APPROACH %'s :	12.90%	71.55%	15.55%	0.00%	9.53%	73.54%	12.84%	4.09%	17.06%	64.21%	16.12%	2.60%	21.36%	69.87%	7.95%	0.83%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	106	486	112	0	61	539	103	38	127	423	107	16	103	359	36	7	2623
PEAK HR FACTOR :	0.828	0.887	0.824	0.000	0.803	0.929	0.780	0.731	0.934	0.874	0.836	0.800	0.954	0.847	0.818	0.438	0.960
	0.917				0.960				0.951				0.895				

National Data & Surveying Services Intersection Turning Movement Count

Location: Ayala Dr/Cedar Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-008
Date: 3/6/2018

PV

NS/EW Streets:	Ayala Dr/Cedar Ave				Ayala Dr/Cedar Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	25	140	11	0	9	123	15	2	30	84	29	0	20	105	8	0	601
7:15 AM	18	92	13	0	8	156	18	3	28	70	36	2	33	72	7	0	556
7:30 AM	23	98	16	0	6	123	21	1	45	75	30	0	16	89	4	0	547
7:45 AM	23	142	32	0	6	146	25	2	35	55	21	4	27	68	8	1	595
8:00 AM	22	135	13	0	6	132	14	5	20	55	20	0	12	69	6	0	509
8:15 AM	11	103	12	0	8	95	17	2	23	57	13	1	21	76	4	1	444
8:30 AM	13	91	17	0	6	64	13	1	23	44	10	2	27	70	5	0	386
8:45 AM	12	89	7	0	7	76	12	4	17	51	9	2	23	58	8	0	375
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	147	890	121	0	56	915	135	20	221	491	168	11	179	607	50	2	4013
APPROACH %'s :	12.69%	76.86%	10.45%	0.00%	4.97%	81.26%	11.99%	1.78%	24.80%	55.11%	18.86%	1.23%	21.36%	72.43%	5.97%	0.24%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	89	472	72	0	29	548	79	8	138	284	116	6	96	334	27	1	2299
PEAK HR FACTOR :	0.890	0.831	0.563	0.000	0.806	0.878	0.790	0.667	0.767	0.845	0.806	0.375	0.727	0.795	0.844	0.250	0.956
	0.803				0.897				0.907				0.861				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	129	33	0	13	126	28	7	32	91	27	5	24	88	6	1	630
4:15 PM	28	113	27	0	12	134	31	7	29	121	15	4	25	104	9	0	659
4:30 PM	31	102	18	0	19	119	22	11	34	100	24	3	26	79	11	4	603
4:45 PM	21	134	32	0	16	144	17	13	32	106	30	4	27	79	10	2	667
5:00 PM	12	159	29	0	16	120	18	3	29	112	34	3	30	61	7	0	633
5:15 PM	23	115	27	0	21	136	20	6	23	122	21	3	22	84	14	0	637
5:30 PM	21	121	29	0	16	113	23	4	30	98	24	3	24	76	8	0	590
5:45 PM	19	134	23	0	21	127	18	7	26	125	25	11	26	92	9	1	664
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	175	1007	218	0	134	1019	177	58	235	875	200	36	204	663	74	8	5083
APPROACH %'s :	12.50%	71.93%	15.57%	0.00%	9.65%	73.41%	12.75%	4.18%	17.46%	65.01%	14.86%	2.67%	21.50%	69.86%	7.80%	0.84%	
PEAK HR :	**04:00 PM - 05:00 PM**																TOTAL
PEAK HR VOL :	100	478	110	0	60	523	98	38	127	418	96	16	102	350	36	7	2559
PEAK HR FACTOR :	0.81	0.892	0.833	0.000	0.789	0.908	0.790	0.731	0.934	0.864	0.800	0.800	0.944	0.841	0.818	0.438	0.959
	0.920				0.946				0.955				0.897				

National Data & Surveying Services Intersection Turning Movement Count

Location: Ayala Dr/Cedar Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-008
Date: 3/6/2018

HT

NS/EW Streets:	Ayala Dr/Cedar Ave				Ayala Dr/Cedar Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	3	0	0	0	1	1	0	0	0	0	0	2	1	0	0	10
7:15 AM	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6
7:30 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	1	0	6
7:45 AM	0	3	0	0	0	4	1	0	0	1	0	0	0	1	0	0	10
8:00 AM	1	3	1	0	0	2	0	0	0	1	0	0	0	0	0	0	8
8:15 AM	0	2	0	0	0	1	1	0	1	0	0	0	0	1	0	0	6
8:30 AM	1	2	0	0	0	1	0	0	0	0	1	0	1	1	0	0	7
8:45 AM	0	4	1	0	0	4	1	0	0	1	1	0	2	2	0	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	22	2	0	0	18	4	0	1	3	2	0	5	6	1	0	69
APPROACH %'s :	17.24%	75.86%	6.90%	0.00%	0.00%	81.82%	18.18%	0.00%	16.67%	50.00%	33.33%	0.00%	41.67%	50.00%	8.33%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	3	11	0	0	0	10	2	0	0	1	0	0	2	2	1	0	32
PEAK HR FACTOR :	0.375	0.917	0.000	0.000	0.000	0.625	0.500	0.000	0.000	0.250	0.000	0.000	0.250	0.500	0.250	0.000	0.800
	0.700				0.600				0.250				0.417				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	2	0	0	0	4	1	0	0	0	2	0	0	0	0	0	10
4:15 PM	0	0	0	0	0	2	1	0	0	0	4	0	1	0	0	0	8
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	1	2	0	0	0	1	1	0	0	0	1	0	0	2	0	0	8
5:00 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3
5:15 PM	1	2	0	0	0	2	0	0	0	0	3	0	1	0	0	0	9
5:30 PM	0	1	1	0	0	2	0	0	0	0	2	0	0	3	1	0	10
5:45 PM	1	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	11	1	0	0	14	3	0	0	0	13	0	2	5	2	0	55
APPROACH %'s :	25.00%	68.75%	6.25%	0.00%	0.00%	82.35%	17.65%	0.00%	0.00%	0.00%	100.00%	0.00%	22.22%	55.56%	22.22%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	2	4	0	0	0	9	3	0	0	0	7	0	1	2	0	0	28
PEAK HR FACTOR :	0.50	0.500	0.000	0.000	0.000	0.563	0.750	0.000	0.000	0.000	0.438	0.000	0.250	0.250	0.000	0.000	0.700
	0.500				0.600				0.438				0.375				

National Data & Surveying Services Intersection Turning Movement Count

Location: Ayala Dr/Cedar Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-008
Date: 3/6/2018

MT

NS/EW Streets:	Ayala Dr/Cedar Ave				Ayala Dr/Cedar Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	1	0	0	1	0	0	0	1	1	0	0	0	0	0	6
7:15 AM	0	1	1	0	0	0	0	0	0	0	0	0	2	0	0	0	4
7:30 AM	2	1	2	0	0	0	0	0	0	2	2	0	0	2	0	0	11
7:45 AM	3	2	2	0	0	2	0	0	1	3	1	0	0	4	0	0	18
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	3	1	0	0	0	4	0	0	1	0	0	0	0	1	0	0	10
8:30 AM	0	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0	4
8:45 AM	0	3	0	0	0	3	0	0	0	1	1	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	10	6	0	0	12	0	0	2	9	5	0	2	7	0	0	62
APPROACH %'s :	36.00%	40.00%	24.00%	0.00%	0.00%	100.00%	0.00%	0.00%	12.50%	56.25%	31.25%	0.00%	22.22%	77.78%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	6	5	6	0	0	3	0	0	1	6	4	0	2	6	0	0	39
PEAK HR FACTOR :	0.500	0.625	0.750	0.000	0.000	0.375	0.000	0.000	0.250	0.500	0.500	0.000	0.250	0.375	0.000	0.000	0.542
	0.607				0.375				0.550				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	1	0	0	0	2	0	0	0	1	1	0	0	1	0	0	7
4:15 PM	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	4
4:30 PM	1	0	0	0	0	2	1	0	0	1	1	0	0	1	0	0	7
4:45 PM	0	0	1	0	0	0	0	0	0	1	1	0	0	1	0	0	4
5:00 PM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	2	3	0	0	1	0	0	6
5:30 PM	0	3	1	0	0	0	0	0	0	1	1	0	0	0	0	0	6
5:45 PM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	5	3	0	0	5	1	0	0	6	10	0	0	5	0	0	39
APPROACH %'s :	33.33%	41.67%	25.00%	0.00%	0.00%	83.33%	16.67%	0.00%	0.00%	37.50%	62.50%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	3	1	1	0	0	5	1	0	0	3	4	0	0	4	0	0	22
PEAK HR FACTOR :	0.75	0.250	0.250	0.000	0.000	0.625	0.250	0.000	0.000	0.750	1.000	0.000	0.000	1.000	0.000	0.000	0.786
	0.625				0.500				0.875				1.000				

National Data & Surveying Services Intersection Turning Movement Count

Location: Ayala Dr/Cedar Ave & Base Line Rd
City: Rialto
Control: Signalized

Project ID: 18-06025-008
Date: 3/6/2018

ST

NS/EW Streets:	Ayala Dr/Cedar Ave				Ayala Dr/Cedar Ave				Base Line Rd				Base Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	0	0	0	0	0	0	0	1	0	0	1	0	0	0	6
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	2	0	0	1	0	0	0	1	0	0	0	3	0	0	7
7:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	5
8:00 AM	0	1	1	0	0	2	0	0	0	1	0	0	0	0	0	0	5
8:15 AM	0	2	1	0	0	0	0	0	0	0	1	0	0	0	1	0	5
8:30 AM	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	4
8:45 AM	0	1	0	0	0	2	0	0	0	1	1	0	1	1	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	9	4	0	0	6	1	0	0	4	2	0	5	6	1	0	40
APPROACH %'s :	13.33%	60.00%	26.67%	0.00%	0.00%	85.71%	14.29%	0.00%	0.00%	66.67%	33.33%	0.00%	41.67%	50.00%	8.33%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	4	2	0	0	1	0	0	0	2	0	0	4	5	0	0	19
PEAK HR FACTOR :	0.250	0.250	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.333	0.417	0.000	0.000	0.679
	0.438				0.250				0.500				0.563				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	3
4:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	3
4:30 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	4
4:45 PM	0	1	0	0	1	0	0	0	0	2	0	0	0	0	0	0	4
5:00 PM	1	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	4
5:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	4
5:30 PM	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	3	1	0	1	4	1	0	1	7	0	0	1	4	1	0	26
APPROACH %'s :	33.33%	50.00%	16.67%	0.00%	16.67%	66.67%	16.67%	0.00%	12.50%	87.50%	0.00%	0.00%	16.67%	66.67%	16.67%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	3	1	0	1	2	1	0	0	2	0	0	0	3	0	0	14
PEAK HR FACTOR :	0.25	0.375	0.250	0.000	0.250	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.750	0.000	0.000	0.875
	0.625				0.500				0.250				0.750				

Prepared by National Data & Surveying Services

Ayala Dr/Cedar Ave & Base Line Rd

Peak Hour Turning Movement Count

ID: 18-06025-008
City: Rialto

Day: Tuesday
Date: 03/06/2018

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Ayala Dr/Cedar Ave — SOUTHBOUND

AM	81	562	29	8	667	AM
NOON	0	0	0	0	0	NOON
PM	103	539	61	38	687	PM

0 2 1 0

Base Line Rd — EASTBOUND

AM	NOON	PM	
533	0	584	
6	0	16	0
139	0	127	1
293	0	423	2
120	0	107	0
AM	NOON	PM	

CONTROL

Signalized

TEV	2389 AM	0 NOON	2623 PM
PHF	0.95		0.96

Base Line Rd — WESTBOUND

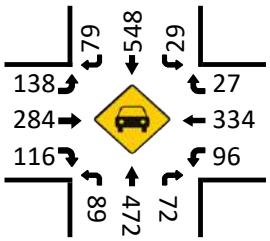
PM	NOON	AM	
36	0	28	0
359	0	347	2
103	0	104	1
7	0	1	0
603	0	403	
PM	NOON	AM	

0 1 1 1

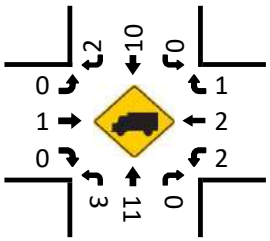
Ayala Dr/Cedar Ave — NORTHBOUND

PM	749	0	106	486	112	PM
NOON	0	0	0	0	0	NOON
AM	786	0	99	492	80	AM

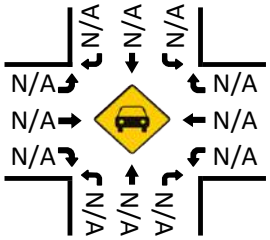
PV (AM)



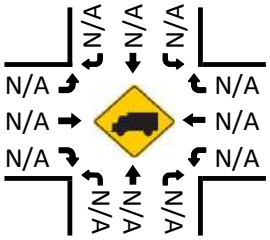
HT (AM)



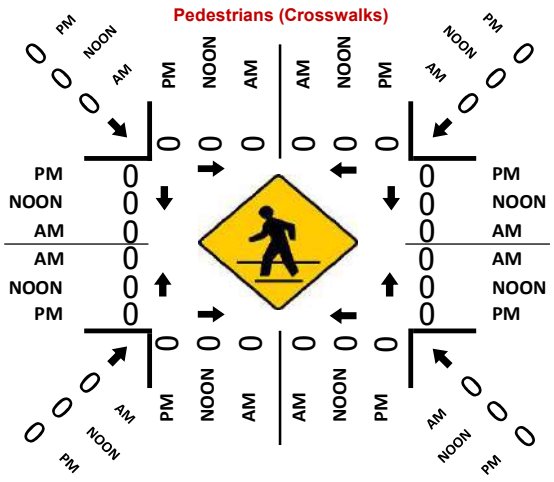
PV (NOON)



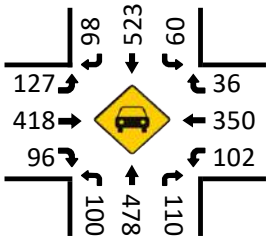
HT (NOON)



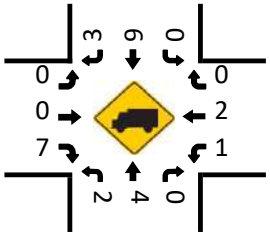
Pedestrians (Crosswalks)



PV (PM)



HT (PM)



Prepared by National Data & Surveying Services

CLASSIFICATION

Alder Ave Bet. SR-210 WB Ramps & SR -210 EB Ramps

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	26	5	0	4	0	0	0	5	0	0	0	0	40
00:15	0	30	6	0	1	0	0	2	4	0	1	0	0	44
00:30	0	37	7	0	6	0	0	5	9	0	0	0	0	64
00:45	0	24	6	1	6	1	0	2	9	0	0	0	0	49
01:00	0	29	7	0	5	0	0	4	10	0	0	0	0	55
01:15	0	35	10	1	7	1	1	2	7	0	0	0	0	64
01:30	0	28	15	0	5	1	1	1	7	0	0	0	0	58
01:45	0	27	8	0	6	0	0	3	6	0	1	0	0	51
02:00	1	32	2	0	4	3	0	3	8	0	0	0	0	53
02:15	0	26	9	0	3	1	0	3	6	0	0	0	0	48
02:30	0	27	8	0	7	1	0	7	5	1	1	0	0	57
02:45	0	34	10	0	7	1	0	1	9	0	0	0	0	62
03:00	0	40	9	0	6	1	0	1	12	0	0	0	0	69
03:15	0	42	7	0	7	0	0	3	13	0	2	0	0	74
03:30	0	56	9	1	5	0	0	1	5	0	0	0	0	77
03:45	0	60	8	0	7	1	0	2	12	0	0	0	0	90
04:00	0	45	11	0	8	0	0	5	8	0	0	0	0	77
04:15	0	77	22	0	5	1	0	2	16	0	2	0	0	125
04:30	0	122	20	0	8	1	0	3	13	0	1	0	0	168
04:45	0	140	25	2	12	1	0	2	6	1	0	0	0	189
05:00	0	76	21	1	8	1	0	0	11	0	0	0	0	118
05:15	0	88	16	0	8	0	0	2	6	0	0	0	0	120
05:30	0	122	31	0	16	1	0	1	13	0	2	0	0	186
05:45	1	136	31	1	12	1	0	2	9	1	0	0	0	194
06:00	0	93	18	0	6	2	0	1	7	0	0	0	0	127
06:15	0	113	22	1	20	1	0	3	12	0	0	0	0	172
06:30	0	146	36	0	17	4	2	2	14	0	2	0	0	223
06:45	2	171	32	3	23	2	2	2	19	1	0	0	0	257
07:00	1	179	25	3	11	1	0	1	14	0	1	0	0	236
07:15	0	144	31	0	15	4	0	5	16	2	0	0	0	217
07:30	1	153	29	0	18	2	0	2	18	0	0	0	0	223
07:45	2	138	27	1	18	2	0	1	17	1	1	0	0	208
08:00	2	136	24	0	11	2	0	1	8	2	1	0	0	187
08:15	0	127	32	0	17	1	1	3	21	0	1	0	0	203
08:30	2	124	23	2	12	3	0	2	20	0	2	0	0	190
08:45	2	112	25	4	18	3	1	1	22	0	0	0	0	188
09:00	1	129	27	0	14	3	1	2	24	1	1	0	0	203
09:15	1	133	25	2	12	1	1	4	17	1	1	0	0	198
09:30	0	115	25	1	17	5	3	4	19	0	0	0	0	189
09:45	0	113	23	1	10	1	1	2	18	0	1	0	0	170
10:00	1	98	29	2	17	3	0	1	20	0	2	0	0	173
10:15	1	127	31	1	12	2	1	3	24	0	2	0	0	204
10:30	0	117	28	1	11	3	0	5	31	0	1	0	0	197
10:45	1	126	32	1	11	5	1	2	30	0	2	0	0	211
11:00	2	121	20	3	21	6	0	4	25	0	1	0	0	203
11:15	0	109	25	0	16	6	2	7	21	2	1	0	0	189
11:30	1	116	34	2	17	5	3	3	25	0	2	0	0	208
11:45	1	114	26	1	20	7	1	5	33	2	1	0	0	211
12:00 PM	2	136	22	1	20	8	3	5	30	0	0	0	0	227
12:15	2	129	32	1	14	6	1	4	20	0	1	0	0	210
12:30	0	145	22	1	20	6	0	2	26	0	1	0	0	223
12:45	1	131	34	0	28	3	0	6	34	0	0	0	0	237
13:00	2	144	35	3	27	4	2	5	27	1	0	0	0	250
13:15	1	161	38	0	17	2	0	8	18	0	3	0	0	248
13:30	1	161	45	1	29	8	0	4	19	0	0	0	0	268
13:45	2	156	43	2	32	4	0	4	27	0	2	0	0	272
14:00	1	178	38	6	23	4	0	2	33	2	2	0	0	289
14:15	2	190	40	2	28	5	2	3	32	2	1	0	0	307
14:30	3	211	39	1	27	2	1	3	26	0	1	0	0	314
14:45	3	153	41	0	20	1	1	8	19	1	1	0	0	248
15:00	1	164	35	1	23	2	2	3	22	0	5	0	0	258
15:15	1	194	37	4	18	4	2	2	22	0	0	0	0	284
15:30	1	211	49	2	32	3	1	2	31	1	1	0	0	334
15:45	0	207	45	2	24	7	0	4	16	1	2	0	0	308
16:00	2	159	37	3	24	2	2	4	21	2	0	0	0	256
16:15	1	162	33	1	25	7	1	4	21	1	0	0	0	256
16:30	1	183	33	5	23	2	0	5	16	0	2	0	0	270
16:45	0	171	36	0	12	5	1	1	15	0	0	0	0	241
17:00	1	183	25	0	14	4	1	0	11	0	0	0	0	239
17:15	1	152	35	5	18	1	1	2	12	0	0	0	0	227
17:30	0	164	29	0	19	2	1	4	12	0	1	0	0	232
17:45	0	157	27	0	16	1	0	2	8	0	0	0	0	211
18:00	1	175	21	1	7	3	0	1	10	0	0	0	0	219
18:15	2	135	26	0	18	2	0	3	13	0	2	0	0	201
18:30	0	151	24	1	7	2	0	2	9	0	0	0	0	196
18:45	0	148	14	1	3	2	2	1	5	0	0	0	0	176
19:00	0	116	18	0	8	0	1	2	3	0	0	0	0	148
19:15	0	100	16	1	1	1	1	0	6	0	0	0	0	126
19:30	0	103	12	0	7	1	0	0	10	0	0	0	0	133
19:45	1	98	12	1	13	1	0	1	6	0	0	0	0	133
20:00	1	85	20	0	7	1	0	1	11	1	0	0	0	127
20:15	0	86	21	1	16	2	1	3	10	0	0	0	0	140
20:30	0	101	9	0	9	2	1	1	6	0	0	0	0	129
20:45	0	83	12	2	3	0	0	0	13	0	0	0	0	113
21:00	0	79	9	0	5	0	0	2	6	0	0	0	0	101
21:15	0	81	12	0	9	1	1	0	6	0	0	0	0	110
21:30	0	56	9	2	2	1	0	1	8	0	0	0	0	79
21:45	0	59	7	1	5	1	1	2	7	0	0	0	0	83
22:00	0	54	7	0	2	1	0	2	7	0	0	0	0	73
22:15	0	65	10	1	4	0	0	4	10	0	0	0	0	94
22:30	0	67	7	3	2	1	0	0	9	0	0	0	0	89
22:45	0	50	8	2	2	0	2	4	11	0	0	0	0	79
23:00	0	41	2	1	2	0	0	1	5	0	0	0	0	52
23:15	0	42	3	0	1	1	0	2	7	0	0	0	0	56
23:30	1	37	6	0	3	1	0	1	4	0	0	0	0	53
23:45	0	46	5	0	2	1	0	0	5	0	0	0	0	59
Totals	58	10473	2092	95	1198	209	54	244	1389	27	58			15897
% of Totals	0%	66%	13%	1%	8%	1%	0%	2%	9%	0%	0%			100%

AM Volumes	23	4413	952	36	527	91	22	123	684	15	33	0	0	6919
% AM	0%	28%	6%	0%	3%	1%	0%	1%	4%	0%	0%			44%
AM Peak Hour	07:45	06:45	06:30	08:30	11:00	11:45	11:15	11:15	10:15	07:15	10:00			06:30
Volume	6	647	124	8	74	27	9	20	110	5	7			933
PM Volumes	35	6060	1140	59	671	118	32	121	705	12	25	0	0	8978
% PM	0%	38%	7%	0%	4%	1%	0%	1%	4%	0%	0%			56%
PM Peak Hour	14:00	15:00	15:15	13:30	13:30	12:00	14:15	12:45	13:45	14:00	14:15			15:00
Volume	9	776	168	11	112	23	6	23	118	5	8			1184

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes	Volume		%	Volume		%	Volume		%	Volume		%
	1652	⟷	10%	1935	⟷	12%	1932	⟷	12%	10378	⟷	65%

Classification Definitions

1 Motorcycles	**4** Buses	**7** >=4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

VOLUME

Alder Ave Bet. SR-210 WB Ramps & SR -210 EB Ramps

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_001

DAILY TOTALS	NB	SB	EB	WB	Total
	9,632	6,265	0	0	15,897

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	24		16		0	0	40		12:00	136		91		0	0	227	
00:15	22		22		0	0	44		12:15	126		84		0	0	210	
00:30	43		21		0	0	64		12:30	143		80		0	0	223	
00:45	37	126	12	71	0	0	49	197	12:45	153	558	84	339	0	0	237	897
01:00	46		9		0	0	55		13:00	147		103		0	0	250	
01:15	52		12		0	0	64		13:15	137		111		0	0	248	
01:30	43		15		0	0	58		13:30	169		99		0	0	268	
01:45	37	178	14	50	0	0	51	228	13:45	162	615	110	423	0	0	272	1038
02:00	41		12		0	0	53		14:00	191		98		0	0	289	
02:15	30		18		0	0	48		14:15	176		131		0	0	307	
02:30	40		17		0	0	57		14:30	190		124		0	0	314	
02:45	42	153	20	67	0	0	62	220	14:45	140	697	108	461	0	0	248	1158
03:00	49		20		0	0	69		15:00	151		107		0	0	258	
03:15	55		19		0	0	74		15:15	157		127		0	0	284	
03:30	57		20		0	0	77		15:30	182		152		0	0	334	
03:45	68	229	22	81	0	0	90	310	15:45	159	649	149	535	0	0	308	1184
04:00	66		11		0	0	77		16:00	164		92		0	0	256	
04:15	93		32		0	0	125		16:15	149		107		0	0	256	
04:30	112		56		0	0	168		16:30	153		117		0	0	270	
04:45	93	364	96	195	0	0	189	559	16:45	117	583	124	440	0	0	241	1023
05:00	95		23		0	0	118		17:00	130		109		0	0	239	
05:15	91		29		0	0	120		17:15	112		115		0	0	227	
05:30	118		68		0	0	186		17:30	128		104		0	0	232	
05:45	122	426	72	192	0	0	194	618	17:45	115	485	96	424	0	0	211	909
06:00	85		42		0	0	127		18:00	138		81		0	0	219	
06:15	118		54		0	0	172		18:15	121		80		0	0	201	
06:30	133		90		0	0	223		18:30	121		75		0	0	196	
06:45	151	487	106	292	0	0	257	779	18:45	97	477	79	315	0	0	176	792
07:00	159		77		0	0	236		19:00	82		66		0	0	148	
07:15	119		98		0	0	217		19:15	81		45		0	0	126	
07:30	112		111		0	0	223		19:30	81		52		0	0	133	
07:45	116	506	92	378	0	0	208	884	19:45	72	316	61	224	0	0	133	540
08:00	91		96		0	0	187		20:00	59		68		0	0	127	
08:15	121		82		0	0	203		20:15	79		61		0	0	140	
08:30	116		74		0	0	190		20:30	84		45		0	0	129	
08:45	107	435	81	333	0	0	188	768	20:45	72	294	41	215	0	0	113	509
09:00	138		65		0	0	203		21:00	64		37		0	0	101	
09:15	114		84		0	0	198		21:15	50		60		0	0	110	
09:30	113		76		0	0	189		21:30	50		29		0	0	79	
09:45	99	464	71	296	0	0	170	760	21:45	55	219	28	154	0	0	83	373
10:00	109		64		0	0	173		22:00	43		30		0	0	73	
10:15	130		74		0	0	204		22:15	62		32		0	0	94	
10:30	121		76		0	0	197		22:30	59		30		0	0	89	
10:45	143	503	68	282	0	0	211	785	22:45	52	216	27	119	0	0	79	335
11:00	135		68		0	0	203		23:00	34		18		0	0	52	
11:15	108		81		0	0	189		23:15	37		19		0	0	56	
11:30	128		80		0	0	208		23:30	20		33		0	0	53	
11:45	156	527	55	284	0	0	211	811	23:45	34	125	25	95	0	0	59	220
TOTALS		4398		2521				6919	TOTALS		5234		3744				8978
SPLIT %		63.6%		36.4%				43.5%	SPLIT %		58.3%		41.7%				56.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	9,632	6,265	0	0	15,897

AM Peak Hour	06:30	07:15					06:30		PM Peak Hour	13:45	15:00					15:00		
AM Pk Volume	562	397					933		PM Pk Volume	719	535					1184		
Pk Hr Factor	0.884	0.894					0.908		Pk Hr Factor	0.941	0.880					0.886		
7 - 9 Volume	941	711	0	0			1652		4 - 6 Volume	1068	864	0	0			1932		
7 - 9 Peak Hour	07:00	07:15					07:00		4 - 6 Peak Hour	16:00	16:30					16:00		
7 - 9 Pk Volume	506	397	0	0			884		4 - 6 Pk Volume	583	465	0	0			1023		
Pk Hr Factor	0.796	0.894	0.000	0.000			0.936		Pk Hr Factor	0.889	0.938	0.000	0.000			0.947		

Prepared by National Data & Surveying Services

CLASSIFICATION

Alder Ave Bet. SR-210 EB Ramps & Renaissance Pkwy

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_002

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	55	3	0	4	1	0	2	6	0	0	0	0	71
00:15	0	54	6	0	4	2	0	0	7	0	0	0	0	73
00:30	0	54	5	0	6	1	0	6	11	0	0	0	0	83
00:45	0	40	5	0	5	2	1	4	16	1	0	0	0	74
01:00	0	48	4	0	2	0	0	5	3	1	0	0	0	63
01:15	0	47	7	0	4	1	0	2	12	0	0	0	0	73
01:30	0	44	9	0	3	0	0	0	5	0	0	0	0	61
01:45	0	43	3	1	3	2	0	3	4	0	0	0	0	59
02:00	0	27	2	0	2	1	0	2	7	0	0	0	0	41
02:15	0	44	3	0	1	1	0	3	3	0	0	0	0	55
02:30	0	88	8	0	2	1	0	5	4	0	0	0	0	108
02:45	0	61	5	0	2	2	1	3	8	0	0	0	0	82
03:00	0	33	5	0	3	2	0	2	4	0	0	0	0	49
03:15	0	54	3	0	2	1	0	7	10	1	0	0	0	78
03:30	0	64	7	1	2	1	0	2	5	0	0	0	0	82
03:45	1	61	7	0	6	1	0	3	10	0	0	0	0	89
04:00	0	52	6	1	7	1	0	5	8	0	0	0	0	80
04:15	0	85	21	2	9	1	0	2	11	0	1	0	0	132
04:30	0	163	23	0	12	3	0	2	14	0	0	0	0	217
04:45	0	154	21	2	13	2	0	2	5	0	0	0	0	199
05:00	0	125	25	1	14	2	0	1	11	0	0	0	0	179
05:15	0	105	22	0	9	1	0	1	7	0	0	0	0	145
05:30	1	148	27	3	9	2	0	2	3	0	1	0	0	196
05:45	0	171	27	0	19	5	0	2	12	0	0	0	0	236
06:00	0	126	31	2	20	1	0	1	5	0	0	0	0	186
06:15	0	168	25	1	12	5	1	2	5	1	0	0	0	220
06:30	1	227	41	3	22	5	0	1	9	1	1	0	0	311
06:45	0	254	35	1	22	2	2	4	11	0	4	0	0	335
07:00	2	231	28	2	19	1	0	4	6	1	2	0	0	296
07:15	2	258	31	2	19	1	2	5	8	0	1	0	0	329
07:30	1	243	27	0	29	7	1	3	11	1	0	0	0	323
07:45	1	225	26	2	23	2	0	4	8	1	2	0	0	294
08:00	0	170	24	2	19	3	0	2	11	1	1	0	0	233
08:15	3	203	23	1	28	6	2	1	10	2	0	0	0	279
08:30	1	174	27	1	15	1	1	1	19	2	1	0	0	243
08:45	1	183	26	1	20	3	0	4	22	0	0	0	0	260
09:00	1	136	28	1	16	2	0	3	7	0	1	0	0	195
09:15	1	181	25	0	16	1	0	2	15	1	3	0	0	245
09:30	1	168	23	2	11	0	3	2	15	0	0	0	0	225
09:45	1	140	20	4	21	2	0	4	23	0	1	0	0	216
10:00	2	139	27	1	21	3	1	3	15	2	0	0	0	214
10:15	1	141	24	1	13	1	0	2	18	0	0	0	0	201
10:30	2	157	39	2	18	11	1	1	15	0	0	0	0	246
10:45	3	172	29	1	16	4	0	3	13	2	1	0	0	244
11:00	1	169	24	1	20	4	1	4	21	0	1	0	0	246
11:15	2	156	28	0	11	3	0	4	16	0	1	0	0	221
11:30	1	177	26	4	21	5	0	6	12	0	2	0	0	254
11:45	2	167	20	2	25	3	2	4	20	1	0	0	0	246
12:00 PM	1	172	22	2	19	5	4	4	16	1	0	0	0	246
12:15	2	205	32	4	21	5	0	3	23	0	3	0	0	298
12:30	2	183	17	2	19	5	0	4	16	1	2	0	0	251
12:45	1	171	27	3	14	1	2	4	13	0	0	0	0	236
13:00	1	183	33	1	26	6	0	5	20	0	0	0	0	275
13:15	3	195	26	1	16	10	1	4	8	1	2	0	0	267
13:30	1	201	34	3	25	5	1	7	11	0	0	0	0	288
13:45	0	201	33	2	31	3	2	3	12	0	2	0	0	289
14:00	2	222	34	4	22	5	0	3	12	0	2	0	0	306
14:15	2	245	31	0	27	8	0	3	21	3	0	0	0	340
14:30	2	269	34	4	27	8	2	4	15	0	2	0	0	367
14:45	1	229	30	2	33	3	0	3	19	1	1	0	0	322
15:00	3	207	40	3	30	2	3	3	16	1	2	0	0	310
15:15	1	237	38	2	26	5	0	6	12	0	0	0	0	327
15:30	1	305	40	4	40	3	2	9	13	1	1	0	0	419
15:45	0	299	39	1	31	7	0	4	14	1	3	0	0	399
16:00	1	219	32	1	20	2	3	3	10	1	1	0	0	293
16:15	2	233	36	5	30	1	3	4	7	2	1	0	0	324
16:30	2	243	33	3	20	3	1	4	8	2	1	0	0	320
16:45	1	238	40	2	21	5	5	2	18	0	1	0	0	333
17:00	2	295	29	1	14	5	1	3	15	1	1	0	0	367
17:15	3	246	41	3	17	5	1	2	7	2	0	0	0	327
17:30	1	255	33	1	19	10	1	4	14	0	0	0	0	338
17:45	1	222	25	0	24	1	2	5	8	3	1	0	0	292
18:00	0	259	28	1	15	4	2	0	6	0	2	0	0	317
18:15	1	242	31	2	18	2	0	0	9	0	1	0	0	306
18:30	1	214	37	3	16	1	4	2	5	0	0	0	0	283
18:45	3	216	23	0	11	4	1	2	9	0	1	0	0	270
19:00	0	181	28	2	12	2	2	3	8	0	1	0	0	239
19:15	0	149	21	2	9	2	0	1	2	0	1	0	0	187
19:30	1	175	17	1	8	1	0	1	9	0	0	0	0	213
19:45	1	158	14	2	14	1	0	1	9	0	0	0	0	200
20:00	0	147	17	1	10	3	0	4	7	0	0	0	0	189
20:15	0	144	14	0	14	2	0	2	5	0	0	0	0	181
20:30	0	141	11	1	14	0	0	1	5	0	0	0	0	173
20:45	0	124	9	2	7	0	0	2	6	0	0	0	0	150
21:00	0	125	15	2	5	3	0	2	11	0	0	0	0	163
21:15	0	124	8	0	11	3	1	0	5	0	0	0	0	152
21:30	0	108	9	1	6	3	0	1	6	0	0	0	0	134
21:45	0	101	11	0	3	2	0	1	5	0	0	0	0	123
22:00	0	84	7	0	6	0	0	0	7	1	0	0	0	105
22:15	0	110	5	1	7	2	0	2	12	0	1	0	0	140
22:30	0	97	8	0	1	1	0	0	8	0	0	0	0	115
22:45	0	78	9	1	5	0	0	2	7	1	0	0	0	103
23:00	0	61	6	0	3	2	0	0	6	0	0	0	0	78
23:15	0	73	8	0	4	3	0	0	5	0	0	0	0	93
23:30	0	74	8	0	2	0	0	0	4	0	0	0	0	88
23:45	0	63	2	0	2	2	0	0	8	0	0	0	0	77
Totals	**75**	**14908**	**2036**	**124**	**1375**	**268**	**63**	**259**	**993**	**42**	**57**			**20200**
% of Totals	0%	74%	10%	1%	7%	1%	0%	1%	5%	0%	0%			100%

AM Volumes	32	6185	911	48	600	112	19	136	501	19	24	0	0	8587
% AM	0%	31%	5%	0%	3%	1%	0%	1%	2%	0%	0%			43%
AM Peak Hour	10:00	06:45	06:30	11:30	07:30	10:30	11:15	11:00	11:45	07:45	06:30			06:45
Volume	8	986	135	12	99	22	6	18	75	6	8			1283
PM Volumes	43	8723	1125	76	775	156	44	123	492	23	33	0	0	11613
% PM	0%	43%	6%	0%	4%	1%	0%	1%	2%	0%	0%			57%
PM Peak Hour	14:15	15:15	15:00	12:00	14:45	16:45	16:00	15:00	12:15	15:45	13:15			15:00
Volume	8	1060	157	11	129	25	12	22	72	6	6			1455

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	2257 ⟷	11%	2150 ⟷	11%	2594 ⟷	13%	13199 ⟷	65%

Classification Definitions

1 Motorcycles	**4** Buses	**7** >=4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

VOLUME

Alder Ave Bet. SR-210 EB Ramps & Renaissance Pkwy

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_002

DAILY TOTALS	NB	SB	EB	WB	Total
	10,196	10,004	0	0	20,200

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	37		34		0	0	71		12:00	119		127		0	0	246	
00:15	31		42		0	0	73		12:15	142		156		0	0	298	
00:30	42		41		0	0	83		12:30	129		122		0	0	251	
00:45	37	147	37	154	0	0	74	301	12:45	127	517	109	514	0	0	236	1031
01:00	35		28		0	0	63		13:00	123		152		0	0	275	
01:15	44		29		0	0	73		13:15	136		131		0	0	267	
01:30	36		25		0	0	61		13:30	151		137		0	0	288	
01:45	31	146	28	110	0	0	59	256	13:45	126	536	163	583	0	0	289	1119
02:00	20		21		0	0	41		14:00	171		135		0	0	306	
02:15	29		26		0	0	55		14:15	161		179		0	0	340	
02:30	88		20		0	0	108		14:30	211		156		0	0	367	
02:45	50	187	32	99	0	0	82	286	14:45	152	695	170	640	0	0	322	1335
03:00	33		16		0	0	49		15:00	157		153		0	0	310	
03:15	53		25		0	0	78		15:15	157		170		0	0	327	
03:30	64		18		0	0	82		15:30	229		190		0	0	419	
03:45	62	212	27	86	0	0	89	298	15:45	206	749	193	706	0	0	399	1455
04:00	52		28		0	0	80		16:00	169		124		0	0	293	
04:15	95		37		0	0	132		16:15	166		158		0	0	324	
04:30	137		80		0	0	217		16:30	184		136		0	0	320	
04:45	88	372	111	256	0	0	199	628	16:45	139	658	194	612	0	0	333	1270
05:00	125		54		0	0	179		17:00	211		156		0	0	367	
05:15	92		53		0	0	145		17:15	154		173		0	0	327	
05:30	107		89		0	0	196		17:30	179		159		0	0	338	
05:45	105	429	131	327	0	0	236	756	17:45	120	664	172	660	0	0	292	1324
06:00	114		72		0	0	186		18:00	174		143		0	0	317	
06:15	127		93		0	0	220		18:15	150		156		0	0	306	
06:30	171		140		0	0	311		18:30	129		154		0	0	283	
06:45	166	578	169	474	0	0	335	1052	18:45	101	554	169	622	0	0	270	1176
07:00	146		150		0	0	296		19:00	100		139		0	0	239	
07:15	149		180		0	0	329		19:15	81		106		0	0	187	
07:30	148		175		0	0	323		19:30	83		130		0	0	213	
07:45	139	582	155	660	0	0	294	1242	19:45	69	333	131	506	0	0	200	839
08:00	104		129		0	0	233		20:00	66		123		0	0	189	
08:15	152		127		0	0	279		20:15	77		104		0	0	181	
08:30	107		136		0	0	243		20:30	76		97		0	0	173	
08:45	129	492	131	523	0	0	260	1015	20:45	67	286	83	407	0	0	150	693
09:00	121		74		0	0	195		21:00	81		82		0	0	163	
09:15	129		116		0	0	245		21:15	54		98		0	0	152	
09:30	120		105		0	0	225		21:30	54		80		0	0	134	
09:45	107	477	109	404	0	0	216	881	21:45	61	250	62	322	0	0	123	572
10:00	115		99		0	0	214		22:00	39		66		0	0	105	
10:15	110		91		0	0	201		22:15	65		75		0	0	140	
10:30	133		113		0	0	246		22:30	57		58		0	0	115	
10:45	138	496	106	409	0	0	244	905	22:45	47	208	56	255	0	0	103	463
11:00	122		124		0	0	246		23:00	35		43		0	0	78	
11:15	108		113		0	0	221		23:15	50		43		0	0	93	
11:30	122		132		0	0	254		23:30	31		57		0	0	88	
11:45	124	476	122	491	0	0	246	967	23:45	36	152	41	184	0	0	77	336
TOTALS		4594		3993				8587	TOTALS		5602		6011				11613
SPLIT %		53.5%		46.5%				42.5%	SPLIT %		48.2%		51.8%				57.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,196	10,004	0	0	20,200

AM Peak Hour	06:30	06:45					06:45		PM Peak Hour	15:30	15:00					15:00		
AM Pk Volume	632	674					1283		PM Pk Volume	770	706					1455		
Pk Hr Factor	0.924	0.936					0.957		Pk Hr Factor	0.841	0.915					0.868		
7 - 9 Volume	1074	1183	0	0			2257		4 - 6 Volume	1322	1272	0	0			2594		
7 - 9 Peak Hour	07:00	07:00					07:00		4 - 6 Peak Hour	16:15	16:45					16:45		
7 - 9 Pk Volume	582	660	0	0			1242		4 - 6 Pk Volume	700	682	0	0			1365		
Pk Hr Factor	0.977	0.917	0.000	0.000			0.944		Pk Hr Factor	0.829	0.879	0.000	0.000			0.930		

Prepared by National Data & Surveying Services

CLASSIFICATION

Alder Ave Bet. Renaissance Pkwy & Walnut Ave

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_003

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	38	3	0	2	0	0	1	6	0	0	0	0	50
00:15	0	36	4	0	2	0	0	1	3	0	0	0	0	46
00:30	0	32	1	0	3	0	0	3	4	0	0	0	0	43
00:45	0	31	5	0	2	1	0	4	12	0	0	0	0	55
01:00	0	43	3	0	1	0	0	5	5	0	0	0	0	57
01:15	0	33	3	0	3	0	0	1	9	0	0	0	0	49
01:30	0	39	4	0	3	2	0	1	7	0	0	0	0	56
01:45	0	32	3	0	2	0	0	3	8	0	0	0	0	48
02:00	0	19	2	0	1	1	0	1	3	0	0	0	0	27
02:15	0	38	4	0	1	0	0	3	2	0	0	0	0	48
02:30	0	86	9	0	3	1	1	5	8	0	1	0	0	114
02:45	0	55	5	0	3	0	0	3	8	0	0	0	0	74
03:00	0	38	3	0	2	1	0	5	9	0	0	0	0	58
03:15	0	30	5	0	2	0	0	1	2	0	0	0	0	40
03:30	0	52	4	0	2	0	0	2	1	0	0	0	0	61
03:45	0	51	6	0	5	3	0	4	7	0	0	0	0	76
04:00	0	37	5	1	2	1	0	5	8	1	0	0	0	60
04:15	0	67	10	1	0	1	0	3	8	0	0	0	0	90
04:30	0	115	12	0	6	2	1	2	8	0	0	0	0	146
04:45	0	139	14	1	7	0	0	0	6	1	1	0	0	169
05:00	0	91	17	1	6	0	0	1	11	0	0	0	0	127
05:15	0	71	18	0	5	0	0	1	10	0	0	0	0	105
05:30	0	121	16	3	2	0	0	2	4	0	1	0	0	149
05:45	1	122	27	0	6	1	0	3	7	0	1	0	0	168
06:00	1	80	19	1	8	0	0	0	5	0	0	0	0	114
06:15	0	124	13	0	10	2	0	2	7	1	0	0	0	159
06:30	1	176	26	2	15	1	0	0	8	1	3	0	0	233
06:45	4	212	34	1	9	5	0	1	10	0	0	0	0	276
07:00	2	217	27	4	5	5	0	0	10	0	1	0	0	271
07:15	0	213	33	3	18	2	0	3	10	0	3	0	0	285
07:30	1	197	26	0	14	1	1	0	9	0	2	0	0	251
07:45	2	177	21	2	14	1	0	1	4	0	1	0	0	223
08:00	1	131	23	1	14	2	0	0	6	2	1	0	0	181
08:15	0	155	20	1	17	2	2	0	11	1	1	0	0	210
08:30	1	138	22	1	8	1	0	0	17	0	0	0	0	188
08:45	2	137	24	0	15	0	0	2	16	0	2	0	0	198
09:00	1	106	21	1	7	1	0	2	14	0	0	0	0	153
09:15	1	140	26	0	10	0	0	5	11	1	1	0	0	195
09:30	0	108	23	0	9	0	0	1	11	0	0	0	0	152
09:45	1	99	18	4	10	1	0	1	12	1	0	0	0	147
10:00	1	113	24	0	12	1	1	2	10	1	0	0	0	165
10:15	1	112	20	1	3	2	2	3	11	0	0	0	0	155
10:30	0	119	34	2	11	3	0	1	15	0	1	0	0	186
10:45	0	119	25	1	9	3	0	1	10	1	1	0	0	170
11:00	3	125	19	1	12	4	0	3	18	0	1	0	0	186
11:15	0	126	19	2	9	3	0	1	21	2	0	0	0	183
11:30	0	135	20	2	11	4	2	5	17	1	0	0	0	197
11:45	3	124	14	1	16	1	0	2	16	0	2	0	0	179
12:00 PM	1	134	15	3	13	1	1	1	12	1	1	0	0	183
12:15	0	164	31	1	13	2	0	5	16	2	0	0	0	234
12:30	2	135	15	2	11	1	0	4	11	0	2	0	0	183
12:45	2	126	24	1	7	3	1	2	18	0	2	0	0	186
13:00	0	141	28	2	18	1	0	1	19	0	0	0	0	210
13:15	1	156	26	3	13	2	2	0	17	1	2	0	0	223
13:30	1	150	33	2	13	2	0	1	12	0	2	0	0	216
13:45	1	151	30	1	21	3	0	1	10	0	4	0	0	222
14:00	1	179	38	2	10	2	0	3	12	2	1	0	0	250
14:15	0	185	26	1	17	0	0	1	13	0	1	0	0	244
14:30	1	247	40	1	18	2	1	2	11	1	0	0	0	324
14:45	2	199	27	1	18	4	1	0	14	1	3	0	0	270
15:00	2	185	28	2	16	4	0	4	11	2	4	0	0	258
15:15	3	193	41	2	13	1	0	0	15	1	2	0	0	271
15:30	1	272	36	0	23	2	1	1	10	0	2	0	0	348
15:45	0	235	29	1	11	4	0	2	7	0	0	0	0	289
16:00	2	181	34	1	11	5	0	0	9	0	0	0	0	243
16:15	1	190	34	2	21	1	1	3	7	0	0	0	0	260
16:30	0	206	41	2	8	2	1	0	7	1	2	0	0	270
16:45	0	202	39	1	13	2	0	1	5	1	2	0	0	266
17:00	1	243	27	0	5	2	0	0	8	0	0	0	0	286
17:15	1	198	32	1	10	3	1	1	7	1	1	0	0	256
17:30	1	193	34	0	16	2	1	4	6	1	1	0	0	259
17:45	1	206	29	0	17	1	0	0	4	0	1	0	0	259
18:00	3	210	26	0	7	3	0	1	5	0	3	0	0	258
18:15	1	194	20	1	15	3	0	0	5	1	0	0	0	240
18:30	1	166	29	2	9	3	1	2	9	0	0	0	0	222
18:45	2	178	25	0	7	0	1	0	4	0	1	0	0	218
19:00	0	128	23	0	13	2	0	2	7	0	0	0	0	175
19:15	1	125	22	1	4	1	0	0	2	1	2	0	0	159
19:30	1	139	18	0	4	0	0	0	13	0	0	0	0	175
19:45	0	125	11	3	9	2	1	0	6	0	0	0	0	157
20:00	0	124	19	0	6	1	0	2	10	0	0	0	0	162
20:15	0	114	13	0	8	0	0	3	7	0	0	0	0	145
20:30	1	118	9	0	9	3	0	0	6	1	1	0	0	148
20:45	0	95	6	2	9	1	0	0	7	0	0	0	0	120
21:00	0	97	10	1	3	1	0	1	8	1	0	0	0	122
21:15	0	101	9	0	8	1	1	0	3	1	0	0	0	124
21:30	0	84	9	1	4	1	0	1	6	0	0	0	0	106
21:45	0	73	6	0	3	2	0	1	2	0	0	0	0	87
22:00	0	65	7	0	3	1	0	1	6	0	0	0	0	83
22:15	0	90	8	1	4	1	0	1	10	0	2	0	0	117
22:30	0	72	5	0	0	1	0	0	8	1	0	0	0	87
22:45	0	60	9	1	2	1	0	1	10	0	0	0	0	84
23:00	0	46	5	0	3	0	0	0	6	0	0	0	0	60
23:15	0	54	7	0	2	1	0	0	4	0	0	0	0	68
23:30	0	57	6	0	2	0	0	0	4	0	0	0	0	69
23:45	0	48	1	0	2	0	0	0	5	0	0	0	0	56
Totals	**62**	**11833**	**1774**	**83**	**809**	**140**	**25**	**149**	**849**	**35**	**66**			**15825**
% of Totals	0%	75%	11%	1%	5%	1%	0%	1%	5%	0%	0%			100%

AM Volumes	27	4799	734	38	337	59	10	96	435	14	24	0	0	6573
% AM	0%	30%	5%	0%	2%	0%	0%	1%	3%	0%	0%			42%
AM Peak Hour	06:15	06:45	06:30	06:30	07:15	10:45	07:30	02:15	11:00	10:45	06:30			06:45
Volume	7	839	120	10	60	14	3	16	72	4	7			1083
PM Volumes	35	7034	1040	45	472	81	15	53	414	21	42	0	0	9252
% PM	0%	44%	7%	0%	3%	1%	0%	0%	3%	0%	0%			58%
PM Peak Hour	14:30	15:00	16:00	12:30	14:45	15:15	12:30	12:00	12:45	14:30	14:45			15:00
Volume	8	885	148	8	70	12	3	12	66	5	11			1166

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	1807		11%	1657		10%	2099		13%	10262		65%

Classification Definitions

1 Motorcycles	**4** Buses	**7** >=4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

VOLUME

Alder Ave Bet. Renaissance Pkwy & Walnut Ave

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_003

DAILY TOTALS	NB	SB	EB	WB	Total
	7,583	8,242	0	0	15,825

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	26		24		0	0	50		12:00	88		95		0	0	183	
00:15	15		31		0	0	46		12:15	97		137		0	0	234	
00:30	19		24		0	0	43		12:30	90		93		0	0	183	
00:45	24	84	31	110	0	0	55	194	12:45	94	369	92	417	0	0	186	786
01:00	30		27		0	0	57		13:00	85		125		0	0	210	
01:15	28		21		0	0	49		13:15	116		107		0	0	223	
01:30	34		22		0	0	56		13:30	99		117		0	0	216	
01:45	26	118	22	92	0	0	48	210	13:45	87	387	135	484	0	0	222	871
02:00	12		15		0	0	27		14:00	137		113		0	0	250	
02:15	27		21		0	0	48		14:15	110		134		0	0	244	
02:30	81		33		0	0	114		14:30	179		145		0	0	324	
02:45	32	152	42	111	0	0	74	263	14:45	120	546	150	542	0	0	270	1088
03:00	39		19		0	0	58		15:00	121		137		0	0	258	
03:15	21		19		0	0	40		15:15	127		144		0	0	271	
03:30	47		14		0	0	61		15:30	200		148		0	0	348	
03:45	49	156	27	79	0	0	76	235	15:45	136	584	153	582	0	0	289	1166
04:00	40		20		0	0	60		16:00	144		99		0	0	243	
04:15	59		31		0	0	90		16:15	122		138		0	0	260	
04:30	89		57		0	0	146		16:30	152		118		0	0	270	
04:45	69	257	100	208	0	0	169	465	16:45	118	536	148	503	0	0	266	1039
05:00	85		42		0	0	127		17:00	156		130		0	0	286	
05:15	65		40		0	0	105		17:15	120		136		0	0	256	
05:30	89		60		0	0	149		17:30	128		131		0	0	259	
05:45	77	316	91	233	0	0	168	549	17:45	111	515	148	545	0	0	259	1060
06:00	68		46		0	0	114		18:00	142		116		0	0	258	
06:15	82		77		0	0	159		18:15	121		119		0	0	240	
06:30	125		108		0	0	233		18:30	95		127		0	0	222	
06:45	126	401	150	381	0	0	276	782	18:45	80	438	138	500	0	0	218	938
07:00	135		136		0	0	271		19:00	74		101		0	0	175	
07:15	123		162		0	0	285		19:15	71		88		0	0	159	
07:30	96		155		0	0	251		19:30	72		103		0	0	175	
07:45	85	439	138	591	0	0	223	1030	19:45	50	267	107	399	0	0	157	666
08:00	77		104		0	0	181		20:00	56		106		0	0	162	
08:15	95		115		0	0	210		20:15	56		89		0	0	145	
08:30	80		108		0	0	188		20:30	64		84		0	0	148	
08:45	83	335	115	442	0	0	198	777	20:45	58	234	62	341	0	0	120	575
09:00	92		61		0	0	153		21:00	59		63		0	0	122	
09:15	93		102		0	0	195		21:15	39		85		0	0	124	
09:30	68		84		0	0	152		21:30	38		68		0	0	106	
09:45	68	321	79	326	0	0	147	647	21:45	40	176	47	263	0	0	87	439
10:00	82		83		0	0	165		22:00	34		49		0	0	83	
10:15	76		79		0	0	155		22:15	52		65		0	0	117	
10:30	99		87		0	0	186		22:30	41		46		0	0	87	
10:45	92	349	78	327	0	0	170	676	22:45	37	164	47	207	0	0	84	371
11:00	84		102		0	0	186		23:00	27		33		0	0	60	
11:15	81		102		0	0	183		23:15	29		39		0	0	68	
11:30	85		112		0	0	197		23:30	23		46		0	0	69	
11:45	85	335	94	410	0	0	179	745	23:45	25	104	31	149	0	0	56	253
TOTALS		3263		3310				6573	TOTALS		4320		4932				9252
SPLIT %		49.6%		50.4%				41.5%	SPLIT %		46.7%		53.3%				58.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	7,583	8,242	0	0	15,825

AM Peak Hour	06:30	06:45					06:45		PM Peak Hour	15:15	15:00					15:00		
AM Pk Volume	509	603					1083		PM Pk Volume	607	582					1166		
Pk Hr Factor	0.943	0.931					0.950		Pk Hr Factor	0.759	0.951					0.838		
7 - 9 Volume	774	1033	0	0			1807		4 - 6 Volume	1051	1048	0	0			2099		
7 - 9 Peak Hour	07:00	07:00					07:00		4 - 6 Peak Hour	16:15	16:45					16:15		
7 - 9 Pk Volume	439	591	0	0			1030		4 - 6 Pk Volume	548	545	0	0			1082		
Pk Hr Factor	0.813	0.912	0.000	0.000			0.904		Pk Hr Factor	0.878	0.921	0.000	0.000			0.946		

Prepared by National Data & Surveying Services

CLASSIFICATION

Alder Ave Bet. Walnut Ave & Base Line Rd

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_004

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	24	2	0	3	0	0	0	0	0	0	0	0	29
00:15	0	27	2	0	3	0	0	0	0	0	0	0	0	32
00:30	0	28	3	0	2	1	0	0	0	0	0	0	0	34
00:45	0	14	4	0	3	0	1	0	0	0	0	0	0	22
01:00	0	19	4	0	0	0	0	0	1	0	0	0	0	24
01:15	0	19	1	0	1	0	0	1	0	0	0	0	0	22
01:30	1	22	2	0	3	0	0	0	0	0	0	0	0	28
01:45	0	13	1	0	0	1	0	0	0	0	0	0	0	15
02:00	0	14	1	0	0	0	0	1	0	0	0	0	0	16
02:15	0	18	1	0	0	0	0	0	0	0	0	0	0	19
02:30	0	38	6	0	4	0	0	1	0	0	0	0	0	49
02:45	0	15	2	0	1	0	0	0	0	0	0	0	0	18
03:00	0	15	1	0	3	0	0	0	0	0	0	0	0	19
03:15	0	18	0	0	0	0	0	0	0	0	0	0	0	18
03:30	0	24	2	0	4	0	0	0	0	0	0	0	0	30
03:45	0	19	3	0	3	0	0	0	0	0	0	0	0	25
04:00	0	36	1	0	1	0	0	0	0	0	0	0	0	38
04:15	0	42	6	0	6	0	0	1	0	0	0	0	0	55
04:30	0	59	10	0	2	0	0	0	0	0	0	0	0	71
04:45	0	52	5	1	9	0	0	1	2	0	0	0	0	70
05:00	0	41	12	0	6	1	0	1	0	0	0	0	0	61
05:15	0	49	5	0	10	1	0	0	0	0	0	0	0	65
05:30	1	82	11	0	10	2	0	0	0	0	0	0	0	106
05:45	0	67	13	0	15	0	1	2	0	0	0	0	0	98
06:00	0	65	13	0	8	0	0	2	1	0	0	0	0	89
06:15	0	75	12	0	8	0	0	1	1	0	0	0	0	97
06:30	0	130	19	0	12	0	0	1	1	0	0	0	0	163
06:45	0	141	20	0	10	0	0	1	0	0	0	0	0	172
07:00	1	156	22	1	14	0	0	0	1	0	0	0	0	195
07:15	0	189	27	0	15	1	0	0	0	0	0	0	0	232
07:30	0	161	21	4	11	0	1	0	1	0	0	0	0	199
07:45	1	156	23	0	12	0	0	0	0	0	0	0	0	192
08:00	0	125	16	0	10	2	0	0	1	0	0	0	0	154
08:15	1	144	16	0	15	3	0	0	0	0	0	0	0	179
08:30	1	92	14	0	10	0	0	3	1	0	0	0	0	121
08:45	0	120	13	0	10	1	0	0	1	0	0	0	0	145
09:00	0	90	23	2	11	1	0	1	1	0	0	0	0	129
09:15	1	105	24	0	8	0	0	1	2	0	0	0	0	141
09:30	1	77	17	1	11	2	0	0	1	0	0	0	0	110
09:45	0	75	17	1	12	2	0	0	2	0	0	0	0	109
10:00	1	95	13	1	15	0	1	0	2	0	1	0	0	129
10:15	2	72	16	1	9	1	0	0	0	0	0	0	0	101
10:30	1	97	19	0	14	0	0	1	1	0	0	0	0	133
10:45	1	109	21	0	10	3	0	2	2	0	0	0	0	148
11:00	0	86	11	0	11	1	0	0	3	0	0	0	0	112
11:15	1	100	19	1	19	1	3	0	3	0	0	0	0	147
11:30	0	109	11	2	12	3	1	1	1	0	0	0	0	140
11:45	2	93	25	4	10	1	0	0	0	0	0	0	0	135
12:00 PM	1	85	18	1	9	1	0	0	0	0	0	0	0	115
12:15	1	128	22	0	14	2	0	0	0	0	0	0	0	167
12:30	1	108	18	1	14	0	1	1	1	0	0	0	0	145
12:45	1	94	13	2	6	1	0	2	2	0	0	0	0	121
13:00	0	102	18	0	19	3	0	1	1	0	0	0	0	144
13:15	1	132	24	2	14	0	0	3	1	0	1	0	0	178
13:30	1	100	23	1	18	0	0	0	1	0	0	0	0	144
13:45	3	92	19	1	11	0	0	3	1	0	0	0	0	130
14:00	0	134	21	1	20	0	0	0	2	0	0	0	0	178
14:15	1	118	23	0	13	0	1	3	0	0	0	0	0	159
14:30	0	152	36	2	20	0	0	2	1	0	0	0	0	213
14:45	0	126	24	0	14	0	0	1	0	0	0	0	0	165
15:00	2	117	26	1	21	2	0	1	3	0	0	0	0	173
15:15	3	134	44	1	14	3	0	1	1	0	1	0	0	202
15:30	1	168	19	0	22	0	0	2	0	0	0	0	0	212
15:45	2	152	13	2	16	2	1	0	0	0	0	0	0	188
16:00	1	144	35	2	12	0	1	2	1	0	1	0	0	199
16:15	2	158	21	1	17	4	0	0	0	0	0	0	0	203
16:30	2	169	20	2	15	0	0	1	0	0	1	0	0	210
16:45	1	162	26	0	12	1	0	0	2	0	1	0	0	205
17:00	0	187	25	0	11	0	0	2	0	0	0	0	0	225
17:15	1	165	20	0	14	0	0	2	0	0	0	0	0	202
17:30	3	161	24	1	12	1	0	2	0	0	0	0	0	204
17:45	1	166	19	1	13	1	0	0	2	0	0	0	0	203
18:00	0	172	18	0	7	0	0	1	1	0	0	0	0	199
18:15	2	134	19	1	13	1	0	0	1	0	0	0	0	171
18:30	0	122	16	0	11	0	0	1	0	0	0	0	0	150
18:45	0	133	13	0	13	0	0	2	0	0	0	0	0	161
19:00	0	118	18	0	10	0	0	0	0	0	0	0	0	146
19:15	1	116	18	0	7	0	0	0	0	0	0	0	0	142
19:30	0	97	11	0	3	0	0	0	0	0	0	0	0	111
19:45	0	90	21	1	5	0	0	1	0	0	0	0	0	118
20:00	0	85	12	0	2	0	0	1	0	0	0	0	0	100
20:15	0	103	16	0	6	1	0	0	1	0	0	0	0	127
20:30	0	88	22	0	9	1	0	0	1	0	0	0	0	121
20:45	0	85	8	0	5	0	0	3	0	0	0	0	0	101
21:00	0	89	14	0	6	1	0	0	1	0	0	0	0	111
21:15	0	70	18	0	5	0	0	0	0	0	1	0	0	94
21:30	0	55	12	0	5	0	0	1	0	0	1	0	0	74
21:45	0	65	9	0	7	0	0	0	0	0	0	0	0	81
22:00	0	57	8	0	4	2	0	0	0	0	0	0	0	71
22:15	0	62	8	0	4	1	0	0	0	0	0	0	0	75
22:30	0	53	5	0	4	1	0	0	0	0	0	0	0	63
22:45	0	39	4	0	3	1	0	0	0	0	0	0	0	47
23:00	0	49	7	0	1	0	0	0	0	0	0	0	0	57
23:15	0	28	4	0	1	0	0	0	0	0	0	0	0	33
23:30	0	36	2	0	4	0	0	0	0	0	0	0	0	42
23:45	0	23	0	0	1	0	0	0	2	0	0	0	0	26
Totals	48	8640	1364	43	853	58	12	61	55		8			11142
% of Totals	0%	78%	12%	0%	8%	1%	0%	1%	0%		0%			100%

AM Volumes	16	3417	530	19	366	28	8	22	29	0	1	0	0	4436
% AM	0%	31%	5%	0%	3%	0%	0%	0%	0%		0%			40%
AM Peak Hour	10:00	07:00	07:00	11:15	10:30	10:45	10:45	05:45	10:30		09:15			07:00
Volume	5	662	93	8	54	8	4	6	9		1			818
PM Volumes	32	5223	834	24	487	30	4	39	26	0	7	0	0	6706
% PM	0%	47%	7%	0%	4%	0%	0%	0%	0%		0%			60%
PM Peak Hour	15:00	16:30	14:30	15:45	15:00	15:00	15:15	13:45	12:30		16:00			16:15
Volume	8	683	130	7	73	7	2	8	5		3			843

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes	Volume		%	Volume		%	Volume		%	Volume		%
	1417	⟷	13%	1144	⟷	10%	1651	⟷	15%	6930	⟷	62%

Classification Definitions

1 Motorcycles	**4** Buses	**7** >=4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

VOLUME

Alder Ave Bet. Walnut Ave & Base Line Rd

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_004

DAILY TOTALS	NB	SB	EB	WB	Total
	5,473	5,669	0	0	11,142

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	12		17		0	0	29		12:00	53		62		0	0	115	
00:15	8		24		0	0	32		12:15	72		95		0	0	167	
00:30	10		24		0	0	34		12:30	73		72		0	0	145	
00:45	8	38	14	79	0	0	22	117	12:45	48	246	73	302	0	0	121	548
01:00	9		15		0	0	24		13:00	55		89		0	0	144	
01:15	4		18		0	0	22		13:15	73		105		0	0	178	
01:30	12		16		0	0	28		13:30	65		79		0	0	144	
01:45	8	33	7	56	0	0	15	89	13:45	54	247	76	349	0	0	130	596
02:00	7		9		0	0	16		14:00	85		93		0	0	178	
02:15	12		7		0	0	19		14:15	90		69		0	0	159	
02:30	15		34		0	0	49		14:30	117		96		0	0	213	
02:45	8	42	10	60	0	0	18	102	14:45	69	361	96	354	0	0	165	715
03:00	9		10		0	0	19		15:00	79		94		0	0	173	
03:15	11		7		0	0	18		15:15	100		102		0	0	202	
03:30	22		8		0	0	30		15:30	116		96		0	0	212	
03:45	20	62	5	30	0	0	25	92	15:45	106	401	82	374	0	0	188	775
04:00	31		7		0	0	38		16:00	101		98		0	0	199	
04:15	47		8		0	0	55		16:15	99		104		0	0	203	
04:30	61		10		0	0	71		16:30	109		101		0	0	210	
04:45	54	193	16	41	0	0	70	234	16:45	94	403	111	414	0	0	205	817
05:00	41		20		0	0	61		17:00	123		102		0	0	225	
05:15	46		19		0	0	65		17:15	97		105		0	0	202	
05:30	84		22		0	0	106		17:30	99		105		0	0	204	
05:45	68	239	30	91	0	0	98	330	17:45	96	415	107	419	0	0	203	834
06:00	65		24		0	0	89		18:00	104		95		0	0	199	
06:15	61		36		0	0	97		18:15	92		79		0	0	171	
06:30	113		50		0	0	163		18:30	80		70		0	0	150	
06:45	106	345	66	176	0	0	172	521	18:45	70	346	91	335	0	0	161	681
07:00	105		90		0	0	195		19:00	61		85		0	0	146	
07:15	120		112		0	0	232		19:15	54		88		0	0	142	
07:30	85		114		0	0	199		19:30	55		56		0	0	111	
07:45	83	393	109	425	0	0	192	818	19:45	39	209	79	308	0	0	118	517
08:00	70		84		0	0	154		20:00	42		58		0	0	100	
08:15	86		93		0	0	179		20:15	47		80		0	0	127	
08:30	60		61		0	0	121		20:30	48		73		0	0	121	
08:45	72	288	73	311	0	0	145	599	20:45	40	177	61	272	0	0	101	449
09:00	62		67		0	0	129		21:00	43		68		0	0	111	
09:15	74		67		0	0	141		21:15	36		58		0	0	94	
09:30	65		45		0	0	110		21:30	20		54		0	0	74	
09:45	48	249	61	240	0	0	109	489	21:45	26	125	55	235	0	0	81	360
10:00	70		59		0	0	129		22:00	25		46		0	0	71	
10:15	56		45		0	0	101		22:15	29		46		0	0	75	
10:30	68		65		0	0	133		22:30	19		44		0	0	63	
10:45	82	276	66	235	0	0	148	511	22:45	15	88	32	168	0	0	47	256
11:00	61		51		0	0	112		23:00	14		43		0	0	57	
11:15	67		80		0	0	147		23:15	13		20		0	0	33	
11:30	70		70		0	0	140		23:30	15		27		0	0	42	
11:45	54	252	81	282	0	0	135	534	23:45	3	45	23	113	0	0	26	158
TOTALS		2410		2026				4436	TOTALS		3063		3643				6706
SPLIT %		54.3%		45.7%				39.8%	SPLIT %		45.7%		54.3%				60.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	5,473	5,669	0	0	11,142

AM Peak Hour	06:30	07:00					07:00		PM Peak Hour	16:15	16:45					16:15		
AM Pk Volume	444	425					818		PM Pk Volume	425	423					843		
Pk Hr Factor	0.925	0.932					0.881		Pk Hr Factor	0.864	0.953					0.937		
7 - 9 Volume	681	736	0	0			1417		4 - 6 Volume	818	833	0	0			1651		
7 - 9 Peak Hour	07:00	07:00					07:00		4 - 6 Peak Hour	16:15	16:45					16:15		
7 - 9 Pk Volume	393	425	0	0			818		4 - 6 Pk Volume	425	423	0	0			843		
Pk Hr Factor	0.819	0.932	0.000	0.000			0.881		Pk Hr Factor	0.864	0.953	0.000	0.000			0.937		

Prepared by National Data & Surveying Services

CLASSIFICATION

Base Line Rd W/O Alder Ave

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_005

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	21	1	0	0	0	0	0	0	0	0	0	0	22
00:15	0	20	5	0	2	0	0	0	1	0	0	0	0	28
00:30	0	14	1	0	0	0	0	0	1	0	0	0	0	16
00:45	0	17	2	0	0	0	0	0	0	0	0	0	0	19
01:00	0	36	8	0	0	0	0	0	0	0	0	0	0	44
01:15	0	30	3	0	1	0	0	0	0	0	0	0	0	34
01:30	0	19	1	0	0	1	0	0	0	0	0	0	0	21
01:45	0	15	0	0	1	0	0	0	1	0	0	0	0	17
02:00	0	13	2	0	0	0	0	0	1	0	0	0	0	16
02:15	0	20	2	0	0	0	0	0	1	0	0	0	0	23
02:30	0	36	3	0	0	0	0	0	0	0	0	0	0	39
02:45	0	17	0	0	0	0	0	0	0	0	0	0	0	17
03:00	0	17	0	0	1	0	0	0	0	0	0	0	0	18
03:15	0	22	3	0	2	0	0	0	0	0	0	0	0	27
03:30	0	12	4	0	0	0	0	0	0	0	0	0	0	16
03:45	0	17	3	0	2	0	0	0	0	0	0	0	0	22
04:00	0	14	2	0	2	0	0	0	1	0	0	0	0	19
04:15	0	13	3	0	1	0	0	0	0	0	0	0	0	17
04:30	0	59	6	0	5	0	0	0	1	0	0	0	0	71
04:45	0	73	6	0	4	0	0	0	1	0	1	0	0	85
05:00	1	51	9	0	3	0	0	0	0	0	0	0	0	64
05:15	0	49	9	1	6	0	0	0	0	0	0	0	0	65
05:30	0	75	8	1	6	0	0	0	1	0	1	0	0	92
05:45	0	80	9	0	4	0	0	0	0	0	0	0	0	93
06:00	0	72	3	0	6	0	0	1	2	0	0	0	0	84
06:15	0	64	7	1	8	0	0	0	1	0	1	0	0	82
06:30	0	116	16	3	8	0	0	0	4	0	0	0	0	147
06:45	0	203	19	4	16	0	0	0	1	0	0	0	0	243
07:00	0	235	29	0	23	0	0	0	1	0	0	0	0	288
07:15	0	287	32	2	21	1	0	1	1	0	0	0	0	345
07:30	0	224	28	0	15	0	1	1	0	0	0	0	0	269
07:45	1	181	15	5	15	0	0	0	2	0	0	0	0	219
08:00	0	124	28	0	7	0	0	0	0	0	0	0	0	159
08:15	0	139	21	4	12	1	0	2	1	0	0	0	0	180
08:30	0	118	19	1	9	0	0	0	3	0	0	0	0	150
08:45	0	130	18	0	8	0	0	1	4	0	0	0	0	161
09:00	0	119	13	1	13	0	1	1	1	0	0	0	0	149
09:15	0	87	18	0	9	1	0	0	2	0	0	0	0	117
09:30	0	90	9	1	9	0	1	0	3	0	0	0	0	113
09:45	0	107	8	2	5	0	0	1	0	0	0	0	0	123
10:00	0	79	16	1	13	1	0	1	4	0	0	0	0	115
10:15	0	94	21	2	7	2	0	3	1	0	0	0	0	130
10:30	0	105	9	1	12	2	0	1	1	0	0	0	0	131
10:45	1	96	15	1	6	4	0	0	2	0	0	0	0	125
11:00	0	84	16	2	10	1	0	3	1	0	0	0	0	117
11:15	0	106	13	2	9	3	0	2	4	0	0	0	0	139
11:30	0	107	20	0	6	1	2	2	6	0	1	0	0	145
11:45	1	118	19	0	5	0	1	2	3	0	0	0	0	149
12:00 PM	0	107	13	3	10	0	1	1	4	0	0	0	0	139
12:15	0	122	19	1	5	4	0	1	1	0	0	0	0	153
12:30	0	100	19	2	8	0	0	0	1	0	0	0	0	130
12:45	0	126	15	1	10	2	0	0	0	0	0	0	0	154
13:00	1	106	12	2	7	1	0	1	2	0	1	0	0	133
13:15	0	105	18	1	7	0	0	0	2	0	0	0	0	133
13:30	0	135	15	0	13	0	3	0	0	0	0	0	0	166
13:45	1	135	19	1	10	3	0	0	2	0	0	0	0	171
14:00	0	164	17	4	11	2	0	1	1	0	0	0	0	200
14:15	0	213	25	5	13	0	0	2	1	0	0	0	0	259
14:30	0	264	37	1	15	1	0	1	2	0	0	0	0	321
14:45	0	261	43	1	18	1	0	1	1	0	0	0	0	326
15:00	0	212	21	3	16	1	0	0	1	0	0	0	0	254
15:15	0	176	26	1	16	1	0	1	0	0	0	0	0	221
15:30	0	265	25	1	17	0	0	0	3	0	0	0	0	311
15:45	0	238	31	1	8	1	0	1	0	0	0	0	0	280
16:00	1	214	29	3	12	0	0	0	1	0	0	0	0	260
16:15	0	186	29	2	15	1	0	2	2	0	0	0	0	237
16:30	0	190	27	2	12	0	0	1	0	0	0	0	0	232
16:45	0	200	30	2	11	1	0	1	3	0	0	0	0	248
17:00	0	190	20	0	6	0	0	1	0	0	0	0	0	217
17:15	2	211	19	3	13	0	0	1	2	0	0	0	0	251
17:30	1	183	28	2	12	1	0	0	4	0	0	0	0	231
17:45	1	228	15	0	18	0	0	0	1	0	0	0	0	263
18:00	1	204	20	3	12	0	0	1	0	0	0	0	0	241
18:15	0	181	20	2	5	0	0	1	1	0	0	0	0	210
18:30	0	171	21	0	8	0	0	0	2	0	0	0	0	202
18:45	0	156	16	2	4	0	0	1	3	0	0	0	0	182
19:00	0	139	14	1	5	0	0	1	0	0	0	0	0	160
19:15	0	129	16	1	6	0	0	1	0	0	0	0	0	153
19:30	0	84	16	1	7	0	0	2	0	0	0	0	0	110
19:45	0	107	7	0	7	0	0	0	2	0	0	0	0	123
20:00	0	112	15	1	5	0	0	2	2	0	0	0	0	137
20:15	0	102	16	0	7	0	0	0	1	0	0	0	0	126
20:30	0	100	12	0	4	0	0	2	1	0	0	0	0	119
20:45	0	92	10	0	4	0	0	0	0	0	0	0	0	106
21:00	0	86	4	0	1	0	0	0	0	0	0	0	0	91
21:15	0	78	9	0	6	0	0	1	1	0	0	0	0	95
21:30	0	60	2	0	4	0	0	0	0	0	0	0	0	66
21:45	0	52	9	0	4	0	0	0	0	0	0	0	0	65
22:00	0	55	2	0	5	0	0	0	0	0	0	0	0	62
22:15	0	36	4	0	0	2	0	0	1	0	0	0	0	43
22:30	0	51	5	0	1	0	0	0	0	0	0	0	0	57
22:45	0	44	1	0	2	0	0	0	0	0	0	0	0	47
23:00	0	28	4	0	2	0	0	0	0	0	0	0	0	34
23:15	0	26	5	0	0	0	0	0	0	0	0	0	0	31
23:30	0	24	1	0	1	0	0	0	1	0	0	0	0	27
23:45	0	27	3	0	0	2	0	0	0	0	0	0	0	32
Totals	12	10300	1286	88	675	42	10	50	106		5			12574
% of Totals	0%	82%	10%	1%	5%	0%	0%	0%	1%		0%			100%

AM Volumes	4	3825	502	35	292	18	6	22	57	0	4	0	0	4765
% AM	0%	30%	4%	0%	2%	0%	0%	0%	0%		0%			38%
AM Peak Hour	04:15	06:45	06:45	07:45	06:45	10:30	11:15	11:00	11:15		04:45			06:45
Volume	1	949	108	10	75	10	4	9	17		2			1145
PM Volumes	8	6475	784	53	383	24	4	28	49	0	1	0	0	7809
% PM	0%	51%	6%	0%	3%	0%	0%	0%	0%		0%			62%
PM Peak Hour	17:15	14:15	14:30	13:45	14:45	12:15	12:45	14:00	16:45		12:15			14:15
Volume	5	950	127	11	67	7	3	5	9		1			1160

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes	Volume	↔	%	Volume	↔	%	Volume	↔	%	Volume	↔	%
	1771		14%	1179		9%	1939		15%	7685		61%

Classification Definitions

1 Motorcycles	**4** Buses	**7** >=4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

VOLUME

Base Line Rd W/O Alder Ave

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,230	6,344	12,574

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	15		7		22		12:00	0	0	61		78		139	
00:15	0	0	12		16		28		12:15	0	0	87		66		153	
00:30	0	0	7		9		16		12:30	0	0	63		67		130	
00:45	0	0	8	42	11	43	19	85	12:45	0	0	63	274	91	302	154	576
01:00	0	0	11		33		44		13:00	0	0	71		62		133	
01:15	0	0	11		23		34		13:15	0	0	56		77		133	
01:30	0	0	12		9		21		13:30	0	0	86		80		166	
01:45	0	0	12	46	5	70	17	116	13:45	0	0	66	279	105	324	171	603
02:00	0	0	5		11		16		14:00	0	0	80		120		200	
02:15	0	0	6		17		23		14:15	0	0	109		150		259	
02:30	0	0	33		6		39		14:30	0	0	146		175		321	
02:45	0	0	5	49	12	46	17	95	14:45	0	0	176	511	150	595	326	1106
03:00	0	0	9		9		18		15:00	0	0	146		108		254	
03:15	0	0	10		17		27		15:15	0	0	110		111		221	
03:30	0	0	4		12		16		15:30	0	0	147		164		311	
03:45	0	0	10	33	12	50	22	83	15:45	0	0	136	539	144	527	280	1066
04:00	0	0	7		12		19		16:00	0	0	157		103		260	
04:15	0	0	4		13		17		16:15	0	0	140		97		237	
04:30	0	0	12		59		71		16:30	0	0	119		113		232	
04:45	0	0	26	49	59	143	85	192	16:45	0	0	141	557	107	420	248	977
05:00	0	0	31		33		64		17:00	0	0	136		81		217	
05:15	0	0	29		36		65		17:15	0	0	147		104		251	
05:30	0	0	46		46		92		17:30	0	0	131		100		231	
05:45	0	0	46	152	47	162	93	314	17:45	0	0	158	572	105	390	263	962
06:00	0	0	34		50		84		18:00	0	0	137		104		241	
06:15	0	0	30		52		82		18:15	0	0	113		97		210	
06:30	0	0	72		75		147		18:30	0	0	115		87		202	
06:45	0	0	102	238	141	318	243	556	18:45	0	0	91	456	91	379	182	835
07:00	0	0	113		175		288		19:00	0	0	87		73		160	
07:15	0	0	167		178		345		19:15	0	0	81		72		153	
07:30	0	0	134		135		269		19:30	0	0	60		50		110	
07:45	0	0	112	526	107	595	219	1121	19:45	0	0	66	294	57	252	123	546
08:00	0	0	74		85		159		20:00	0	0	71		66		137	
08:15	0	0	84		96		180		20:15	0	0	64		62		126	
08:30	0	0	63		87		150		20:30	0	0	50		69		119	
08:45	0	0	64	285	97	365	161	650	20:45	0	0	59	244	47	244	106	488
09:00	0	0	78		71		149		21:00	0	0	48		43		91	
09:15	0	0	53		64		117		21:15	0	0	52		43		95	
09:30	0	0	54		59		113		21:30	0	0	35		31		66	
09:45	0	0	55	240	68	262	123	502	21:45	0	0	35	170	30	147	65	317
10:00	0	0	54		61		115		22:00	0	0	31		31		62	
10:15	0	0	56		74		130		22:15	0	0	31		12		43	
10:30	0	0	70		61		131		22:30	0	0	25		32		57	
10:45	0	0	65	245	60	256	125	501	22:45	0	0	21	108	26	101	47	209
11:00	0	0	52		65		117		23:00	0	0	20		14		34	
11:15	0	0	63		76		139		23:15	0	0	20		11		31	
11:30	0	0	67		78		145		23:30	0	0	10		17		27	
11:45	0	0	76	258	73	292	149	550	23:45	0	0	13	63	19	61	32	124
TOTALS				2163		2602		4765	TOTALS				4067		3742		7809
SPLIT %				45.4%		54.6%		37.9%	SPLIT %				52.1%		47.9%		62.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,230	6,344	12,574

AM Peak Hour			07:00	06:45	06:45	PM Peak Hour			15:30	14:00	14:15
AM Pk Volume			526	629	1145	PM Pk Volume			580	595	1160
Pk Hr Factor			0.787	0.883	0.830	Pk Hr Factor			0.924	0.850	0.890
7 - 9 Volume	0	0	811	960	1771	4 - 6 Volume	0	0	1129	810	1939
7 - 9 Peak Hour			07:00	07:00	07:00	4 - 6 Peak Hour			17:00	16:00	16:00
7 - 9 Pk Volume	0	0	526	595	1121	4 - 6 Pk Volume	0	0	572	420	977
Pk Hr Factor	0.000	0.000	0.787	0.836	0.812	Pk Hr Factor	0.000	0.000	0.905	0.929	0.939

Prepared by National Data & Surveying Services

CLASSIFICATION

Base Line Rd E/O Alder Ave

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_006

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	19	1	0	0	0	0	0	0	0	0	0	0	20
00:15	0	20	5	0	2	0	0	0	1	0	0	0	0	28
00:30	0	13	3	0	1	0	0	0	1	0	0	0	0	18
00:45	0	14	3	0	0	1	0	0	0	0	0	0	0	18
01:00	0	30	10	0	3	0	0	0	0	0	0	0	0	43
01:15	0	28	4	0	0	0	0	0	1	0	0	0	0	33
01:30	0	15	1	0	0	0	0	0	0	0	0	0	0	16
01:45	0	12	3	0	1	0	0	0	1	0	0	0	0	17
02:00	0	9	2	0	0	0	0	0	0	0	0	0	0	11
02:15	0	21	2	0	1	0	0	0	0	0	0	0	0	24
02:30	0	43	2	0	1	0	0	1	0	0	0	0	0	47
02:45	0	20	1	0	0	0	0	0	0	0	0	0	0	21
03:00	0	13	0	0	0	0	0	0	0	0	0	0	0	13
03:15	0	18	4	0	3	0	0	0	0	0	0	0	0	25
03:30	0	15	4	0	0	1	0	0	0	0	0	0	0	20
03:45	0	18	3	0	4	0	0	0	0	0	0	0	0	25
04:00	0	15	2	0	3	0	0	0	0	0	0	0	0	20
04:15	0	32	5	0	3	0	0	0	0	0	0	0	0	40
04:30	0	37	4	3	3	0	0	1	0	0	0	0	0	48
04:45	0	56	7	0	3	0	0	0	1	0	1	0	0	68
05:00	2	45	8	0	8	0	0	0	0	0	0	0	0	63
05:15	0	48	7	1	7	1	0	0	0	0	0	0	0	64
05:30	0	78	14	1	9	0	0	0	0	0	1	0	0	103
05:45	2	85	9	0	7	2	0	0	0	0	1	0	0	106
06:00	0	58	15	0	8	0	0	1	1	0	0	0	0	83
06:15	1	64	10	1	10	1	0	0	1	0	0	0	0	88
06:30	0	108	19	3	12	0	0	0	3	0	1	0	0	146
06:45	0	158	20	3	12	1	0	0	1	0	0	0	0	195
07:00	0	199	30	3	15	0	0	0	1	0	0	0	0	248
07:15	0	253	34	2	17	2	0	1	0	0	0	0	0	309
07:30	2	192	40	0	18	2	1	0	0	0	0	0	0	255
07:45	0	127	18	3	13	0	0	1	1	0	0	0	0	163
08:00	0	96	35	0	12	0	0	0	0	0	1	0	0	144
08:15	0	108	24	4	13	1	0	2	0	0	0	0	0	152
08:30	0	102	22	1	15	2	0	1	2	0	0	0	0	145
08:45	0	119	29	0	9	1	1	0	3	0	1	0	0	163
09:00	0	90	22	1	16	1	0	0	2	0	0	0	0	132
09:15	0	95	20	2	14	1	0	1	0	0	0	0	0	133
09:30	0	87	15	1	11	2	1	0	4	0	0	0	0	121
09:45	0	79	16	1	5	0	0	1	2	0	0	0	0	104
10:00	0	76	20	1	16	2	0	3	3	0	0	0	0	121
10:15	0	82	18	4	10	2	0	2	0	0	0	0	0	118
10:30	0	88	15	0	13	0	0	1	1	0	2	0	0	120
10:45	0	91	16	0	13	1	0	0	1	0	1	0	0	123
11:00	0	95	12	3	15	1	0	2	3	0	0	0	0	131
11:15	0	90	13	1	14	1	0	2	5	0	1	0	0	127
11:30	0	94	19	1	6	2	2	2	3	0	0	0	0	129
11:45	0	107	25	0	12	2	0	2	3	0	0	0	0	151
12:00 PM	0	123	14	2	14	0	0	0	2	0	1	0	0	156
12:15	0	119	16	1	12	2	0	2	0	0	0	0	0	152
12:30	0	101	25	2	11	0	0	0	1	0	0	0	0	140
12:45	0	115	17	2	14	0	0	0	2	0	0	0	0	150
13:00	0	104	13	4	8	1	0	1	1	0	0	0	0	132
13:15	0	99	21	3	12	2	0	1	2	0	0	0	0	140
13:30	0	109	25	1	14	1	3	2	0	0	0	0	0	155
13:45	0	124	24	0	11	0	0	1	4	0	0	0	0	164
14:00	0	143	24	3	10	1	0	2	0	0	0	0	0	183
14:15	0	199	29	7	16	0	0	2	0	0	0	0	0	253
14:30	0	186	33	2	24	3	0	2	3	0	0	0	0	253
14:45	0	216	36	1	20	1	0	1	1	0	0	0	0	276
15:00	0	172	33	3	16	1	0	0	1	0	0	0	0	226
15:15	0	158	21	2	16	1	0	2	0	0	0	0	0	200
15:30	1	221	31	2	10	0	0	0	2	0	0	0	0	267
15:45	1	191	35	1	16	0	0	2	0	0	0	0	0	246
16:00	3	188	29	2	17	0	1	1	2	0	0	0	0	243
16:15	0	186	34	2	16	2	0	2	1	0	0	0	0	243
16:30	0	157	25	3	17	1	0	1	0	0	0	0	0	204
16:45	0	185	37	1	15	1	0	1	1	0	0	0	0	241
17:00	0	178	28	0	9	2	0	0	1	0	0	0	0	218
17:15	0	190	27	2	13	0	1	2	1	0	0	0	0	236
17:30	0	171	32	0	20	0	0	2	3	0	0	0	0	228
17:45	0	219	24	0	16	1	0	1	1	0	1	0	0	263
18:00	1	195	21	2	16	0	0	1	1	0	0	0	0	237
18:15	0	171	27	1	9	0	0	0	0	1	0	0	0	209
18:30	0	153	23	0	10	0	0	0	2	0	0	0	0	188
18:45	1	161	20	3	8	1	0	0	1	0	0	0	0	195
19:00	1	131	17	0	6	0	0	1	2	0	0	0	0	158
19:15	1	114	17	1	9	0	0	0	0	0	0	0	0	142
19:30	0	98	19	0	8	0	0	2	0	0	0	0	0	127
19:45	0	98	12	0	7	0	0	0	0	0	1	0	0	118
20:00	0	92	17	1	7	0	0	2	1	0	0	0	0	120
20:15	0	90	20	0	9	0	0	0	2	0	0	0	0	121
20:30	0	83	18	0	6	1	0	2	0	0	0	0	0	110
20:45	0	92	10	0	4	0	0	1	1	0	0	0	0	108
21:00	0	82	8	0	5	0	0	0	1	0	0	0	0	96
21:15	0	74	8	0	5	0	0	1	0	0	0	0	0	88
21:30	1	66	4	0	3	0	0	2	0	0	1	0	0	77
21:45	1	46	5	0	11	0	0	0	0	0	0	0	0	63
22:00	0	64	1	0	5	0	0	1	0	0	0	0	0	71
22:15	0	51	4	0	2	0	0	0	0	0	0	0	0	57
22:30	0	49	7	0	2	0	0	0	0	0	0	0	0	58
22:45	0	40	1	0	3	0	0	0	0	0	0	0	0	44
23:00	0	19	3	0	2	0	0	0	0	0	0	0	0	24
23:15	0	32	3	0	0	0	0	0	1	0	0	0	0	36
23:30	0	29	2	0	1	0	0	0	1	0	0	0	0	33
23:45	0	27	3	0	2	1	0	0	0	0	0	0	0	33
Totals	18	9273	1514	94	845	53	10	65	87	1	14			11974
% of Totals	0%	77%	13%	1%	7%	0%	0%	1%	1%	0%	0%			100%

AM Volumes	7	3362	611	40	358	30	5	24	45	0	10	0	0	4492
% AM	0%	28%	5%	0%	3%	0%	0%	0%	0%		0%			38%
AM Peak Hour	05:00	06:45	07:15	06:30	07:00	09:30	08:45	11:00	11:00		10:30			06:45
Volume	4	802	127	11	63	6	2	8	14		4			1007
PM Volumes	11	5911	903	54	487	23	5	41	42	1	4	0	0	7482
% PM	0%	49%	8%	0%	4%	0%	0%	0%	0%	0%	0%			62%
PM Peak Hour	15:15	15:30	14:15	14:00	14:15	14:30	12:45	13:30	13:00	17:30	12:00			14:15
Volume	5	786	131	13	76	6	3	7	7	1	1			1008

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes	Volume		%	Volume		%	Volume		%	Volume		%
	1579	⟷	13%	1189	⟷	10%	1876	⟷	16%	7330	⟷	61%

Classification Definitions

1 Motorcycles	**4** Buses	**7** >=4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

VOLUME

Base Line Rd E/O Alder Ave

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,324	5,650	11,974

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	14		6		20		12:00	0	0	80		76		156	
00:15	0	0	15		13		28		12:15	0	0	79		73		152	
00:30	0	0	6		12		18		12:30	0	0	67		73		140	
00:45	0	0	10	45	8	39	18	84	12:45	0	0	68	294	82	304	150	598
01:00	0	0	15		28		43		13:00	0	0	70		62		132	
01:15	0	0	12		21		33		13:15	0	0	56		84		140	
01:30	0	0	11		5		16		13:30	0	0	72		83		155	
01:45	0	0	12	50	5	59	17	109	13:45	0	0	72	270	92	321	164	591
02:00	0	0	3		8		11		14:00	0	0	82		101		183	
02:15	0	0	9		15		24		14:15	0	0	147		106		253	
02:30	0	0	34		13		47		14:30	0	0	120		133		253	
02:45	0	0	12	58	9	45	21	103	14:45	0	0	166	515	110	450	276	965
03:00	0	0	3		10		13		15:00	0	0	130		96		226	
03:15	0	0	10		15		25		15:15	0	0	113		87		200	
03:30	0	0	5		15		20		15:30	0	0	128		139		267	
03:45	0	0	7	25	18	58	25	83	15:45	0	0	134	505	112	434	246	939
04:00	0	0	6		14		20		16:00	0	0	157		86		243	
04:15	0	0	9		31		40		16:15	0	0	149		94		243	
04:30	0	0	15		33		48		16:30	0	0	115		89		204	
04:45	0	0	34	64	34	112	68	176	16:45	0	0	140	561	101	370	241	931
05:00	0	0	30		33		63		17:00	0	0	140		78		218	
05:15	0	0	30		34		64		17:15	0	0	145		91		236	
05:30	0	0	45		58		103		17:30	0	0	140		88		228	
05:45	0	0	55	160	51	176	106	336	17:45	0	0	168	593	95	352	263	945
06:00	0	0	33		50		83		18:00	0	0	142		95		237	
06:15	0	0	32		56		88		18:15	0	0	112		97		209	
06:30	0	0	66		80		146		18:30	0	0	111		77		188	
06:45	0	0	92	223	103	289	195	512	18:45	0	0	100	465	95	364	195	829
07:00	0	0	136		112		248		19:00	0	0	100		58		158	
07:15	0	0	190		119		309		19:15	0	0	73		69		142	
07:30	0	0	144		111		255		19:30	0	0	74		53		127	
07:45	0	0	86	556	77	419	163	975	19:45	0	0	66	313	52	232	118	545
08:00	0	0	65		79		144		20:00	0	0	69		51		120	
08:15	0	0	65		87		152		20:15	0	0	65		56		121	
08:30	0	0	59		86		145		20:30	0	0	51		59		110	
08:45	0	0	80	269	83	335	163	604	20:45	0	0	62	247	46	212	108	459
09:00	0	0	66		66		132		21:00	0	0	53		43		96	
09:15	0	0	63		70		133		21:15	0	0	49		39		88	
09:30	0	0	55		66		121		21:30	0	0	43		34		77	
09:45	0	0	50	234	54	256	104	490	21:45	0	0	31	176	32	148	63	324
10:00	0	0	56		65		121		22:00	0	0	40		31		71	
10:15	0	0	51		67		118		22:15	0	0	39		18		57	
10:30	0	0	64		56		120		22:30	0	0	27		31		58	
10:45	0	0	58	229	65	253	123	482	22:45	0	0	25	131	19	99	44	230
11:00	0	0	58		73		131		23:00	0	0	14		10		24	
11:15	0	0	65		62		127		23:15	0	0	26		10		36	
11:30	0	0	60		69		129		23:30	0	0	17		16		33	
11:45	0	0	82	265	69	273	151	538	23:45	0	0	19	76	14	50	33	126
TOTALS				2178		2314		4492	TOTALS				4146		3336		7482
SPLIT %				48.5%		51.5%		37.5%	SPLIT %				55.4%		44.6%		62.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,324	5,650	11,974

AM Peak Hour			06:45	06:45	06:45	PM Peak Hour	17:15	14:00	14:15
AM Pk Volume			562	445	1007	PM Pk Volume	595	450	1008
Pk Hr Factor			0.739	0.935	0.815	Pk Hr Factor	0.885	0.846	0.913
7 - 9 Volume	0	0	825	754	1579	4 - 6 Volume	1154	722	1876
7 - 9 Peak Hour			07:00	07:00	07:00	4 - 6 Peak Hour	17:00	16:00	17:00
7 - 9 Pk Volume	0	0	556	419	975	4 - 6 Pk Volume	593	370	945
Pk Hr Factor	0.000	0.000	0.732	0.880	0.789	Pk Hr Factor	0.882	0.916	0.898

Prepared by National Data & Surveying Services

CLASSIFICATION

Walnut Ave W/O Alder Ave

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_007

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	3	0	0	0	0	0	0	2	0	0	0	0	5
00:15	0	7	0	0	1	0	0	0	1	1	0	0	0	10
00:30	0	9	0	0	1	0	0	1	1	0	0	0	0	12
00:45	1	2	0	0	1	1	0	1	4	0	0	0	0	10
01:00	0	7	0	0	1	0	0	2	1	0	0	0	0	11
01:15	0	2	1	0	0	0	0	0	3	0	0	0	0	6
01:30	0	4	0	0	1	2	0	2	1	0	1	0	0	11
01:45	0	1	1	0	1	0	1	0	3	0	0	0	0	7
02:00	0	4	0	0	1	1	0	0	1	0	0	0	0	7
02:15	0	8	1	0	0	0	0	0	0	0	0	0	0	9
02:30	0	68	3	0	1	0	0	1	2	0	0	0	0	75
02:45	0	26	2	0	0	0	0	0	1	0	0	0	0	29
03:00	0	8	1	0	0	0	0	0	1	0	0	0	0	10
03:15	0	16	0	0	3	0	0	0	1	0	0	0	0	20
03:30	0	14	1	0	0	0	0	0	1	0	0	0	0	16
03:45	1	6	2	0	1	1	0	0	0	0	0	0	0	11
04:00	0	2	1	0	0	2	0	0	1	0	0	0	0	6
04:15	0	14	0	0	0	0	0	1	1	0	0	0	0	16
04:30	0	49	1	0	3	0	0	0	2	0	1	0	0	56
04:45	0	108	7	0	5	0	0	0	0	0	0	0	0	120
05:00	0	49	2	0	0	0	0	0	3	0	0	0	0	54
05:15	0	10	0	0	1	0	0	0	0	0	0	0	0	11
05:30	0	19	1	1	1	1	0	0	2	0	0	0	0	25
05:45	1	32	4	0	0	0	0	0	0	0	0	0	0	37
06:00	0	13	5	0	0	0	0	0	1	0	0	0	0	19
06:15	1	17	2	0	0	0	0	0	0	0	0	0	0	20
06:30	0	30	1	0	0	1	0	2	1	0	0	0	0	35
06:45	1	39	2	2	1	0	0	1	1	0	1	0	0	48
07:00	0	42	2	0	4	1	0	2	1	0	0	0	0	52
07:15	0	42	0	1	2	0	1	1	5	0	0	0	0	52
07:30	0	14	5	0	3	0	0	1	1	0	0	0	0	24
07:45	1	12	5	1	1	1	0	0	0	0	0	0	0	21
08:00	0	10	2	0	0	1	0	1	3	0	0	0	0	17
08:15	0	6	1	0	0	1	0	3	1	0	0	0	0	12
08:30	1	10	3	1	0	1	0	1	5	0	0	0	0	22
08:45	1	6	2	0	2	1	0	1	3	0	0	0	0	16
09:00	0	10	1	0	1	1	0	3	5	0	0	0	0	21
09:15	0	10	0	0	1	0	0	3	2	1	0	0	0	17
09:30	0	12	0	0	2	1	0	0	2	0	0	0	0	17
09:45	0	7	2	0	3	0	0	1	6	0	0	0	0	19
10:00	0	9	4	0	5	0	0	1	1	0	0	0	0	20
10:15	1	6	1	0	3	1	0	0	1	0	0	0	0	13
10:30	0	6	2	1	4	2	0	3	5	0	0	0	0	23
10:45	0	12	1	1	2	1	0	5	1	0	1	0	0	24
11:00	0	5	0	0	2	1	0	4	4	0	0	0	0	16
11:15	0	8	2	1	0	1	0	2	7	0	0	0	0	21
11:30	1	12	4	1	2	0	0	2	5	0	0	0	0	27
11:45	1	9	3	0	2	3	0	3	4	0	0	0	0	25
12:00 PM	0	8	1	1	1	3	0	1	3	0	0	0	0	18
12:15	0	11	2	2	4	1	0	0	5	0	0	0	0	25
12:30	2	10	0	0	4	2	0	0	4	0	1	0	0	23
12:45	1	12	4	0	5	1	0	3	6	0	0	0	0	32
13:00	0	12	3	1	1	1	0	1	6	0	0	0	0	25
13:15	0	16	2	3	3	0	0	2	6	0	0	0	0	32
13:30	0	20	0	1	4	1	0	1	5	0	0	0	0	32
13:45	0	13	4	2	4	1	0	1	1	0	0	0	0	26
14:00	0	27	5	2	2	0	0	0	3	0	0	0	0	39
14:15	0	16	2	1	4	1	0	2	2	0	0	0	0	28
14:30	1	34	4	0	1	4	0	5	2	0	0	0	0	51
14:45	0	15	3	1	2	0	0	1	5	0	0	0	0	27
15:00	0	21	4	0	3	1	0	3	4	0	0	0	0	36
15:15	0	20	1	0	2	3	0	2	4	0	0	0	0	32
15:30	1	122	1	1	4	0	0	5	0	0	0	0	0	134
15:45	0	70	3	1	3	2	0	1	5	0	1	0	0	86
16:00	0	33	2	0	2	0	0	1	3	0	0	0	0	41
16:15	0	14	1	2	4	0	0	1	4	0	0	0	0	26
16:30	0	33	4	0	0	1	0	2	2	0	0	0	0	42
16:45	0	32	2	0	0	4	0	2	4	0	0	0	0	44
17:00	0	19	1	0	1	2	0	1	2	0	0	0	0	26
17:15	0	18	1	1	0	1	0	3	1	0	0	0	0	25
17:30	0	44	2	0	0	0	0	3	0	0	0	0	0	49
17:45	0	45	1	0	6	3	0	0	2	0	0	0	0	57
18:00	1	57	3	0	1	1	0	1	2	0	0	0	0	66
18:15	1	42	3	0	0	1	0	1	2	0	1	0	0	51
18:30	0	12	2	0	1	2	1	1	4	0	0	0	0	23
18:45	0	7	0	0	1	1	0	2	1	0	0	0	0	12
19:00	0	3	0	0	1	3	0	2	3	0	0	0	0	12
19:15	0	2	0	0	1	1	0	2	3	0	2	0	0	11
19:30	0	5	1	0	0	0	0	1	3	0	0	0	0	10
19:45	0	4	0	1	3	1	0	1	3	0	0	0	0	13
20:00	0	2	1	0	3	1	0	4	5	0	0	0	0	16
20:15	1	1	0	0	3	0	0	1	3	0	0	0	0	9
20:30	0	4	1	0	2	0	0	2	0	0	0	0	0	9
20:45	1	10	2	1	0	1	0	2	2	0	0	0	0	19
21:00	0	16	1	0	1	0	0	1	0	0	0	0	0	19
21:15	0	11	1	0	0	0	0	0	3	0	0	0	0	15
21:30	0	9	0	0	1	0	0	1	4	0	0	0	0	15
21:45	0	4	1	0	0	0	0	0	1	0	0	0	0	6
22:00	0	8	0	0	0	0	0	2	1	0	0	0	0	11
22:15	0	8	2	0	1	1	0	2	6	0	1	0	0	21
22:30	0	8	0	0	0	1	0	1	1	0	0	0	0	11
22:45	0	3	0	1	1	1	0	0	0	0	0	0	0	6
23:00	0	2	1	0	0	1	0	1	4	0	0	0	0	9
23:15	0	7	0	0	0	0	0	1	4	0	0	0	0	12
23:30	0	4	0	0	0	1	0	1	2	0	0	0	0	8
23:45	0	8	0	0	0	0	0	0	2	0	0	0	0	10
Totals	**20**	**1717**	**150**	**32**	**142**	**75**	**3**	**119**	**235**	**2**	**10**			**2505**
% of Totals	1%	69%	6%	1%	6%	3%	0%	5%	9%	0%	0%			100%

AM Volumes	11	815	78	10	62	26	2	48	97	2	4	0	0	1155
% AM	0%	33%	3%	0%	2%	1%	0%	2%	4%	0%	0%			46%
AM Peak Hour	11:45	04:15	07:30	11:30	09:45	11:45	01:00	10:30	11:00		00:45			04:15
Volume	3	220	13	4	15	9	1	14	20	1	1			246
PM Volumes	9	902	72	22	80	49	1	71	138	0	6	0	0	1350
% PM	0%	36%	3%	1%	3%	2%	0%	3%	6%		0%			54%
PM Peak Hour	12:00	15:15	13:45	13:15	12:00	14:30	17:45	14:15	12:45		18:30			15:15
Volume	3	245	15	8	14	8	1	11	23		2			293

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	216	9%	213	9%	310	12%	1766	70%

Classification Definitions

1	Motorcycles	**4**	Buses	**7**	> =4-Axle Single Units	**10**	>=6-Axle Single Trailers	**13**	>=7-Axle Multi-Trailers	
2	Passenger Cars	**5**	2-Axle, 6-Tire Single Units	**8**	<=4-Axle Single Trailers	**11**	<=5-Axle Multi-Trailers			
3	2-Axle, 4-Tire Single Units	**6**	3-Axle Single Units	**9**	5-Axle Single Trailers	**12**	6-Axle Multi-Trailers			

Prepared by National Data & Surveying Services

VOLUME

Walnut Ave W/O Alder Ave

Day: Tuesday
Date: 3/6/2018

City: Rialto
Project #: CA18_6026_007

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,262	1,243	2,505

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	4		1		5		12:00	0	0	12		6		18	
00:15	0	0	6		4		10		12:15	0	0	12		13		25	
00:30	0	0	8		4		12		12:30	0	0	11		12		23	
00:45	0	0	6	24	4	13	10	37	12:45	0	0	22	57	10	41	32	98
01:00	0	0	3		8		11		13:00	0	0	11		14		25	
01:15	0	0	5		1		6		13:15	0	0	23		9		32	
01:30	0	0	9		2		11		13:30	0	0	20		12		32	
01:45	0	0	5	22	2	13	7	35	13:45	0	0	12	66	14	49	26	115
02:00	0	0	5		2		7		14:00	0	0	26		13		39	
02:15	0	0	2		7		9		14:15	0	0	15		13		28	
02:30	0	0	70		5		75		14:30	0	0	33		18		51	
02:45	0	0	19	96	10	24	29	120	14:45	0	0	16	90	11	55	27	145
03:00	0	0	9		1		10		15:00	0	0	21		15		36	
03:15	0	0	15		5		20		15:15	0	0	10		22		32	
03:30	0	0	12		4		16		15:30	0	0	89		45		134	
03:45	0	0	3	39	8	18	11	57	15:45	0	0	43	163	43	125	86	288
04:00	0	0	2		4		6		16:00	0	0	32		9		41	
04:15	0	0	2		14		16		16:15	0	0	18		8		26	
04:30	0	0	15		41		56		16:30	0	0	25		17		42	
04:45	0	0	28	47	92	151	120	198	16:45	0	0	18	93	26	60	44	153
05:00	0	0	41		13		54		17:00	0	0	16		10		26	
05:15	0	0	9		2		11		17:15	0	0	9		16		25	
05:30	0	0	10		15		25		17:30	0	0	29		20		49	
05:45	0	0	9	69	28	58	37	127	17:45	0	0	29	83	28	74	57	157
06:00	0	0	5		14		19		18:00	0	0	40		26		66	
06:15	0	0	9		11		20		18:15	0	0	22		29		51	
06:30	0	0	11		24		35		18:30	0	0	13		10		23	
06:45	0	0	10	35	38	87	48	122	18:45	0	0	2	77	10	75	12	152
07:00	0	0	14		38		52		19:00	0	0	8		4		12	
07:15	0	0	10		42		52		19:15	0	0	6		5		11	
07:30	0	0	6		18		24		19:30	0	0	5		5		10	
07:45	0	0	6	36	15	113	21	149	19:45	0	0	6	25	7	21	13	46
08:00	0	0	7		10		17		20:00	0	0	7		9		16	
08:15	0	0	2		10		12		20:15	0	0	8		1		9	
08:30	0	0	10		12		22		20:30	0	0	5		4		9	
08:45	0	0	8	27	8	40	16	67	20:45	0	0	5	25	14	28	19	53
09:00	0	0	10		11		21		21:00	0	0	19		0		19	
09:15	0	0	6		11		17		21:15	0	0	6		9		15	
09:30	0	0	12		5		17		21:30	0	0	5		10		15	
09:45	0	0	5	33	14	41	19	74	21:45	0	0	0	30	6	25	6	55
10:00	0	0	10		10		20		22:00	0	0	5		6		11	
10:15	0	0	3		10		13		22:15	0	0	13		8		21	
10:30	0	0	10		13		23		22:30	0	0	7		4		11	
10:45	0	0	9	32	15	48	24	80	22:45	0	0	4	29	2	20	6	49
11:00	0	0	8		8		16		23:00	0	0	5		4		9	
11:15	0	0	10		11		21		23:15	0	0	9		3		12	
11:30	0	0	15		12		27		23:30	0	0	2		6		8	
11:45	0	0	12	45	13	44	25	89	23:45	0	0	3	19	7	20	10	39
TOTALS				505		650		1155	TOTALS				757		593		1350
SPLIT %				43.7%		56.3%		46.1%	SPLIT %				56.1%		43.9%		53.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,262	1,243	2,505

AM Peak Hour			02:30		04:15		04:15		PM Peak Hour			15:30		15:00		15:15	
AM Pk Volume			113		160		246		PM Pk Volume			182		125		293	
Pk Hr Factor			0.404		0.435		0.513		Pk Hr Factor			0.511		0.694		0.547	
7 - 9 Volume	0	0	63		153		216		4 - 6 Volume	0	0	176		134		310	
7 - 9 Peak Hour			07:00		07:00		07:00		4 - 6 Peak Hour			16:00		17:00		17:00	
7 - 9 Pk Volume	0	0	36		113		149		4 - 6 Pk Volume	0	0	93		74		157	
Pk Hr Factor	0.000	0.000	0.643		0.673		0.716		Pk Hr Factor	0.000	0.000	0.727		0.661		0.689	

Axle Classification	Classification	Classification	PCE
Passenger Vehicles	1,2,3	PV/Cars	1.0
2-Axle Trucks	4,5	ST	1.5
3-Axle Trucks	6	MT	2.0
4+-Axle Trucks	7,8,9,10,11,12,13	HT	3.0

Summary of PCE Adjusted Counts for Rialto Warehouse Projects - AM

	North-South Street	East-West Street	Classification	AM	NORTHBOUND NL	NT	NR	NU	SOUTHBOUND SL	ST	SR	SU	EASTBOUND EL	ET	ER	EU	WESTBOUND WL	WT	WR	WU	PHF
1	Alder Avenue	I-210 WB Ramps																			
			Total	7:00 AM - 8:00 AM	234	281	0	0	0	145	296	0	0	0	0	0	281	2	119	0	0.884
			PV/Cars		205	218	0	0	0	118	223	0	0	0	0	0	273	2	92	0	**0.852**
			ST		1	8	0	0	0	4	6	0	0	0	0	0	3	0	1	0	0.575
			MT		4	10	0	0	0	5	22	0	0	0	0	0	1	0	2	0	0.846
			HT		24	45	0	0	0	18	45	0	0	0	0	0	4	0	24	0	0.800
			PCE Adjusted		**287**	**385**	**0**	**0**	**0**	**188**	**411**	**0**	**0**	**0**	**0**	**0**	**292**	**2**	**170**	**0**	
2	Alder Avenue	I-210 EB Ramps																			
			Total	7:00 AM - 8:00 AM	0	318	277	0	63	353	0	0	185	1	383	0	0	0	0	0	0.966
			PV/Cars		0	278	260	0	40	342	0	0	132	1	338	0	0	0	0	0	0.950
			ST		0	5	1	0	4	3	0	0	5	0	3	0	0	0	0	0	0.656
			MT		0	8	1	0	2	3	0	0	6	0	2	0	0	0	0	0	0.786
			HT		0	27	15	0	17	5	0	0	42	0	40	0	0	0	0	0	0.869
			PCE Adjusted		**0**	**383**	**309**	**0**	**101**	**368**	**0**	**0**	**278**	**1**	**467**	**0**	**0**	**0**	**0**	**0**	
3	Alder Avenue	Renaissance Pkwy																			
			Total	7:00 AM - 8:00 AM	50	394	5	0	102	580	37	0	88	104	40	0	8	134	94	0	0.917
			PV/Cars		48	368	5	0	83	541	36	0	85	102	37	0	8	130	74	0	0.901
			ST		1	1	0	0	2	4	0	0	2	0	0	0	0	0	0	0	0.833
			MT		0	4	0	0	1	6	1	0	0	2	3	0	0	3	3	0	0.639
			HT		1	21	0	0	16	29	0	0	1	0	0	0	0	1	17	0	0.860
			PCE Adjusted		**53**	**441**	**5**	**0**	**136**	**646**	**38**	**0**	**91**	**106**	**43**	**0**	**8**	**139**	**131**	**0**	
4	Alder Avenue	Walnut Avenue																			
			Total	7:00 AM - 8:00 AM	28	422	8	1	19	526	86	0	22	4	9	0	7	0	2	0	0.892
			PV/Cars		24	397	7	1	10	506	79	0	15	3	5	0	5	0	1	0	0.889
			ST		4	2	0	0	0	5	0	0	1	1	0	0	1	0	1	0	0.750
			MT		0	3	0	0	2	6	1	0	1	0	1	0	0	0	0	0	0.500
			HT		0	20	1	0	7	9	6	0	5	0	3	0	1	0	0	0	0.867
			PCE Adjusted		**30**	**466**	**10**	**1**	**35**	**553**	**99**	**0**	**34**	**5**	**16**	**0**	**10**	**0**	**3**	**0**	
5	Alder Avenue	Baseline Road																			
			Total	7:00 AM - 8:00 AM	150	302	113	0	56	297	74	0	57	407	62	0	39	373	39	0	0.808
			PV/Cars		148	297	111	0	52	296	72	0	57	398	60	0	38	361	38	0	0.798
			ST		1	2	0	0	0	0	1	0	0	3	0	0	1	4	1	0	0.650
			MT		1	1	2	0	4	1	0	0	0	6	2	0	0	4	0	0	0.656
			HT		0	2	0	0	0	0	1	0	0	0	0	0	0	4	0	0	0.583
			PCE Adjusted		**152**	**308**	**115**	**0**	**60**	**298**	**77**	**0**	**57**	**415**	**64**	**0**	**40**	**387**	**40**	**0**	
6	Tamarind Avenue	Walnut Avenue																			
			Total	7:00 AM - 8:00 AM	4	0	27	0	0	0	0	0	0	21	10	0	6	13	0	1	0.759
			PV/Cars		3	0	26	0	0	0	0	0	0	13	8	0	5	6	0	0	0.763
			ST		1	0	0	0	0	0	0	0	0	1	1	0	0	3	0	0	0.500
			MT		0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0.750
			HT		0	0	1	0	0	0	0	0	0	5	1	0	1	3	0	1	0.600
			PCE Adjusted		**5**	**0**	**29**	**0**	**0**	**0**	**0**	**0**	**0**	**34**	**13**	**0**	**8**	**22**	**0**	**3**	
7	Tamarind Avenue	Baseline Road																			
			Total	7:00 AM - 8:00 AM	82	5	58	0	1	3	5	0	20	471	142	0	80	504	9	0	0.793
			PV/Cars		81	5	57	0	1	3	4	0	20	460	140	0	80	490	7	0	0.786
			ST		0	0	0	0	0	0	0	0	0	3	0	0	0	6	0	0	0.450
			MT		1	0	1	0	0	0	0	0	0	7	2	0	0	5	0	0	0.571
			HT		0	0	0	0	0	0	1	0	0	1	0	0	0	3	2	0	0.583
			PCE Adjusted		**83**	**5**	**59**	**0**	**1**	**3**	**7**	**0**	**20**	**482**	**144**	**0**	**80**	**518**	**13**	**0**	
8	Ayala Drive-Cedar Avenue	Baseline Road																			
			Total	7:00 AM - 8:00 AM	99	492	80	0	29	562	81	8	139	293	120	6	104	347	28	1	0.951
			PV/Cars		89	472	72	0	29	548	79	8	138	284	116	6	96	334	27	1	0.956
			ST		1	4	2	0	0	1	0	0	0	2	0	0	4	5	0	0	0.679
			MT		6	5	6	0	0	3	0	0	1	6	4	0	2	6	0	0	0.542
			HT		3	11	0	0	0	10	2	0	0	1	0	0	2	2	1	0	0.800
			PCE Adjusted		**112**	**521**	**87**	**0**	**29**	**586**	**85**	**8**	**140**	**302**	**124**	**6**	**112**	**360**	**30**	**1**	

Axle Classification	Classification	Classification	PCE
Passenger Vehicles	1,2,3	PV/Cars	1.0
2-Axle Trucks	4,5	ST - Small Trucks	1.5
3-Axle Trucks	6	MT - Medium Trucks	2.0
4+-Axle Trucks	7,8,9,10,11,12,13	HT- Heavy Trucks	3.0

Summary of PCE Adjusted Counts for Rialto Warehouse Projects - PM

	North-South Street	East-West Street	Classification	PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				PHF
					NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
1	Alder Avenue	I-210 WB Ramps																			
			Total	4:00 PM - 5:00 PM	287	303	0	0	0	256	285	0	0	0	0	0	225	5	84	0	0.873
			PV/Cars		247	237	0	0	0	214	220	0	0	0	0	0	215	5	73	0	0.858
			ST		7	8	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0.594
			MT		6	20	0	0	0	6	14	0	0	0	0	0	1	0	0	0	0.734
			HT		27	38	0	0	0	34	50	0	0	0	0	0	8	0	11	0	0.955
			PCE Adjusted		**351**	**403**	**0**	**0**	**0**	**331**	**400**	**0**	**0**	**0**	**0**	**0**	**243**	**5**	**106**	**0**	
2	Alder Avenue	I-210 EB Ramps																			
			Total	4:15 PM - 5:15 PM	0	420	312	0	139	347	0	0	164	3	332	0	0	0	0	0	0.960
			PV/Cars		0	373	295	0	105	326	0	0	130	3	311	0	0	0	0	0	0.962
			ST		0	9	2	0	1	3	0	0	4	0	3	0	0	0	0	0	0.611
			MT		0	13	2	0	4	8	0	0	6	0	5	0	0	0	0	0	0.864
			HT		0	25	13	0	29	10	0	0	24	0	13	0	0	0	0	0	0.792
			PCE Adjusted		**0**	**488**	**341**	**0**	**202**	**377**	**0**	**0**	**220**	**3**	**365**	**0**	**0**	**0**	**0**	**0**	
3	Alder Avenue	Renaissance Pkwy																			
			Total	5:00 PM - 6:00 PM	15	463	41	0	187	423	104	0	95	558	93	0	6	34	93	0	0.904
			PV/Cars		14	439	41	0	177	406	98	0	90	551	90	0	3	33	75	0	0.917
			ST		0	3	0	0	2	2	0	0	1	3	0	0	0	0	4	0	0.469
			MT		0	4	0	0	0	6	6	0	0	2	0	0	0	0	3	0	0.525
			HT		1	17	0	0	8	9	0	0	4	2	3	0	3	1	11	0	0.868
			PCE Adjusted		**17**	**503**	**41**	**0**	**204**	**448**	**110**	**0**	**104**	**566**	**99**	**0**	**12**	**36**	**120**	**0**	
4	Alder Avenue	Walnut Avenue																			
			Total	4:30 PM - 5:30 PM	14	508	5	0	8	493	56	0	59	0	17	0	3	0	2	0	0.971
			PV/Cars		10	483	5	0	2	484	45	0	46	0	12	0	3	0	2	0	0.958
			ST		0	4	0	0	0	1	0	0	1	0	3	0	0	0	0	0	0.563
			MT		0	1	0	0	0	3	4	0	6	0	0	0	0	0	0	0	0.700
			HT		4	20	0	0	6	5	7	0	6	0	2	0	0	0	0	0	0.781
			PCE Adjusted		**22**	**551**	**5**	**0**	**20**	**507**	**74**	**0**	**78**	**0**	**23**	**0**	**3**	**0**	**2**	**0**	
5	Alder Avenue	Baseline Road																			
			Total	5:00 PM - 6:00 PM	52	330	42	0	97	279	66	0	42	467	73	0	33	275	51	0	0.947
			PV/Cars		51	328	42	0	94	278	64	0	41	456	72	0	33	271	48	0	0.940
			ST		0	1	0	0	1	1	0	0	0	5	1	0	0	1	0	0	0.625
			MT		0	0	0	0	1	0	0	0	0	3	0	0	0	1	1	0	0.500
			HT		1	1	0	0	1	0	2	0	1	3	0	0	0	2	2	0	0.542
			PCE Adjusted		**54**	**333**	**42**	**0**	**101**	**280**	**70**	**0**	**44**	**479**	**74**	**0**	**33**	**281**	**56**	**0**	
6	Tamarind Avenue	Walnut Avenue																			
			Total	4:00 PM - 5:00 PM	12	0	28	0	0	0	0	0	0	29	9	0	41	16	0	0	0.767
			PV/Cars		10	0	18	0	0	0	0	0	0	19	9	0	36	7	0	0	0.669
			ST		1	0	1	0	0	0	0	0	0	2	0	0	0	1	0	0	0.313
			MT		0	0	3	0	0	0	0	0	0	0	0	0	2	3	0	0	0.500
			HT		1	0	6	0	0	0	0	0	0	8	0	0	3	5	0	0	0.639
			PCE Adjusted		**15**	**0**	**44**	**0**	**0**	**0**	**0**	**0**	**0**	**46**	**9**	**0**	**49**	**30**	**0**	**0**	
7	Tamarind Avenue	Baseline Road																			
			Total	5:00 PM - 6:00 PM	56	7	35	1	4	6	18	0	11	546	71	0	39	354	1	0	0.906
			PV/Cars		56	7	35	1	2	6	15	0	11	534	70	0	39	347	1	0	0.898
			ST		0	0	0	0	1	0	1	0	0	6	1	0	0	1	0	0	0.833
			MT		0	0	0	0	0	0	1	0	0	3	0	0	0	1	0	0	0.625
			HT		0	0	0	0	1	0	1	0	0	3	0	0	0	5	0	0	0.625
			PCE Adjusted		**56**	**7**	**35**	**1**	**7**	**6**	**22**	**0**	**11**	**558**	**72**	**0**	**39**	**366**	**1**	**0**	
8	Ayala Drive-Cedar Avenue	Baseline Road																			
			Total	4:00 PM - 5:00 PM	106	486	112	0	61	539	103	38	127	423	107	16	103	359	36	7	0.960
			PV/Cars		100	478	110	0	60	523	98	38	127	418	96	16	102	350	36	7	0.959
			ST		1	3	1	0	1	2	1	0	0	2	0	0	0	3	0	0	0.875
			MT		3	1	1	0	0	5	1	0	0	3	4	0	0	4	0	0	0.786
			HT		2	4	0	0	0	9	3	0	0	0	7	0	1	2	0	0	0.700
			PCE Adjusted		**114**	**497**	**114**	**0**	**62**	**563**	**111**	**38**	**127**	**427**	**125**	**16**	**105**	**369**	**36**	**7**	

APPENDIX C

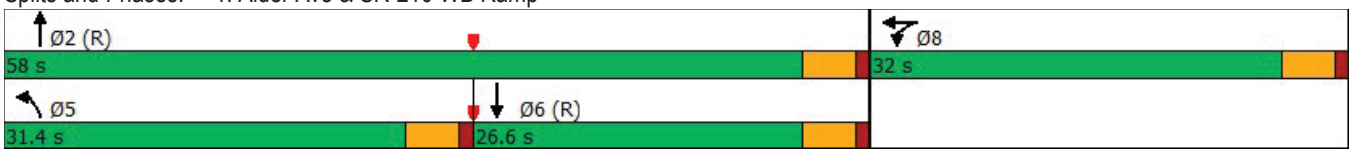
LOS Worksheets

- Existing Conditions

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	292	2	287	385	188
Future Volume (vph)	292	2	287	385	188
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	32.0	32.0	31.4	58.0	26.6
Total Split (%)	35.6%	35.6%	34.9%	64.4%	29.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	22.1	22.1	21.3	58.9	33.1
Actuated g/C Ratio	0.25	0.25	0.24	0.65	0.37
v/c Ratio	0.76	0.36	0.78	0.19	0.47
Control Delay	43.0	5.9	40.5	6.7	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	5.9	40.5	6.7	9.0
LOS	D	A	D	A	A
Approach Delay		29.3		21.1	9.0
Approach LOS		C		C	A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 61.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	292	2	170	287	385	0	0	188	411
Future Volume (veh/h)	0	0	0	292	2	170	287	385	0	0	188	411
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				332	2	193	326	438	0	0	214	467
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				405	4	358	372	2378	0	0	730	653
Arrive On Green				0.23	0.23	0.23	0.42	1.00	0.00	0.00	0.41	0.41
Sat Flow, veh/h				1774	16	1570	1774	3632	0	0	1863	1583
Grp Volume(v), veh/h				332	0	195	326	438	0	0	214	467
Grp Sat Flow(s),veh/h/ln				1774	0	1586	1774	1770	0	0	1770	1583
Q Serve(g_s), s				16.0	0.0	9.7	15.2	0.0	0.0	0.0	7.3	22.1
Cycle Q Clear(g_c), s				16.0	0.0	9.7	15.2	0.0	0.0	0.0	7.3	22.1
Prop In Lane				1.00		0.99	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				405	0	362	372	2378	0	0	730	653
V/C Ratio(X)				0.82	0.00	0.54	0.88	0.18	0.00	0.00	0.29	0.72
Avail Cap(c_a), veh/h				542	0	485	530	2378	0	0	730	653
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.92	0.92	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				33.0	0.0	30.6	25.1	0.0	0.0	0.0	17.7	22.0
Incr Delay (d2), s/veh				7.3	0.0	1.2	10.6	0.2	0.0	0.0	1.0	6.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.7	0.0	4.4	8.3	0.1	0.0	0.0	3.8	10.8
LnGrp Delay(d),s/veh				40.3	0.0	31.8	35.7	0.2	0.0	0.0	18.7	28.6
LnGrp LOS				D		C	D	A			B	C
Approach Vol, veh/h					527			764			681	
Approach Delay, s/veh					37.1			15.3			25.5	
Approach LOS					D			B			C	

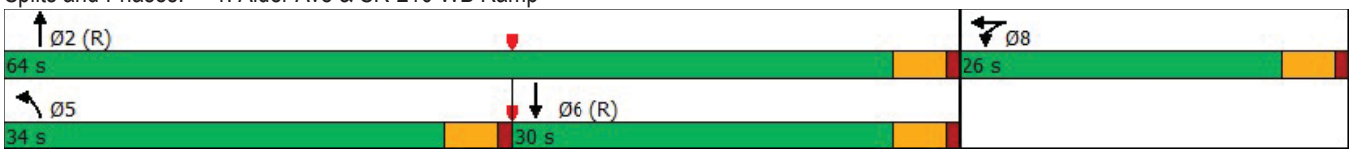
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		65.0			23.4	41.6		25.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		53.5			26.9	22.1		27.5
Max Q Clear Time (g_c+I1), s		3.0			18.2	25.1		19.0
Green Ext Time (p_c), s		3.3			0.7	0.0		1.5

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	243	5	351	403	331
Future Volume (vph)	243	5	351	403	331
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	26.0	26.0	34.0	64.0	30.0
Total Split (%)	28.9%	28.9%	37.8%	71.1%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	18.3	18.3	24.8	62.7	33.4
Actuated g/C Ratio	0.20	0.20	0.28	0.70	0.37
v/c Ratio	0.78	0.30	0.83	0.19	0.59
Control Delay	48.8	8.2	40.8	9.6	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	8.2	40.8	9.6	16.5
LOS	D	A	D	A	B
Approach Delay		36.0		24.1	16.5
Approach LOS		D		C	B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 23.4	Intersection LOS: C
Intersection Capacity Utilization 66.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	243	5	106	351	403	0	0	331	400
Future Volume (veh/h)	0	0	0	243	5	106	351	403	0	0	331	400
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				279	6	122	403	463	0	0	380	460
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				341	14	292	444	2504	0	0	720	645
Arrive On Green				0.19	0.19	0.19	0.50	1.00	0.00	0.00	0.41	0.41
Sat Flow, veh/h				1774	75	1520	1774	3632	0	0	1863	1583
Grp Volume(v), veh/h				279	0	128	403	463	0	0	380	460
Grp Sat Flow(s),veh/h/ln				1774	0	1595	1774	1770	0	0	1770	1583
Q Serve(g_s), s				13.6	0.0	6.3	18.7	0.0	0.0	0.0	14.6	21.8
Cycle Q Clear(g_c), s				13.6	0.0	6.3	18.7	0.0	0.0	0.0	14.6	21.8
Prop In Lane				1.00		0.95	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				341	0	307	444	2504	0	0	720	645
V/C Ratio(X)				0.82	0.00	0.42	0.91	0.18	0.00	0.00	0.53	0.71
Avail Cap(c_a), veh/h				424	0	381	581	2504	0	0	720	645
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.85	0.85	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.8	0.0	31.9	21.5	0.0	0.0	0.0	20.1	22.3
Incr Delay (d2), s/veh				9.8	0.0	0.9	13.3	0.1	0.0	0.0	2.8	6.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.6	0.0	2.9	10.6	0.0	0.0	0.0	7.6	10.6
LnGrp Delay(d),s/veh				44.6	0.0	32.8	34.8	0.1	0.0	0.0	22.9	28.9
LnGrp LOS				D		C	C	A			C	C
Approach Vol, veh/h					407			866			840	
Approach Delay, s/veh					40.9			16.3			26.2	
Approach LOS					D			B			C	

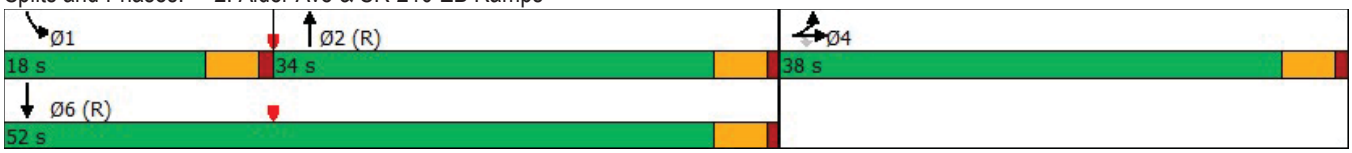
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		68.2			27.0	41.1		21.8
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		59.5			29.5	25.5		21.5
Max Q Clear Time (g_c+I1), s		3.0			21.7	24.8		16.6
Green Ext Time (p_c), s		3.5			0.8	0.4		0.8

Intersection Summary		
HCM 2010 Ctrl Delay		25.0
HCM 2010 LOS		C

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	1	467	383	101	368
Future Volume (vph)	1	467	383	101	368
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	38.0	38.0	34.0	18.0	52.0
Total Split (%)	42.2%	42.2%	37.8%	20.0%	57.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	22.0	22.0	46.1	10.6	59.0
Actuated g/C Ratio	0.24	0.24	0.51	0.12	0.66
v/c Ratio	0.66	0.67	0.39	0.50	0.16
Control Delay	37.3	9.2	9.6	33.1	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	9.2	9.6	33.1	11.6
LOS	D	A	A	C	B
Approach Delay	19.7		9.6		16.2
Approach LOS	B		A		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 61.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	1	467	0	0	0	0	383	309	101	368	0
Future Volume (veh/h)	278	1	467	0	0	0	0	383	309	101	368	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	287	1	481				0	395	319	104	379	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	589	2	528				0	827	662	133	2006	0
Arrive On Green	0.33	0.33	0.33				0.00	0.59	0.59	0.10	0.75	0.00
Sat Flow, veh/h	1768	6	1583				0	1964	1497	1774	3632	0
Grp Volume(v), veh/h	288	0	481				0	373	341	104	379	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1770	1599	1774	1770	0
Q Serve(g_s), s	11.6	0.0	26.2				0.0	10.9	11.0	5.2	2.8	0.0
Cycle Q Clear(g_c), s	11.6	0.0	26.2				0.0	10.9	11.0	5.2	2.8	0.0
Prop In Lane	1.00		1.00				0.00		0.94	1.00		0.00
Lane Grp Cap(c), veh/h	591	0	528				0	782	707	133	2006	0
V/C Ratio(X)	0.49	0.00	0.91				0.00	0.48	0.48	0.78	0.19	0.00
Avail Cap(c_a), veh/h	660	0	589				0	782	707	266	2006	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.95	0.95	0.80	0.80	0.00
Uniform Delay (d), s/veh	23.9	0.0	28.7				0.0	12.6	12.6	39.8	5.1	0.0
Incr Delay (d2), s/veh	0.6	0.0	17.4				0.0	2.0	2.2	7.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	13.9				0.0	5.6	5.2	2.8	1.4	0.0
LnGrp Delay(d),s/veh	24.5	0.0	46.2				0.0	14.6	14.8	47.8	5.3	0.0
LnGrp LOS	C		D					B	B	D	A	
Approach Vol, veh/h		769						714			483	
Approach Delay, s/veh		38.1						14.7			14.4	
Approach LOS		D						B			B	

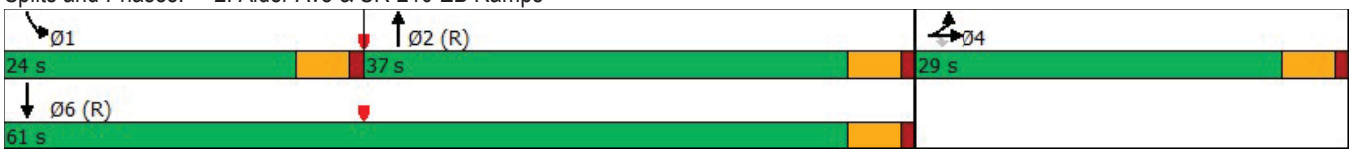
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.2	44.3		34.5		55.5		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	13.5	29.5		33.5		47.5		
Max Q Clear Time (g_c+I1), s	7.2	13.0		28.2		4.8		
Green Ext Time (p_c), s	0.1	4.3		1.8		2.8		

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	3	365	488	202	377
Future Volume (vph)	3	365	488	202	377
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	29.0	29.0	37.0	24.0	61.0
Total Split (%)	32.2%	32.2%	41.1%	26.7%	67.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	17.9	17.9	43.2	15.4	63.1
Actuated g/C Ratio	0.20	0.20	0.48	0.17	0.70
v/c Ratio	0.66	0.61	0.51	0.69	0.16
Control Delay	41.5	7.7	7.4	40.3	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	7.7	7.4	40.3	7.4
LOS	D	A	A	D	A
Approach Delay	20.5		7.4		18.8
Approach LOS	C		A		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 66.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	3	365	0	0	0	0	488	341	202	377	0
Future Volume (veh/h)	220	3	365	0	0	0	0	488	341	202	377	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	229	3	380				0	508	355	210	393	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	457	6	413				0	900	628	244	2262	0
Arrive On Green	0.26	0.26	0.26				0.00	0.90	0.90	0.28	1.00	0.00
Sat Flow, veh/h	1752	23	1583				0	2088	1392	1774	3632	0
Grp Volume(v), veh/h	232	0	380				0	451	412	210	393	0
Grp Sat Flow(s),veh/h/ln	1775	0	1583				0	1770	1617	1774	1770	0
Q Serve(g_s), s	10.0	0.0	21.0				0.0	4.5	4.6	10.1	0.0	0.0
Cycle Q Clear(g_c), s	10.0	0.0	21.0				0.0	4.5	4.6	10.1	0.0	0.0
Prop In Lane	0.99		1.00				0.00		0.86	1.00		0.00
Lane Grp Cap(c), veh/h	463	0	413				0	799	730	244	2262	0
V/C Ratio(X)	0.50	0.00	0.92				0.00	0.56	0.56	0.86	0.17	0.00
Avail Cap(c_a), veh/h	483	0	431				0	799	730	384	2262	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.75	0.75	0.73	0.73	0.00
Uniform Delay (d), s/veh	28.3	0.0	32.3				0.0	2.6	2.6	31.8	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	24.3				0.0	2.2	2.4	8.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	12.0				0.0	2.2	2.1	5.5	0.0	0.0
LnGrp Delay(d),s/veh	29.1	0.0	56.6				0.0	4.8	5.0	40.2	0.1	0.0
LnGrp LOS	C		E					A	A	D	A	
Approach Vol, veh/h		612						863			603	
Approach Delay, s/veh		46.2						4.9			14.1	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.9	45.1		28.0		62.0		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.5	32.5		24.5		56.5		
Max Q Clear Time (g_c+I1), s	12.1	6.6		23.0		2.0		
Green Ext Time (p_c), s	0.3	6.3		0.5		2.9		

Intersection Summary	
HCM 2010 Ctrl Delay	19.7
HCM 2010 LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	91	106	43	8	139	53	441	136	646
Future Volume (vph)	91	106	43	8	139	53	441	136	646
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.0	30.0	30.0	10.0	24.0	13.0	29.0	21.0	37.0
Total Split (%)	17.8%	33.3%	33.3%	11.1%	26.7%	14.4%	32.2%	23.3%	41.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	9.7	19.9	19.9	5.5	9.9	8.3	41.8	12.8	48.3
Actuated g/C Ratio	0.11	0.22	0.22	0.06	0.11	0.09	0.46	0.14	0.54
v/c Ratio	0.52	0.28	0.10	0.08	0.60	0.35	0.29	0.59	0.39
Control Delay	47.6	29.5	0.4	41.8	24.4	38.4	22.8	55.5	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	29.5	0.4	41.8	24.4	38.4	22.8	55.5	14.2
LOS	D	C	A	D	C	D	C	E	B
Approach Delay		31.1			24.9		24.4		21.0
Approach LOS		C			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 23.9	Intersection LOS: C
Intersection Capacity Utilization 51.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	106	43	8	139	131	53	441	5	136	646	38
Future Volume (veh/h)	91	106	43	8	139	131	53	441	5	136	646	38
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	99	115	47	9	151	142	58	479	5	148	702	41
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	127	341	289	20	220	192	75	1810	19	180	1915	112
Arrive On Green	0.07	0.18	0.18	0.01	0.12	0.12	0.01	0.17	0.17	0.20	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	1792	1565	1774	3588	37	1774	3399	198
Grp Volume(v), veh/h	99	115	47	9	149	144	58	236	248	148	365	378
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1587	1774	1770	1856	1774	1770	1828
Q Serve(g_s), s	4.9	4.8	2.2	0.5	7.3	7.9	2.9	10.5	10.5	7.2	0.0	0.0
Cycle Q Clear(g_c), s	4.9	4.8	2.2	0.5	7.3	7.9	2.9	10.5	10.5	7.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.99	1.00		0.02	1.00		0.11
Lane Grp Cap(c), veh/h	127	341	289	20	217	195	75	892	936	180	997	1030
V/C Ratio(X)	0.78	0.34	0.16	0.45	0.69	0.74	0.77	0.26	0.26	0.82	0.37	0.37
Avail Cap(c_a), veh/h	227	528	449	108	383	344	168	892	936	325	997	1030
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	0.89	0.89	0.89
Uniform Delay (d), s/veh	41.1	32.0	31.0	44.2	37.8	38.1	43.9	23.0	23.0	35.1	0.0	0.0
Incr Delay (d2), s/veh	10.0	0.6	0.3	15.3	3.8	5.4	14.8	0.7	0.7	8.0	0.9	0.9
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	2.8	2.5	1.0	0.3	3.8	3.7	1.8	5.3	5.6	3.9	0.3	0.3
LnGrp Delay(d),s/veh	51.1	32.6	31.2	59.5	41.6	43.5	58.8	23.7	23.6	43.1	0.9	0.9
LnGrp LOS	D	C	C	E	D	D	E	C	C	D	A	A
Approach Vol, veh/h		261			302			542			891	
Approach Delay, s/veh		39.4			43.1			27.4			7.9	
Approach LOS		D			D			C			A	

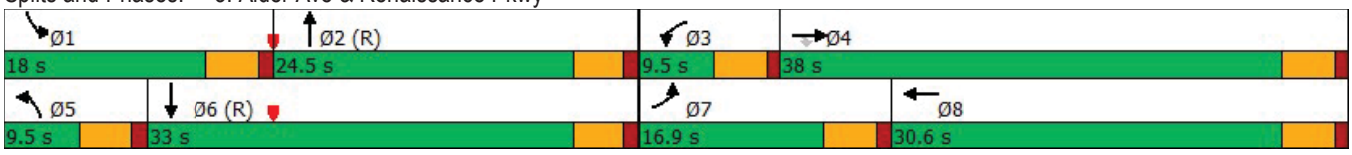
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	49.9	5.5	21.0	8.3	55.2	10.9	15.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	24.5	5.5	25.5	8.5	32.5	11.5	19.5
Max Q Clear Time (g_c+I1), s	9.2	12.5	2.5	6.8	4.9	2.0	6.9	9.9
Green Ext Time (p_c), s	0.2	2.3	0.0	0.7	0.0	5.2	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	22.6
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	104	566	99	12	36	17	503	204	448
Future Volume (vph)	104	566	99	12	36	17	503	204	448
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.9	38.0	38.0	9.5	30.6	9.5	24.5	18.0	33.0
Total Split (%)	18.8%	42.2%	42.2%	10.6%	34.0%	10.6%	27.2%	20.0%	36.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.5	35.0	35.0	5.0	24.2	5.8	24.6	15.0	40.0
Actuated g/C Ratio	0.12	0.39	0.39	0.06	0.27	0.06	0.27	0.17	0.44
v/c Ratio	0.57	0.87	0.15	0.13	0.18	0.17	0.63	0.77	0.40
Control Delay	48.2	39.6	0.9	43.7	8.0	41.4	37.8	47.5	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	39.6	0.9	43.7	8.0	41.4	37.8	47.5	19.3
LOS	D	D	A	D	A	D	D	D	B
Approach Delay		35.8			10.5		37.9		26.8
Approach LOS		D			B		D		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 31.4	Intersection LOS: C
Intersection Capacity Utilization 75.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	566	99	12	36	120	17	503	41	204	448	110
Future Volume (veh/h)	104	566	99	12	36	120	17	503	41	204	448	110
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	116	629	110	13	40	133	19	559	46	227	498	122
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	670	569	27	517	463	37	929	76	256	1141	278
Arrive On Green	0.08	0.36	0.36	0.02	0.29	0.29	0.01	0.09	0.09	0.29	0.81	0.81
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3312	272	1774	2823	688
Grp Volume(v), veh/h	116	629	110	13	40	133	19	298	307	227	311	309
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1815	1774	1770	1741
Q Serve(g_s), s	5.8	29.4	4.3	0.7	1.5	5.8	1.0	14.6	14.6	11.0	4.7	4.7
Cycle Q Clear(g_c), s	5.8	29.4	4.3	0.7	1.5	5.8	1.0	14.6	14.6	11.0	4.7	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.40
Lane Grp Cap(c), veh/h	147	670	569	27	517	463	37	497	509	256	715	704
V/C Ratio(X)	0.79	0.94	0.19	0.48	0.08	0.29	0.51	0.60	0.60	0.89	0.44	0.44
Avail Cap(c_a), veh/h	244	693	589	99	517	463	99	497	509	266	715	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.93	0.93	0.93
Uniform Delay (d), s/veh	40.5	27.9	19.8	43.9	23.1	24.6	44.2	36.0	36.0	31.3	5.6	5.6
Incr Delay (d2), s/veh	9.1	20.3	0.2	12.3	0.1	0.3	10.2	5.2	5.1	26.0	1.8	1.8
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	3.2	18.8	1.9	0.4	0.7	2.6	0.6	7.9	8.1	7.1	2.4	2.4
LnGrp Delay(d),s/veh	49.6	48.2	20.0	56.2	23.1	24.9	54.4	41.2	41.1	57.3	7.4	7.5
LnGrp LOS	D	D	B	E	C	C	D	D	D	E	A	A
Approach Vol, veh/h		855			186			624			847	
Approach Delay, s/veh		44.8			26.7			41.5			20.8	
Approach LOS		D			C			D			C	

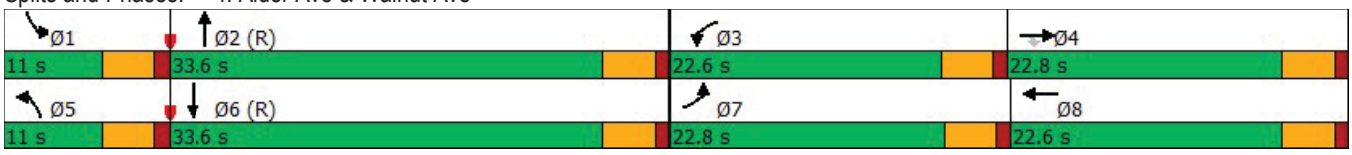
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	29.8	5.9	36.9	6.4	40.9	11.9	30.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	20.0	5.0	33.5	5.0	28.5	12.4	26.1
Max Q Clear Time (g_c+I1), s	13.0	16.6	2.7	31.4	3.0	6.7	7.8	7.8
Green Ext Time (p_c), s	0.0	1.2	0.0	1.0	0.0	3.9	0.1	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	34.5
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	34	5	16	10	0	31	466	35	553
Future Volume (vph)	34	5	16	10	0	31	466	35	553
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.8	22.8	22.8	22.6	22.6	11.0	33.6	11.0	33.6
Total Split (%)	25.3%	25.3%	25.3%	25.1%	25.1%	12.2%	37.3%	12.2%	37.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	7.4	6.9	6.9	6.2	5.5	7.3	69.7	7.5	69.8
Actuated g/C Ratio	0.08	0.08	0.08	0.07	0.06	0.08	0.77	0.08	0.78
v/c Ratio	0.26	0.04	0.08	0.09	0.01	0.24	0.20	0.27	0.27
Control Delay	42.5	38.2	0.6	40.5	0.0	42.3	6.1	22.2	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	38.2	0.6	40.5	0.0	42.3	6.1	22.2	17.9
LOS	D	D	A	D	A	D	A	C	B
Approach Delay		29.9			31.8		8.3		18.1
Approach LOS		C			C		A		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.27	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 42.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	5	16	10	0	3	31	466	10	35	553	99
Future Volume (veh/h)	34	5	16	10	0	3	31	466	10	35	553	99
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	38	6	18	11	0	3	35	524	11	39	621	111
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	83	71	72	0	61	57	2412	51	61	2049	366
Arrive On Green	0.05	0.04	0.04	0.04	0.00	0.04	0.06	1.00	1.00	0.07	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3545	74	1774	3002	536
Grp Volume(v), veh/h	38	6	18	11	0	3	35	261	274	39	366	366
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1850	1774	1770	1768
Q Serve(g_s), s	1.9	0.3	1.0	0.5	0.0	0.2	1.7	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	1.9	0.3	1.0	0.5	0.0	0.2	1.7	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		0.30
Lane Grp Cap(c), veh/h	83	83	71	72	0	61	57	1204	1258	61	1208	1207
V/C Ratio(X)	0.46	0.07	0.25	0.15	0.00	0.05	0.61	0.22	0.22	0.64	0.30	0.30
Avail Cap(c_a), veh/h	361	379	322	357	0	318	128	1204	1258	128	1208	1207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	41.8	41.2	41.5	41.7	0.0	41.7	41.5	0.0	0.0	41.3	0.0	0.0
Incr Delay (d2), s/veh	3.9	0.4	1.9	1.0	0.0	0.3	10.0	0.4	0.4	9.7	0.6	0.6
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	1.0	0.2	0.5	0.3	0.0	0.1	1.0	0.1	0.1	1.1	0.2	0.2
LnGrp Delay(d),s/veh	45.7	41.6	43.4	42.7	0.0	42.0	51.5	0.4	0.4	51.1	0.6	0.6
LnGrp LOS	D	D	D	D		D	D	A	A	D	A	A
Approach Vol, veh/h		62			14			570			771	
Approach Delay, s/veh		44.7			42.5			3.5			3.2	
Approach LOS		D			D			A			A	

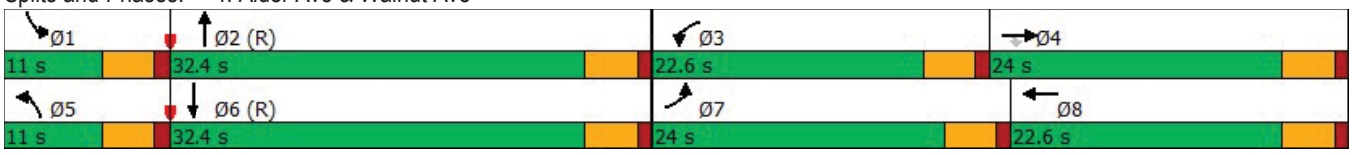
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	65.7	8.1	8.5	7.4	65.9	8.7	8.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	29.1	18.1	18.3	6.5	29.1	18.3	18.1
Max Q Clear Time (g_c+I1), s	3.9	2.0	2.5	3.0	3.7	2.0	3.9	2.2
Green Ext Time (p_c), s	0.0	3.4	0.0	0.0	0.0	5.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.5
HCM 2010 LOS	A

Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	78	23	3	0	22	551	20	507
Future Volume (vph)	78	23	3	0	22	551	20	507
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7		3	8	5	2	1	6
Permitted Phases		4						
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	24.0	24.0	22.6	22.6	11.0	32.4	11.0	32.4
Total Split (%)	26.7%	26.7%	25.1%	25.1%	12.2%	36.0%	12.2%	36.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	9.4	9.2	5.8	5.5	6.8	67.7	6.6	67.6
Actuated g/C Ratio	0.10	0.10	0.06	0.06	0.08	0.75	0.07	0.75
v/c Ratio	0.43	0.04	0.03	0.00	0.17	0.22	0.16	0.23
Control Delay	44.3	0.1	39.7	0.0	41.4	6.3	23.4	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	0.1	39.7	0.0	41.4	6.3	23.4	13.5
LOS	D	A	D	A	D	A	C	B
Approach Delay				23.8		7.6		13.8
Approach LOS				C		A		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 36.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	0	23	3	0	2	22	551	5	20	507	74
Future Volume (veh/h)	78	0	23	3	0	2	22	551	5	20	507	74
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	80	0	24	3	0	2	23	568	5	21	523	76
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	96	82	87	0	59	43	2433	21	40	2095	303
Arrive On Green	0.06	0.00	0.05	0.05	0.00	0.04	0.05	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3595	32	1774	3104	449
Grp Volume(v), veh/h	80	0	24	3	0	2	23	280	293	21	297	302
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1857	1774	1770	1783
Q Serve(g_s), s	4.0	0.0	1.3	0.1	0.0	0.1	1.1	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	4.0	0.0	1.3	0.1	0.0	0.1	1.1	0.0	0.0	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		0.25
Lane Grp Cap(c), veh/h	112	96	82	87	0	59	43	1198	1257	40	1195	1204
V/C Ratio(X)	0.71	0.00	0.29	0.03	0.00	0.03	0.53	0.23	0.23	0.52	0.25	0.25
Avail Cap(c_a), veh/h	384	404	343	357	0	318	128	1198	1257	128	1195	1204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	41.4	0.0	41.1	40.8	0.0	41.8	42.3	0.0	0.0	42.5	0.0	0.0
Incr Delay (d2), s/veh	8.1	0.0	2.0	0.2	0.0	0.2	9.9	0.5	0.4	9.5	0.5	0.5
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	2.2	0.0	0.6	0.1	0.0	0.1	0.7	0.2	0.2	0.6	0.2	0.2
LnGrp Delay(d),s/veh	49.5	0.0	43.1	40.9	0.0	42.0	52.2	0.5	0.4	52.0	0.5	0.5
LnGrp LOS	D		D	D		D	D	A	A	D	A	A
Approach Vol, veh/h		104			5			596			620	
Approach Delay, s/veh		48.0			41.4			2.4			2.2	
Approach LOS		D			D			A			A	

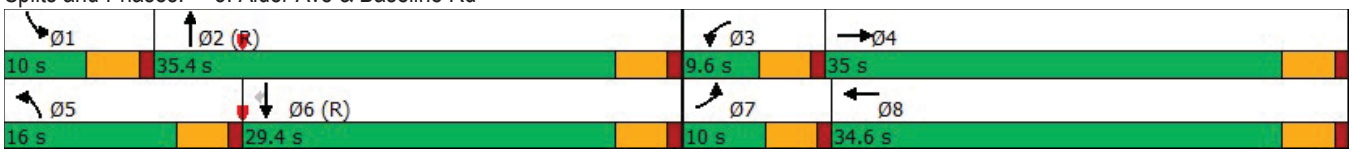
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	65.4	8.9	9.1	6.7	65.3	10.2	7.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	27.9	18.1	19.5	6.5	27.9	19.5	18.1
Max Q Clear Time (g_c+I1), s	3.0	2.0	2.1	3.3	3.1	2.0	6.0	2.1
Green Ext Time (p_c), s	0.0	3.6	0.0	0.0	0.0	3.9	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.1
HCM 2010 LOS	A

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	57	415	40	387	152	308	60	298	77
Future Volume (vph)	57	415	40	387	152	308	60	298	77
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	10.0	35.0	9.6	34.6	16.0	35.4	10.0	29.4	29.4
Total Split (%)	11.1%	38.9%	10.7%	38.4%	17.8%	39.3%	11.1%	32.7%	32.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.5	31.6	5.1	29.4	11.7	35.2	6.0	27.4	27.4
Actuated g/C Ratio	0.06	0.35	0.06	0.33	0.13	0.39	0.07	0.30	0.30
v/c Ratio	0.65	0.91	0.49	0.87	0.82	0.73	0.63	0.65	0.16
Control Delay	69.6	49.0	71.4	32.6	66.4	32.0	65.7	34.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.6	49.0	71.4	32.6	66.4	32.0	65.7	34.8	0.5
LOS	E	D	E	C	E	C	E	C	A
Approach Delay		51.2		35.9		41.1		33.0	
Approach LOS		D		D		D		C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 40.8	Intersection LOS: D
Intersection Capacity Utilization 72.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	415	64	40	387	40	152	308	115	60	298	77
Future Volume (veh/h)	57	415	64	40	387	40	152	308	115	60	298	77
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	70	512	79	49	478	49	188	380	142	74	368	95
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	534	82	70	544	56	222	476	178	95	553	470
Arrive On Green	0.05	0.34	0.34	0.04	0.33	0.33	0.12	0.37	0.37	0.02	0.10	0.10
Sat Flow, veh/h	1774	1577	243	1774	1662	170	1774	1294	484	1774	1863	1583
Grp Volume(v), veh/h	70	0	591	49	0	527	188	0	522	74	368	95
Grp Sat Flow(s),veh/h/ln	1774	0	1820	1774	0	1833	1774	0	1777	1774	1863	1583
Q Serve(g_s), s	3.5	0.0	28.6	2.5	0.0	24.4	9.3	0.0	23.6	3.7	17.2	5.0
Cycle Q Clear(g_c), s	3.5	0.0	28.6	2.5	0.0	24.4	9.3	0.0	23.6	3.7	17.2	5.0
Prop In Lane	1.00		0.13	1.00		0.09	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	90	0	617	70	0	600	222	0	654	95	553	470
V/C Ratio(X)	0.78	0.00	0.96	0.70	0.00	0.88	0.85	0.00	0.80	0.78	0.67	0.20
Avail Cap(c_a), veh/h	108	0	617	101	0	613	227	0	654	108	553	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.75	0.00	0.75	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	0.0	29.1	42.7	0.0	28.6	38.5	0.0	25.4	43.7	36.3	30.8
Incr Delay (d2), s/veh	25.2	0.0	26.2	9.4	0.0	10.6	24.5	0.0	9.8	26.1	6.2	1.0
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	2.3	0.0	18.8	1.4	0.0	14.1	6.1	0.0	13.4	2.5	9.8	2.3
LnGrp Delay(d),s/veh	67.4	0.0	55.3	52.1	0.0	39.2	63.0	0.0	35.2	69.8	42.5	31.7
LnGrp LOS	E		E	D		D	E		D	E	D	C
Approach Vol, veh/h		661			576			710			537	
Approach Delay, s/veh		56.6			40.3			42.6			44.3	
Approach LOS		E			D			D			D	

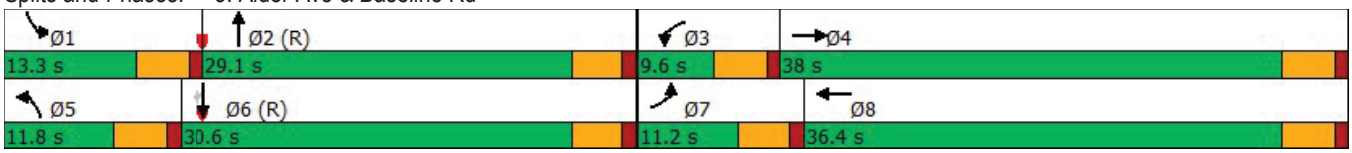
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	37.6	8.0	35.0	15.7	31.2	9.1	34.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	30.9	5.1	30.5	11.5	24.9	5.5	30.1
Max Q Clear Time (g_c+I1), s	5.7	25.6	4.5	30.6	11.3	19.2	5.5	26.4
Green Ext Time (p_c), s	0.0	1.6	0.0	0.0	0.0	1.3	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	46.2
HCM 2010 LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	44	479	33	281	54	333	101	280	70
Future Volume (vph)	44	479	33	281	54	333	101	280	70
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	11.2	38.0	9.6	36.4	11.8	29.1	13.3	30.6	30.6
Total Split (%)	12.4%	42.2%	10.7%	40.4%	13.1%	32.3%	14.8%	34.0%	34.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.4	31.4	5.1	30.5	6.9	33.1	8.5	34.4	34.4
Actuated g/C Ratio	0.07	0.35	0.06	0.34	0.08	0.37	0.09	0.38	0.38
v/c Ratio	0.37	0.91	0.35	0.57	0.42	0.58	0.64	0.41	0.11
Control Delay	48.2	46.5	63.2	19.5	49.4	30.7	57.3	26.0	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	46.5	63.2	19.5	49.4	30.7	57.3	26.0	1.4
LOS	D	D	E	B	D	C	E	C	A
Approach Delay		46.7		23.4		33.0		29.2	
Approach LOS		D		C		C		C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 34.6	Intersection LOS: C
Intersection Capacity Utilization 73.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	479	74	33	281	56	54	333	42	101	280	70
Future Volume (veh/h)	44	479	74	33	281	56	54	333	42	101	280	70
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	46	504	78	35	296	59	57	351	44	106	295	74
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	544	84	57	513	102	75	562	70	135	708	602
Arrive On Green	0.04	0.35	0.35	0.03	0.34	0.34	0.04	0.35	0.35	0.03	0.13	0.13
Sat Flow, veh/h	1774	1576	244	1774	1509	301	1774	1623	203	1774	1863	1583
Grp Volume(v), veh/h	46	0	582	35	0	355	57	0	395	106	295	74
Grp Sat Flow(s),veh/h/ln	1774	0	1820	1774	0	1810	1774	0	1827	1774	1863	1583
Q Serve(g_s), s	2.3	0.0	27.7	1.8	0.0	14.5	2.9	0.0	16.2	5.3	13.2	3.7
Cycle Q Clear(g_c), s	2.3	0.0	27.7	1.8	0.0	14.5	2.9	0.0	16.2	5.3	13.2	3.7
Prop In Lane	1.00		0.13	1.00		0.17	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	67	0	628	57	0	615	75	0	632	135	708	602
V/C Ratio(X)	0.68	0.00	0.93	0.61	0.00	0.58	0.76	0.00	0.62	0.78	0.42	0.12
Avail Cap(c_a), veh/h	132	0	677	101	0	641	144	0	632	173	708	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.80	0.00	0.80	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	0.0	28.4	43.0	0.0	24.4	42.7	0.0	24.5	43.1	30.1	26.0
Incr Delay (d2), s/veh	11.5	0.0	18.2	8.0	0.0	0.9	14.6	0.0	4.6	16.2	1.8	0.4
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	1.3	0.0	17.1	1.0	0.0	7.4	1.7	0.0	8.9	3.2	7.1	1.7
LnGrp Delay(d),s/veh	54.3	0.0	46.5	51.0	0.0	25.4	57.3	0.0	29.2	59.3	31.9	26.4
LnGrp LOS	D		D	D		C	E		C	E	C	C
Approach Vol, veh/h		628			390			452			475	
Approach Delay, s/veh		47.1			27.7			32.7			37.2	
Approach LOS		D			C			C			D	

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	11.4	35.7	7.4	35.6	8.3	38.7	7.9	35.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.8	24.6	5.1	33.5	7.3	26.1	6.7	31.9
Max Q Clear Time (g_c+I1), s	7.3	18.2	3.8	29.7	4.9	15.2	4.3	16.5
Green Ext Time (p_c), s	0.0	1.3	0.0	1.4	0.0	1.5	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	37.4
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	5.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	34	13	11	22	5	29
Future Vol, veh/h	34	13	11	22	5	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	17	14	29	7	38

Major/Minor	Minor2		Major2	
Conflicting Flow All	57	29	0	0
Stage 1	57	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	834	1046	-	-
Stage 1	847	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1046	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.7	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1046	-	-
HCM Lane V/C Ratio	0.059	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	46	9	49	30	15	44
Future Vol, veh/h	46	9	49	30	15	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	12	64	39	20	58

Major/Minor	Minor2		Major2	
Conflicting Flow All	167	39	0	0
Stage 1	167	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	726	1033	-	-
Stage 1	760	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1033	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.7	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1033	-	-
HCM Lane V/C Ratio	0.07	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection	
Int Delay, s/veh	14.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	482	144	80	518	13	83	5	59	1	3	7
Future Vol, veh/h	20	482	144	80	518	13	83	5	59	1	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	610	182	101	656	16	105	6	75	1	4	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	672	0	0	792	0	0	1192	1534	610	1658	1708	336
Stage 1	-	-	-	-	-	-	660	660	-	866	866	-
Stage 2	-	-	-	-	-	-	532	874	-	792	842	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	917	-	-	827	-	-	153	116	493	71	91	661
Stage 1	-	-	-	-	-	-	451	459	-	315	369	-
Stage 2	-	-	-	-	-	-	500	366	-	382	379	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	917	-	-	827	-	-	129	99	493	51	78	661
Mov Cap-2 Maneuver	-	-	-	-	-	-	129	99	-	51	78	-
Stage 1	-	-	-	-	-	-	439	447	-	306	324	-
Stage 2	-	-	-	-	-	-	428	321	-	311	369	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.3	127.3	29.6
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	181	917	-	-	827	-	-	160
HCM Lane V/C Ratio	1.028	0.028	-	-	0.122	-	-	0.087
HCM Control Delay (s)	127.3	9	-	-	10	-	-	29.6
HCM Lane LOS	F	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	8.7	0.1	-	-	0.4	-	-	0.3

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	558	72	39	366	1	57	7	35	7	6	22
Future Vol, veh/h	11	558	72	39	366	1	57	7	35	7	6	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	613	79	43	402	1	63	8	38	8	7	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	403	0	0	692	0	0	928	1126	613	1189	1205	202
Stage 1	-	-	-	-	-	-	637	637	-	489	489	-
Stage 2	-	-	-	-	-	-	291	489	-	700	716	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1154	-	-	901	-	-	235	204	492	154	183	806
Stage 1	-	-	-	-	-	-	465	470	-	530	548	-
Stage 2	-	-	-	-	-	-	693	548	-	429	433	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1154	-	-	901	-	-	212	192	492	132	172	806
Mov Cap-2 Maneuver	-	-	-	-	-	-	212	192	-	132	172	-
Stage 1	-	-	-	-	-	-	460	465	-	525	522	-
Stage 2	-	-	-	-	-	-	632	522	-	385	429	-

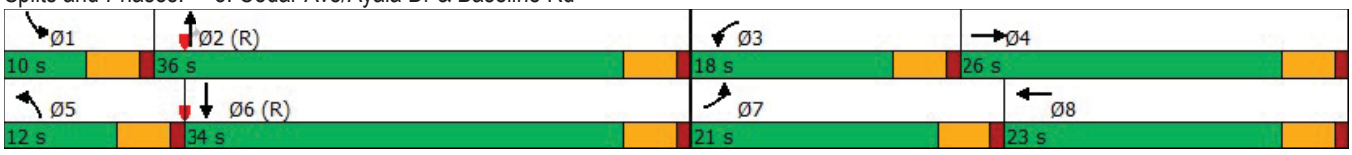
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	28	18.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	263	1154	-	-	901	-	-	304
HCM Lane V/C Ratio	0.414	0.01	-	-	0.048	-	-	0.127
HCM Control Delay (s)	28	8.2	-	-	9.2	-	-	18.6
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.9	0	-	-	0.1	-	-	0.4

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	146	302	113	360	113	521	87	37	586
Future Volume (vph)	146	302	113	360	113	521	87	37	586
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	21.0	26.0	18.0	23.0	12.0	36.0	36.0	10.0	34.0
Total Split (%)	23.3%	28.9%	20.0%	25.6%	13.3%	40.0%	40.0%	11.1%	37.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	12.8	17.3	10.9	15.5	7.8	41.8	41.8	6.1	35.9
Actuated g/C Ratio	0.14	0.19	0.12	0.17	0.09	0.46	0.46	0.07	0.40
v/c Ratio	0.62	0.64	0.56	0.68	0.40	0.35	0.11	0.17	0.51
Control Delay	40.8	19.5	47.0	39.8	42.8	18.6	1.7	41.4	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	19.5	47.0	39.8	42.8	18.6	1.7	41.4	22.7
LOS	D	B	D	D	D	B	A	D	C
Approach Delay		24.9		41.4		20.6			23.7
Approach LOS		C		D		C			C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 26.6	Intersection LOS: C
Intersection Capacity Utilization 57.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	302	124	113	360	30	113	521	87	37	586	85
Future Volume (veh/h)	146	302	124	113	360	30	113	521	87	37	586	85
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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	154	318	131	119	379	32	119	548	92	39	617	89
Adj No. of Lanes	1	2	0	1	2	0	2	2	1	2	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	418	169	150	487	41	188	1903	809	119	1530	220
Arrive On Green	0.11	0.17	0.17	0.08	0.15	0.15	0.05	0.51	0.51	0.03	0.49	0.49
Sat Flow, veh/h	1774	2462	994	1774	3306	278	3548	3725	1583	3442	3106	447
Grp Volume(v), veh/h	154	227	222	119	202	209	119	548	92	39	351	355
Grp Sat Flow(s),veh/h/ln	1774	1770	1687	1774	1770	1814	1774	1863	1583	1721	1770	1784
Q Serve(g_s), s	7.6	11.0	11.3	5.9	9.9	10.0	3.0	7.6	2.7	1.0	11.3	11.3
Cycle Q Clear(g_c), s	7.6	11.0	11.3	5.9	9.9	10.0	3.0	7.6	2.7	1.0	11.3	11.3
Prop In Lane	1.00		0.59	1.00		0.15	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	190	300	286	150	261	267	188	1903	809	119	871	878
V/C Ratio(X)	0.81	0.75	0.78	0.79	0.77	0.78	0.63	0.29	0.11	0.33	0.40	0.40
Avail Cap(c_a), veh/h	325	423	403	266	364	373	296	1903	809	210	871	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.35	0.35	0.35	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	35.6	35.7	40.4	36.9	37.0	41.8	12.6	11.4	42.4	14.5	14.5
Incr Delay (d2), s/veh	3.0	1.7	2.2	8.9	6.7	7.0	3.5	0.4	0.3	1.6	1.4	1.4
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	3.9	5.5	5.4	3.3	5.3	5.5	1.5	4.0	1.2	0.5	5.8	5.9
LnGrp Delay(d),s/veh	42.3	37.3	37.9	49.3	43.7	43.9	45.2	13.0	11.7	44.0	15.8	15.9
LnGrp LOS	D	D	D	D	D	D	D	B	B	D	B	B
Approach Vol, veh/h		603			530			759			745	
Approach Delay, s/veh		38.8			45.0			17.9			17.3	
Approach LOS		D			D			B			B	

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	7.6	50.5	12.1	19.8	9.3	48.8	14.1	17.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	31.5	13.5	21.5	7.5	29.5	16.5	18.5
Max Q Clear Time (g_c+I1), s	3.0	9.6	7.9	13.3	5.0	13.3	9.6	12.0
Green Ext Time (p_c), s	0.0	4.1	0.1	1.7	0.1	4.1	0.2	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

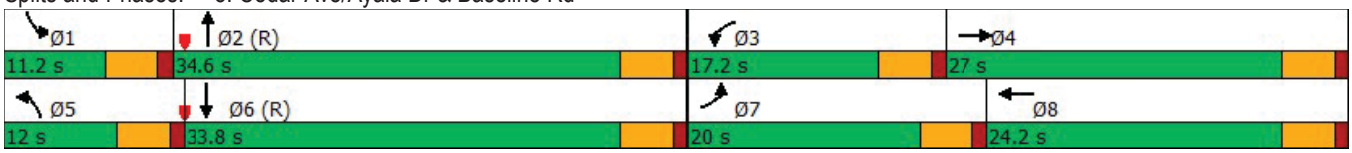
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	143	427	112	369	114	497	100	563
Future Volume (vph)	143	427	112	369	114	497	100	563
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	20.0	27.0	17.2	24.2	12.0	34.6	11.2	33.8
Total Split (%)	22.2%	30.0%	19.1%	26.9%	13.3%	38.4%	12.4%	37.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.4	21.5	10.6	17.4	7.5	37.4	6.9	34.8
Actuated g/C Ratio	0.14	0.24	0.12	0.19	0.08	0.42	0.08	0.39
v/c Ratio	0.61	0.68	0.57	0.62	0.42	0.44	0.39	0.52
Control Delay	44.6	20.4	47.9	36.1	43.9	21.1	44.2	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	20.4	47.9	36.1	43.9	21.1	44.2	23.4
LOS	D	C	D	D	D	C	D	C
Approach Delay		25.3		38.7		24.7		26.1
Approach LOS		C		D		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 27.9	Intersection LOS: C
Intersection Capacity Utilization 60.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	427	125	112	369	36	114	497	114	100	563	111
Future Volume (veh/h)	143	427	125	112	369	36	114	497	114	100	563	111
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	149	445	130	117	384	38	119	518	119	104	586	116
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	2	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	545	158	148	589	58	186	1328	304	177	1360	268
Arrive On Green	0.10	0.20	0.20	0.08	0.18	0.18	0.05	0.46	0.46	0.05	0.46	0.46
Sat Flow, veh/h	1774	2709	785	1774	3255	320	3442	2862	655	3442	2948	582
Grp Volume(v), veh/h	149	289	286	117	208	214	119	319	318	104	351	351
Grp Sat Flow(s),veh/h/ln	1774	1770	1724	1774	1770	1806	1721	1770	1747	1721	1770	1760
Q Serve(g_s), s	7.4	14.1	14.3	5.8	9.8	9.9	3.0	10.6	10.7	2.7	12.0	12.1
Cycle Q Clear(g_c), s	7.4	14.1	14.3	5.8	9.8	9.9	3.0	10.6	10.7	2.7	12.0	12.1
Prop In Lane	1.00		0.46	1.00		0.18	1.00		0.37	1.00		0.33
Lane Grp Cap(c), veh/h	184	356	347	148	320	327	186	821	810	177	816	812
V/C Ratio(X)	0.81	0.81	0.82	0.79	0.65	0.66	0.64	0.39	0.39	0.59	0.43	0.43
Avail Cap(c_a), veh/h	306	442	431	250	387	395	287	821	810	256	816	812
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.38	0.38	0.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	34.3	34.4	40.5	34.2	34.3	41.7	15.8	15.8	41.8	16.3	16.3
Incr Delay (d2), s/veh	3.3	3.7	4.1	9.1	2.8	2.9	3.7	1.4	1.4	3.1	1.7	1.7
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	3.8	7.2	7.1	3.2	5.0	5.2	1.5	5.5	5.4	1.3	6.2	6.2
LnGrp Delay(d),s/veh	42.8	38.0	38.5	49.5	37.0	37.1	45.4	17.2	17.2	44.8	17.9	18.0
LnGrp LOS	D	D	D	D	D	D	D	B	B	D	B	B
Approach Vol, veh/h		724			539			756			806	
Approach Delay, s/veh		39.2			39.8			21.6			21.4	
Approach LOS		D			D			C			C	

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	9.1	46.2	12.0	22.6	9.4	46.0	13.8	20.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	30.1	12.7	22.5	7.5	29.3	15.5	19.7
Max Q Clear Time (g_c+I1), s	4.7	12.7	7.8	16.3	5.0	14.1	9.4	11.9
Green Ext Time (p_c), s	0.0	3.7	0.1	1.9	0.1	3.9	0.2	1.5

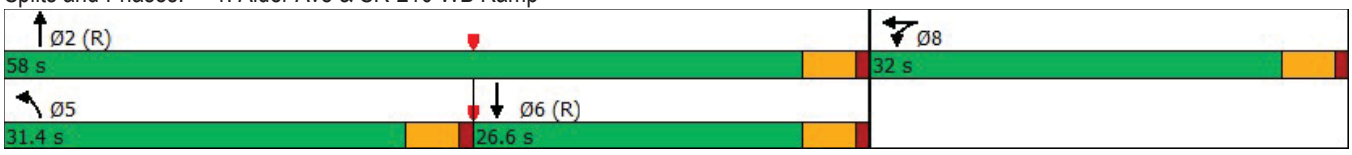
Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

- Project Completion 2020 Baseline Conditions

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	304	2	298	400	196
Future Volume (vph)	304	2	298	400	196
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	32.0	32.0	31.4	58.0	26.6
Total Split (%)	35.6%	35.6%	34.9%	64.4%	29.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	22.6	22.6	21.8	58.4	32.1
Actuated g/C Ratio	0.25	0.25	0.24	0.65	0.36
v/c Ratio	0.78	0.37	0.79	0.20	0.49
Control Delay	43.4	5.8	41.2	7.0	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	5.8	41.2	7.0	9.4
LOS	D	A	D	A	A
Approach Delay		29.5		21.6	9.4
Approach LOS		C		C	A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 19.5	Intersection LOS: B
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	304	2	177	298	400	0	0	196	427
Future Volume (veh/h)	0	0	0	304	2	177	298	400	0	0	196	427
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				345	2	201	339	455	0	0	223	485
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				417	4	369	384	2353	0	0	705	631
Arrive On Green				0.24	0.24	0.24	0.43	1.00	0.00	0.00	0.40	0.40
Sat Flow, veh/h				1774	16	1570	1774	3632	0	0	1863	1583
Grp Volume(v), veh/h				345	0	203	339	455	0	0	223	485
Grp Sat Flow(s),veh/h/ln				1774	0	1586	1774	1770	0	0	1770	1583
Q Serve(g_s), s				16.6	0.0	10.1	15.8	0.0	0.0	0.0	7.8	23.9
Cycle Q Clear(g_c), s				16.6	0.0	10.1	15.8	0.0	0.0	0.0	7.8	23.9
Prop In Lane				1.00		0.99	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				417	0	373	384	2353	0	0	705	631
V/C Ratio(X)				0.83	0.00	0.54	0.88	0.19	0.00	0.00	0.32	0.77
Avail Cap(c_a), veh/h				542	0	485	530	2353	0	0	705	631
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.91	0.91	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.7	0.0	30.2	24.5	0.0	0.0	0.0	18.6	23.5
Incr Delay (d2), s/veh				8.0	0.0	1.2	11.5	0.2	0.0	0.0	1.2	8.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.1	0.0	4.5	8.8	0.1	0.0	0.0	4.0	11.9
LnGrp Delay(d),s/veh				40.7	0.0	31.4	36.0	0.2	0.0	0.0	19.8	32.2
LnGrp LOS				D		C	D	A			B	C
Approach Vol, veh/h					548			794			708	
Approach Delay, s/veh					37.3			15.5			28.3	
Approach LOS					D			B			C	

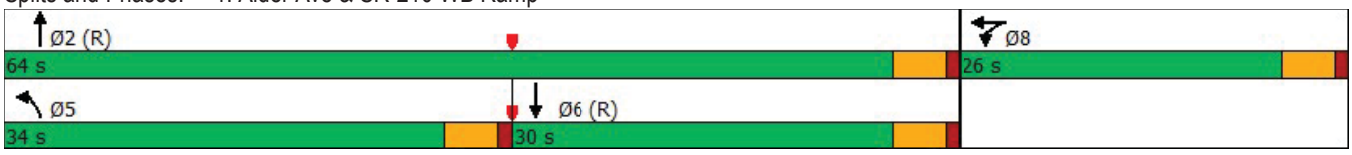
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		64.3			24.0	40.4		25.7
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		53.5			26.9	22.1		27.5
Max Q Clear Time (g_c+I1), s		3.0			18.8	26.9		19.6
Green Ext Time (p_c), s		3.4			0.7	0.0		1.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	253	5	365	419	344
Future Volume (vph)	253	5	365	419	344
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	26.0	26.0	34.0	64.0	30.0
Total Split (%)	28.9%	28.9%	37.8%	71.1%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	18.6	18.6	25.4	62.4	32.5
Actuated g/C Ratio	0.21	0.21	0.28	0.69	0.36
v/c Ratio	0.80	0.31	0.84	0.20	0.63
Control Delay	50.1	8.1	41.3	10.0	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	8.1	41.3	10.0	17.8
LOS	D	A	D	B	B
Approach Delay		37.0		24.6	17.8
Approach LOS		D		C	B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 24.3	Intersection LOS: C
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	253	5	110	365	419	0	0	344	416
Future Volume (veh/h)	0	0	0	253	5	110	365	419	0	0	344	416
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				291	6	126	420	482	0	0	395	478
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				352	14	302	460	2482	0	0	694	621
Arrive On Green				0.20	0.20	0.20	0.52	1.00	0.00	0.00	0.39	0.39
Sat Flow, veh/h				1774	72	1522	1774	3632	0	0	1863	1583
Grp Volume(v), veh/h				291	0	132	420	482	0	0	395	478
Grp Sat Flow(s),veh/h/ln				1774	0	1594	1774	1770	0	0	1770	1583
Q Serve(g_s), s				14.2	0.0	6.5	19.5	0.0	0.0	0.0	15.7	23.7
Cycle Q Clear(g_c), s				14.2	0.0	6.5	19.5	0.0	0.0	0.0	15.7	23.7
Prop In Lane				1.00		0.95	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				352	0	317	460	2482	0	0	694	621
V/C Ratio(X)				0.83	0.00	0.42	0.91	0.19	0.00	0.00	0.57	0.77
Avail Cap(c_a), veh/h				424	0	381	581	2482	0	0	694	621
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.83	0.83	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.6	0.0	31.5	20.8	0.0	0.0	0.0	21.4	23.8
Incr Delay (d2), s/veh				10.8	0.0	0.9	14.2	0.1	0.0	0.0	3.4	8.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.0	0.0	2.9	11.1	0.0	0.0	0.0	8.3	11.8
LnGrp Delay(d),s/veh				45.4	0.0	32.4	35.0	0.1	0.0	0.0	24.8	32.7
LnGrp LOS				D		C	C	A			C	C
Approach Vol, veh/h					423			902			873	
Approach Delay, s/veh					41.3			16.4			29.1	
Approach LOS					D			B			C	

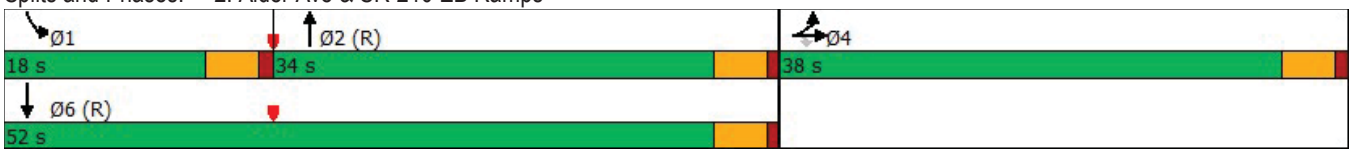
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		67.6			27.8	39.8		22.4
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		59.5			29.5	25.5		21.5
Max Q Clear Time (g_c+I1), s		3.0			22.5	26.7		17.2
Green Ext Time (p_c), s		3.7			0.8	0.0		0.7

Intersection Summary		
HCM 2010 Ctrl Delay		26.2
HCM 2010 LOS		C

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	1	486	398	105	383
Future Volume (vph)	1	486	398	105	383
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	38.0	38.0	34.0	18.0	52.0
Total Split (%)	42.2%	42.2%	37.8%	20.0%	57.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	23.0	23.0	44.9	10.8	58.0
Actuated g/C Ratio	0.26	0.26	0.50	0.12	0.64
v/c Ratio	0.66	0.70	0.42	0.51	0.17
Control Delay	36.2	11.0	10.2	33.6	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	11.0	10.2	33.6	12.2
LOS	D	B	B	C	B
Approach Delay	20.4		10.2		16.8
Approach LOS	C		B		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	289	1	486	0	0	0	0	398	321	105	383	0
Future Volume (veh/h)	289	1	486	0	0	0	0	398	321	105	383	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	298	1	501				0	410	331	108	395	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	607	2	544				0	803	643	137	1970	0
Arrive On Green	0.34	0.34	0.34				0.00	0.57	0.57	0.10	0.74	0.00
Sat Flow, veh/h	1768	6	1583				0	1963	1498	1774	3632	0
Grp Volume(v), veh/h	299	0	501				0	388	353	108	395	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1770	1598	1774	1770	0
Q Serve(g_s), s	12.0	0.0	27.4				0.0	11.9	12.1	5.3	3.1	0.0
Cycle Q Clear(g_c), s	12.0	0.0	27.4				0.0	11.9	12.1	5.3	3.1	0.0
Prop In Lane	1.00		1.00				0.00		0.94	1.00		0.00
Lane Grp Cap(c), veh/h	609	0	544				0	760	686	137	1970	0
V/C Ratio(X)	0.49	0.00	0.92				0.00	0.51	0.51	0.79	0.20	0.00
Avail Cap(c_a), veh/h	660	0	589				0	760	686	266	1970	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.95	0.95	0.78	0.78	0.00
Uniform Delay (d), s/veh	23.3	0.0	28.4				0.0	13.6	13.6	39.6	5.6	0.0
Incr Delay (d2), s/veh	0.6	0.0	19.2				0.0	2.3	2.6	7.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	14.7				0.0	6.2	5.8	2.9	1.5	0.0
LnGrp Delay(d),s/veh	23.9	0.0	47.6				0.0	15.9	16.2	47.3	5.8	0.0
LnGrp LOS	C		D					B	B	D	A	
Approach Vol, veh/h		800						741			503	
Approach Delay, s/veh		38.8						16.0			14.7	
Approach LOS		D						B			B	

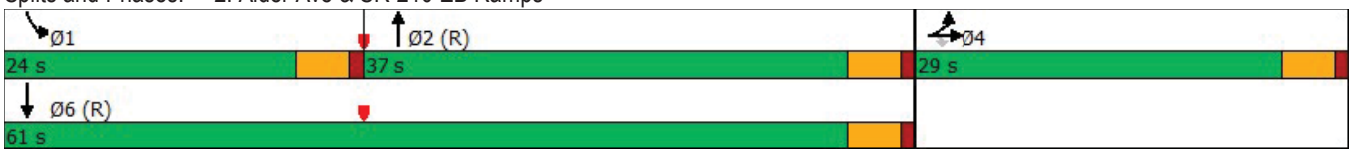
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.5	43.1		35.4		54.6		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	13.5	29.5		33.5		47.5		
Max Q Clear Time (g_c+I1), s	7.3	14.1		29.4		5.1		
Green Ext Time (p_c), s	0.1	4.4		1.6		2.9		

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	3	380	508	210	392
Future Volume (vph)	3	380	508	210	392
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	29.0	29.0	37.0	24.0	61.0
Total Split (%)	32.2%	32.2%	41.1%	26.7%	67.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	18.5	18.5	42.3	15.7	62.5
Actuated g/C Ratio	0.21	0.21	0.47	0.17	0.69
v/c Ratio	0.66	0.62	0.54	0.71	0.17
Control Delay	41.3	7.6	7.8	40.5	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	7.6	7.8	40.5	7.8
LOS	D	A	A	D	A
Approach Delay	20.4		7.8		19.2
Approach LOS	C		A		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	3	380	0	0	0	0	508	355	210	392	0
Future Volume (veh/h)	229	3	380	0	0	0	0	508	355	210	392	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	239	3	396				0	529	370	219	408	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	470	6	425				0	875	612	253	2235	0
Arrive On Green	0.27	0.27	0.27				0.00	0.88	0.88	0.29	1.00	0.00
Sat Flow, veh/h	1753	22	1583				0	2086	1393	1774	3632	0
Grp Volume(v), veh/h	242	0	396				0	470	429	219	408	0
Grp Sat Flow(s),veh/h/ln	1775	0	1583				0	1770	1617	1774	1770	0
Q Serve(g_s), s	10.4	0.0	22.0				0.0	6.2	6.2	10.5	0.0	0.0
Cycle Q Clear(g_c), s	10.4	0.0	22.0				0.0	6.2	6.2	10.5	0.0	0.0
Prop In Lane	0.99		1.00				0.00		0.86	1.00		0.00
Lane Grp Cap(c), veh/h	476	0	425				0	777	710	253	2235	0
V/C Ratio(X)	0.51	0.00	0.93				0.00	0.60	0.60	0.87	0.18	0.00
Avail Cap(c_a), veh/h	483	0	431				0	777	710	384	2235	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.67	0.67	0.69	0.69	0.00
Uniform Delay (d), s/veh	27.9	0.0	32.1				0.0	3.5	3.5	31.3	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	26.9				0.0	2.4	2.6	8.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	12.7				0.0	3.1	2.9	5.7	0.0	0.0
LnGrp Delay(d),s/veh	28.7	0.0	59.1				0.0	5.8	6.0	40.3	0.1	0.0
LnGrp LOS	C		E					A	A	D	A	
Approach Vol, veh/h		638						899			627	
Approach Delay, s/veh		47.6						5.9			14.2	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.3	44.0		28.7		61.3		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.5	32.5		24.5		56.5		
Max Q Clear Time (g_c+I1), s	12.5	8.2		24.0		2.0		
Green Ext Time (p_c), s	0.3	6.6		0.2		3.1		

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	95	110	45	8	145	55	459	141	672
Future Volume (vph)	95	110	45	8	145	55	459	141	672
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.0	30.0	30.0	10.0	24.0	13.0	29.0	21.0	37.0
Total Split (%)	17.8%	33.3%	33.3%	11.1%	26.7%	14.4%	32.2%	23.3%	41.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	9.8	20.1	20.1	5.5	10.1	8.4	41.4	13.0	47.9
Actuated g/C Ratio	0.11	0.22	0.22	0.06	0.11	0.09	0.46	0.14	0.53
v/c Ratio	0.54	0.29	0.10	0.08	0.61	0.36	0.31	0.60	0.41
Control Delay	48.1	29.5	0.4	41.8	24.6	38.3	23.2	54.9	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	29.5	0.4	41.8	24.6	38.3	23.2	54.9	14.8
LOS	D	C	A	D	C	D	C	D	B
Approach Delay		31.3			25.0		24.8		21.4
Approach LOS		C			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 52.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	110	45	8	145	136	55	459	5	141	672	40
Future Volume (veh/h)	95	110	45	8	145	136	55	459	5	141	672	40
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	103	120	49	9	158	148	60	499	5	153	730	43
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	353	300	20	227	198	78	1776	18	186	1887	111
Arrive On Green	0.07	0.19	0.19	0.01	0.13	0.13	0.01	0.16	0.16	0.21	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	1793	1564	1774	3590	36	1774	3397	200
Grp Volume(v), veh/h	103	120	49	9	156	150	60	246	258	153	380	393
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1587	1774	1770	1856	1774	1770	1827
Q Serve(g_s), s	5.1	5.0	2.3	0.5	7.6	8.2	3.0	11.0	11.0	7.4	0.0	0.0
Cycle Q Clear(g_c), s	5.1	5.0	2.3	0.5	7.6	8.2	3.0	11.0	11.0	7.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.99	1.00		0.02	1.00		0.11
Lane Grp Cap(c), veh/h	131	353	300	20	224	201	78	875	918	186	983	1015
V/C Ratio(X)	0.78	0.34	0.16	0.45	0.69	0.75	0.77	0.28	0.28	0.82	0.39	0.39
Avail Cap(c_a), veh/h	227	528	449	108	383	344	168	875	918	325	983	1015
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	0.88	0.88	0.88
Uniform Delay (d), s/veh	41.0	31.6	30.5	44.2	37.6	37.9	43.9	23.6	23.6	34.8	0.0	0.0
Incr Delay (d2), s/veh	9.8	0.6	0.3	15.3	3.8	5.4	14.8	0.8	0.8	7.9	1.0	1.0
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	2.9	2.6	1.0	0.3	4.0	3.9	1.8	5.6	5.8	4.0	0.3	0.3
LnGrp Delay(d),s/veh	50.7	32.2	30.7	59.5	41.5	43.3	58.7	24.4	24.4	42.7	1.0	1.0
LnGrp LOS	D	C	C	E	D	D	E	C	C	D	A	A
Approach Vol, veh/h		272			315			564			926	
Approach Delay, s/veh		38.9			42.9			28.0			7.9	
Approach LOS		D			D			C			A	

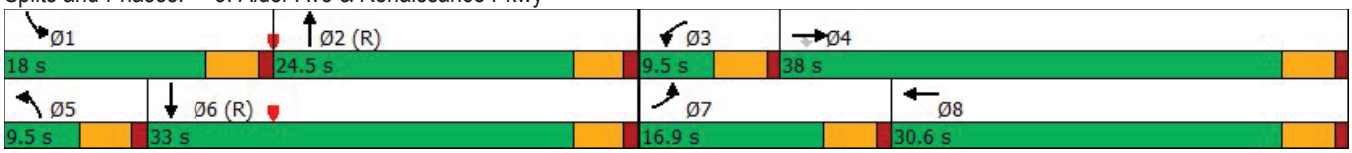
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	49.0	5.5	21.6	8.4	54.5	11.2	15.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	24.5	5.5	25.5	8.5	32.5	11.5	19.5
Max Q Clear Time (g_c+I1), s	9.4	13.0	2.5	7.0	5.0	2.0	7.1	10.2
Green Ext Time (p_c), s	0.2	2.3	0.0	0.7	0.0	5.5	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	108	589	103	12	37	18	523	212	466
Future Volume (vph)	108	589	103	12	37	18	523	212	466
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.9	38.0	38.0	9.5	30.6	9.5	24.5	18.0	33.0
Total Split (%)	18.8%	42.2%	42.2%	10.6%	34.0%	10.6%	27.2%	20.0%	36.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.6	36.9	36.9	5.0	23.7	5.5	22.9	14.8	38.4
Actuated g/C Ratio	0.12	0.41	0.41	0.06	0.26	0.06	0.25	0.16	0.43
v/c Ratio	0.58	0.86	0.15	0.13	0.19	0.18	0.70	0.81	0.43
Control Delay	48.7	37.3	1.0	43.7	7.8	41.8	40.6	52.4	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	37.3	1.0	43.7	7.8	41.8	40.6	52.4	20.2
LOS	D	D	A	D	A	D	D	D	C
Approach Delay		34.2			10.2		40.7		28.9
Approach LOS		C			B		D		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 32.2	Intersection LOS: C
Intersection Capacity Utilization 77.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	589	103	12	37	125	18	523	43	212	466	114
Future Volume (veh/h)	108	589	103	12	37	125	18	523	43	212	466	114
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	120	654	114	13	41	139	20	581	48	236	518	127
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	686	583	27	528	472	39	885	73	264	1113	272
Arrive On Green	0.09	0.37	0.37	0.02	0.30	0.30	0.01	0.09	0.09	0.30	0.79	0.79
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3311	273	1774	2822	689
Grp Volume(v), veh/h	120	654	114	13	41	139	20	310	319	236	324	321
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1815	1774	1770	1741
Q Serve(g_s), s	6.0	30.8	4.4	0.7	1.5	6.1	1.0	15.3	15.3	11.4	5.5	5.5
Cycle Q Clear(g_c), s	6.0	30.8	4.4	0.7	1.5	6.1	1.0	15.3	15.3	11.4	5.5	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.40
Lane Grp Cap(c), veh/h	151	686	583	27	528	472	39	473	485	264	698	687
V/C Ratio(X)	0.79	0.95	0.20	0.48	0.08	0.29	0.52	0.66	0.66	0.89	0.46	0.47
Avail Cap(c_a), veh/h	244	693	589	99	528	472	99	473	485	266	698	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.93	0.93	0.93
Uniform Delay (d), s/veh	40.4	27.7	19.4	43.9	22.7	24.3	44.2	37.0	37.0	30.9	6.3	6.3
Incr Delay (d2), s/veh	9.0	23.2	0.2	12.3	0.1	0.3	10.0	6.8	6.7	27.5	2.1	2.1
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	3.3	20.2	2.0	0.4	0.7	2.7	0.6	8.4	8.6	7.5	2.9	2.9
LnGrp Delay(d),s/veh	49.4	50.9	19.5	56.2	22.7	24.6	54.2	43.8	43.7	58.4	8.4	8.4
LnGrp LOS	D	D	B	E	C	C	D	D	D	E	A	A
Approach Vol, veh/h		888			193			649			881	
Approach Delay, s/veh		46.7			26.4			44.1			21.8	
Approach LOS		D			C			D			C	

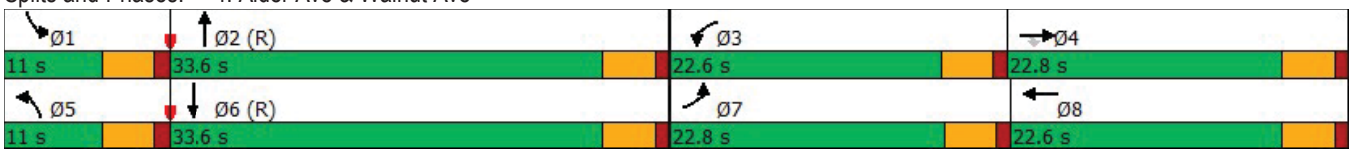
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.9	28.6	5.9	37.6	6.5	40.0	12.2	31.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	20.0	5.0	33.5	5.0	28.5	12.4	26.1
Max Q Clear Time (g_c+I1), s	13.4	17.3	2.7	32.8	3.0	7.5	8.0	8.1
Green Ext Time (p_c), s	0.0	1.0	0.0	0.4	0.0	4.1	0.1	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	36.1
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	35	5	17	10	0	32	485	36	575
Future Volume (vph)	35	5	17	10	0	32	485	36	575
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.8	22.8	22.8	22.6	22.6	11.0	33.6	11.0	33.6
Total Split (%)	25.3%	25.3%	25.3%	25.1%	25.1%	12.2%	37.3%	12.2%	37.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	7.5	7.0	7.0	6.2	5.5	7.3	69.6	7.5	69.8
Actuated g/C Ratio	0.08	0.08	0.08	0.07	0.06	0.08	0.77	0.08	0.78
v/c Ratio	0.27	0.04	0.08	0.09	0.01	0.25	0.20	0.27	0.28
Control Delay	42.5	38.2	0.6	40.5	0.0	42.4	6.2	21.4	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	38.2	0.6	40.5	0.0	42.4	6.2	21.4	17.9
LOS	D	D	A	D	A	D	A	C	B
Approach Delay		29.7			31.8		8.4		18.1
Approach LOS		C			C		A		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.28	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 43.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	17	10	0	3	32	485	10	36	575	103
Future Volume (veh/h)	35	5	17	10	0	3	32	485	10	36	575	103
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	39	6	19	11	0	3	36	545	11	40	646	116
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	84	71	72	0	62	58	2409	49	62	2043	366
Arrive On Green	0.05	0.05	0.05	0.04	0.00	0.04	0.07	1.00	1.00	0.07	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3548	72	1774	3000	538
Grp Volume(v), veh/h	39	6	19	11	0	3	36	272	284	40	381	381
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1850	1774	1770	1768
Q Serve(g_s), s	1.9	0.3	1.0	0.5	0.0	0.2	1.8	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	1.9	0.3	1.0	0.5	0.0	0.2	1.8	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		0.30
Lane Grp Cap(c), veh/h	83	84	71	72	0	62	58	1201	1256	62	1205	1204
V/C Ratio(X)	0.47	0.07	0.27	0.15	0.00	0.05	0.62	0.23	0.23	0.64	0.32	0.32
Avail Cap(c_a), veh/h	361	379	322	357	0	318	128	1201	1256	128	1205	1204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	41.8	41.2	41.5	41.7	0.0	41.6	41.5	0.0	0.0	41.3	0.0	0.0
Incr Delay (d2), s/veh	4.0	0.4	2.0	1.0	0.0	0.3	10.1	0.4	0.4	9.8	0.6	0.6
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	1.0	0.2	0.5	0.3	0.0	0.1	1.0	0.1	0.1	1.1	0.2	0.2
LnGrp Delay(d),s/veh	45.8	41.5	43.5	42.6	0.0	42.0	51.5	0.4	0.4	51.1	0.6	0.6
LnGrp LOS	D	D	D	D		D	D	A	A	D	A	A
Approach Vol, veh/h		64			14			592			802	
Approach Delay, s/veh		44.7			42.5			3.5			3.2	
Approach LOS		D			D			A			A	

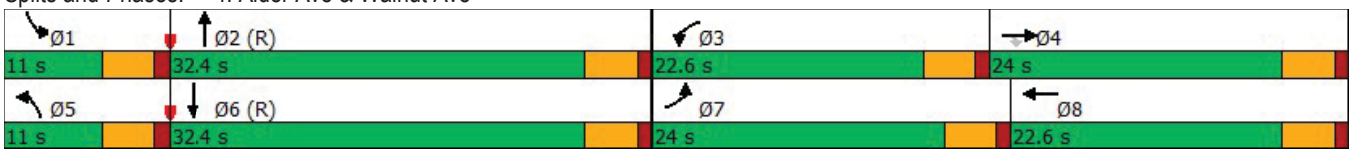
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	65.6	8.2	8.6	7.5	65.8	8.7	8.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	29.1	18.1	18.3	6.5	29.1	18.3	18.1
Max Q Clear Time (g_c+I1), s	4.0	2.0	2.5	3.0	3.8	2.0	3.9	2.2
Green Ext Time (p_c), s	0.0	3.5	0.0	0.0	0.0	5.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.5
HCM 2010 LOS	A

Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	81	24	3	0	23	573	21	527
Future Volume (vph)	81	24	3	0	23	573	21	527
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7		3	8	5	2	1	6
Permitted Phases		4						
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	24.0	24.0	22.6	22.6	11.0	32.4	11.0	32.4
Total Split (%)	26.7%	26.7%	25.1%	25.1%	12.2%	36.0%	12.2%	36.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	9.6	9.4	5.8	5.5	6.8	67.4	6.7	67.4
Actuated g/C Ratio	0.11	0.10	0.06	0.06	0.08	0.75	0.07	0.75
v/c Ratio	0.45	0.04	0.03	0.00	0.18	0.22	0.17	0.24
Control Delay	44.4	0.1	39.7	0.0	41.6	6.5	23.8	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	0.1	39.7	0.0	41.6	6.5	23.8	14.6
LOS	D	A	D	A	D	A	C	B
Approach Delay				23.8		7.8		15.0
Approach LOS				C		A		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 13.3	Intersection LOS: B
Intersection Capacity Utilization 37.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	0	24	3	0	2	23	573	5	21	527	77
Future Volume (veh/h)	81	0	24	3	0	2	23	573	5	21	527	77
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	84	0	25	3	0	2	24	591	5	22	543	79
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	97	82	88	0	57	44	2427	21	42	2089	303
Arrive On Green	0.07	0.00	0.05	0.05	0.00	0.04	0.05	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3597	30	1774	3103	450
Grp Volume(v), veh/h	84	0	25	3	0	2	24	291	305	22	309	313
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1857	1774	1770	1783
Q Serve(g_s), s	4.2	0.0	1.4	0.1	0.0	0.1	1.2	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	1.4	0.1	0.0	0.1	1.2	0.0	0.0	1.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		0.25
Lane Grp Cap(c), veh/h	117	97	82	88	0	57	44	1194	1253	42	1191	1201
V/C Ratio(X)	0.72	0.00	0.30	0.03	0.00	0.04	0.54	0.24	0.24	0.53	0.26	0.26
Avail Cap(c_a), veh/h	384	404	343	357	0	318	128	1194	1253	128	1191	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	41.2	0.0	41.1	40.7	0.0	41.9	42.2	0.0	0.0	42.4	0.0	0.0
Incr Delay (d2), s/veh	8.0	0.0	2.0	0.2	0.0	0.3	9.8	0.5	0.5	9.3	0.5	0.5
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	2.3	0.0	0.6	0.1	0.0	0.1	0.7	0.2	0.2	0.6	0.2	0.2
LnGrp Delay(d),s/veh	49.2	0.0	43.1	40.9	0.0	42.1	52.0	0.5	0.5	51.7	0.5	0.5
LnGrp LOS	D		D	D		D	D	A	A	D	A	A
Approach Vol, veh/h		109			5			620			644	
Approach Delay, s/veh		47.8			41.4			2.5			2.2	
Approach LOS		D			D			A			A	

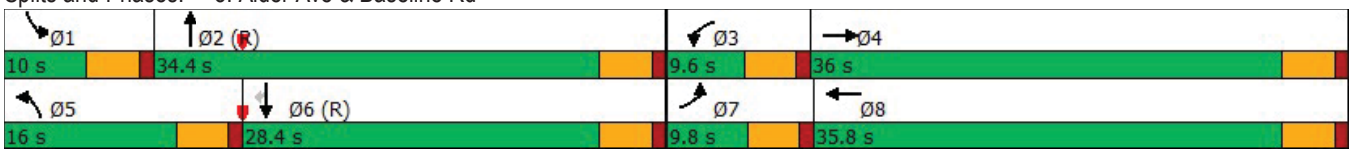
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	65.2	9.0	9.2	6.8	65.1	10.4	7.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	27.9	18.1	19.5	6.5	27.9	19.5	18.1
Max Q Clear Time (g_c+I1), s	3.1	2.0	2.1	3.4	3.2	2.0	6.2	2.1
Green Ext Time (p_c), s	0.0	3.8	0.0	0.0	0.0	4.1	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.1
HCM 2010 LOS	A

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	59	432	42	402	158	320	62	310	80
Future Volume (vph)	59	432	42	402	158	320	62	310	80
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	9.8	36.0	9.6	35.8	16.0	34.4	10.0	28.4	28.4
Total Split (%)	10.9%	40.0%	10.7%	39.8%	17.8%	38.2%	11.1%	31.6%	31.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.3	31.2	5.1	31.0	11.4	34.1	5.7	26.2	26.2
Actuated g/C Ratio	0.06	0.35	0.06	0.34	0.13	0.38	0.06	0.29	0.29
v/c Ratio	0.70	0.97	0.52	0.86	0.87	0.79	0.69	0.71	0.17
Control Delay	76.5	58.0	71.7	30.8	74.1	35.8	73.5	38.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.5	58.0	71.7	30.8	74.1	35.8	73.5	38.3	0.6
LOS	E	E	E	C	E	D	E	D	A
Approach Delay		59.9		34.3		46.0		36.4	
Approach LOS		E		C		D		D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 44.9	Intersection LOS: D
Intersection Capacity Utilization 74.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	432	67	42	402	42	158	320	120	62	310	80
Future Volume (veh/h)	59	432	67	42	402	42	158	320	120	62	310	80
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	73	533	83	52	496	52	195	395	148	77	383	99
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	551	86	72	560	59	227	457	171	99	525	446
Arrive On Green	0.05	0.35	0.35	0.04	0.34	0.34	0.13	0.35	0.35	0.02	0.09	0.09
Sat Flow, veh/h	1774	1574	245	1774	1658	174	1774	1293	484	1774	1863	1583
Grp Volume(v), veh/h	73	0	616	52	0	548	195	0	543	77	383	99
Grp Sat Flow(s),veh/h/ln	1774	0	1819	1774	0	1832	1774	0	1777	1774	1863	1583
Q Serve(g_s), s	3.7	0.0	29.9	2.6	0.0	25.4	9.7	0.0	25.6	3.9	18.0	5.2
Cycle Q Clear(g_c), s	3.7	0.0	29.9	2.6	0.0	25.4	9.7	0.0	25.6	3.9	18.0	5.2
Prop In Lane	1.00		0.13	1.00		0.09	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	94	0	637	72	0	619	227	0	629	99	525	446
V/C Ratio(X)	0.78	0.00	0.97	0.73	0.00	0.89	0.86	0.00	0.86	0.78	0.73	0.22
Avail Cap(c_a), veh/h	104	0	637	101	0	637	227	0	629	108	525	446
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.74	0.00	0.74	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	28.7	42.7	0.0	28.2	38.5	0.0	27.1	43.6	37.5	31.7
Incr Delay (d2), s/veh	28.1	0.0	27.6	10.9	0.0	10.7	26.8	0.0	14.7	27.1	8.6	1.1
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	2.5	0.0	19.8	1.5	0.0	14.6	6.5	0.0	15.1	2.7	10.6	2.4
LnGrp Delay(d),s/veh	70.2	0.0	56.3	53.6	0.0	38.9	65.2	0.0	41.7	70.7	46.1	32.8
LnGrp LOS	E		E	D		D	E		D	E	D	C
Approach Vol, veh/h		689			600			738			559	
Approach Delay, s/veh		57.8			40.2			47.9			47.2	
Approach LOS		E			D			D			D	

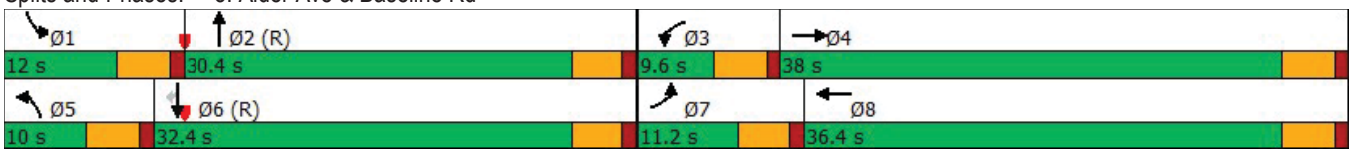
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	36.3	8.1	36.0	16.0	29.9	9.2	34.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	29.9	5.1	31.5	11.5	23.9	5.3	31.3
Max Q Clear Time (g_c+I1), s	5.9	27.6	4.6	31.9	11.7	20.0	5.7	27.4
Green Ext Time (p_c), s	0.0	0.8	0.0	0.0	0.0	1.0	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	48.6
HCM 2010 LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	46	498	34	292	56	346	105	291	73
Future Volume (vph)	46	498	34	292	56	346	105	291	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
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	11.2	38.0	9.6	36.4	10.0	30.4	12.0	32.4	32.4
Total Split (%)	12.4%	42.2%	10.7%	40.4%	11.1%	33.8%	13.3%	36.0%	36.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.5	32.1	5.1	31.1	5.9	30.7	8.0	34.8	34.8
Actuated g/C Ratio	0.07	0.36	0.06	0.35	0.07	0.34	0.09	0.39	0.39
v/c Ratio	0.38	0.92	0.36	0.58	0.51	0.65	0.71	0.42	0.11
Control Delay	48.7	48.6	64.8	19.1	57.6	32.7	65.6	25.4	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	48.6	64.8	19.1	57.6	32.7	65.6	25.4	1.5
LOS	D	D	E	B	E	C	E	C	A
Approach Delay		48.6		23.2		35.9		30.7	
Approach LOS		D		C		D		C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 36.2	Intersection LOS: D
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	498	77	34	292	58	56	346	44	105	291	73
Future Volume (veh/h)	46	498	77	34	292	58	56	346	44	105	291	73
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	48	524	81	36	307	61	59	364	46	111	306	77
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	559	86	58	527	105	76	540	68	140	688	585
Arrive On Green	0.04	0.35	0.35	0.03	0.35	0.35	0.04	0.33	0.33	0.03	0.12	0.12
Sat Flow, veh/h	1774	1576	244	1774	1510	300	1774	1622	205	1774	1863	1583
Grp Volume(v), veh/h	48	0	605	36	0	368	59	0	410	111	306	77
Grp Sat Flow(s),veh/h/ln	1774	0	1820	1774	0	1810	1774	0	1827	1774	1863	1583
Q Serve(g_s), s	2.4	0.0	28.9	1.8	0.0	15.0	3.0	0.0	17.4	5.6	13.7	3.9
Cycle Q Clear(g_c), s	2.4	0.0	28.9	1.8	0.0	15.0	3.0	0.0	17.4	5.6	13.7	3.9
Prop In Lane	1.00		0.13	1.00		0.17	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	69	0	646	58	0	632	76	0	608	140	688	585
V/C Ratio(X)	0.70	0.00	0.94	0.62	0.00	0.58	0.78	0.00	0.67	0.79	0.44	0.13
Avail Cap(c_a), veh/h	132	0	677	101	0	641	108	0	608	148	688	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.78	0.00	0.78	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	0.0	28.1	43.0	0.0	23.9	42.6	0.0	25.8	43.1	30.9	26.6
Incr Delay (d2), s/veh	11.9	0.0	20.1	8.0	0.0	1.0	19.6	0.0	5.9	23.5	2.1	0.5
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	1.4	0.0	18.1	1.0	0.0	7.6	1.9	0.0	9.8	3.7	7.5	1.8
LnGrp Delay(d),s/veh	54.7	0.0	48.2	50.9	0.0	25.0	62.3	0.0	31.7	66.6	33.0	27.1
LnGrp LOS	D		D	D		C	E		C	E	C	C
Approach Vol, veh/h		653			404			469			494	
Approach Delay, s/veh		48.7			27.3			35.5			39.7	
Approach LOS		D			C			D			D	

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	11.6	34.5	7.5	36.4	8.4	37.7	8.0	35.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	25.9	5.1	33.5	5.5	27.9	6.7	31.9
Max Q Clear Time (g_c+I1), s	7.6	19.4	3.8	30.9	5.0	15.7	4.4	17.0
Green Ext Time (p_c), s	0.0	1.4	0.0	1.0	0.0	1.6	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	39.1
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	5.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	35	14	11	23	5	30
Future Vol, veh/h	35	14	11	23	5	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	18	14	30	7	39

Major/Minor	Minor2		Major2	
Conflicting Flow All	58	30	0	0
Stage 1	58	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	833	1044	-	-
Stage 1	847	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1044	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.7	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1044	-	-
HCM Lane V/C Ratio	0.062	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	48	9	51	31	16	46
Future Vol, veh/h	48	9	51	31	16	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	12	67	41	21	61

Major/Minor	Minor2		Major2	
Conflicting Flow All	175	41	0	0
Stage 1	175	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	718	1030	-	-
Stage 1	754	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1030	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.8	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1030	-	-
HCM Lane V/C Ratio	0.073	-	-
HCM Control Delay (s)	8.8	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection	
Int Delay, s/veh	19.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	501	150	83	539	14	86	5	61	1	3	7
Future Vol, veh/h	21	501	150	83	539	14	86	5	61	1	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	634	190	105	682	18	109	6	77	1	4	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	700	0	0	824	0	0	1241	1598	634	1726	1779	350
Stage 1	-	-	-	-	-	-	688	688	-	901	901	-
Stage 2	-	-	-	-	-	-	553	910	-	825	878	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	895	-	-	804	-	-	141	106	478	63	82	647
Stage 1	-	-	-	-	-	-	435	446	-	300	356	-
Stage 2	-	-	-	-	-	-	486	353	-	366	365	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	895	-	-	804	-	-	117	89	478	44	69	647
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	89	-	44	69	-
Stage 1	-	-	-	-	-	-	422	433	-	291	309	-
Stage 2	-	-	-	-	-	-	412	307	-	293	354	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.3	177.5	32.9
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	165	895	-	-	804	-	-	143
HCM Lane V/C Ratio	1.166	0.03	-	-	0.131	-	-	0.097
HCM Control Delay (s)	177.5	9.1	-	-	10.2	-	-	32.9
HCM Lane LOS	F	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	10.4	0.1	-	-	0.4	-	-	0.3

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	580	75	41	381	1	59	7	36	7	6	23
Future Vol, veh/h	11	580	75	41	381	1	59	7	36	7	6	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	637	82	45	419	1	65	8	40	8	7	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	420	0	0	719	0	0	964	1171	637	1236	1253	210
Stage 1	-	-	-	-	-	-	661	661	-	510	510	-
Stage 2	-	-	-	-	-	-	303	510	-	726	743	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1137	-	-	880	-	-	222	192	476	142	171	796
Stage 1	-	-	-	-	-	-	451	459	-	515	537	-
Stage 2	-	-	-	-	-	-	682	537	-	415	421	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1137	-	-	880	-	-	198	180	476	120	161	796
Mov Cap-2 Maneuver	-	-	-	-	-	-	198	180	-	120	161	-
Stage 1	-	-	-	-	-	-	446	454	-	509	510	-
Stage 2	-	-	-	-	-	-	618	510	-	370	416	-

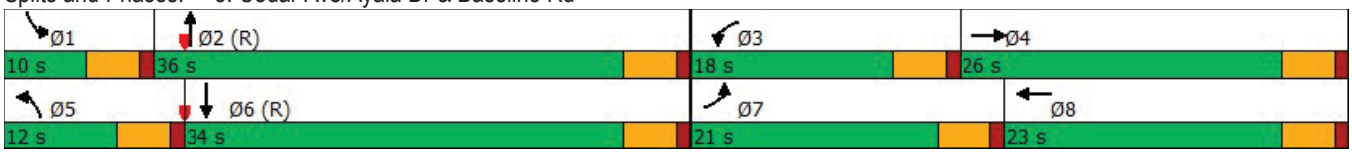
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	31.1	19.4
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	247	1137	-	-	880	-	-	289
HCM Lane V/C Ratio	0.454	0.011	-	-	0.051	-	-	0.137
HCM Control Delay (s)	31.1	8.2	-	-	9.3	-	-	19.4
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2.2	0	-	-	0.2	-	-	0.5

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	152	314	118	374	116	542	38	609
Future Volume (vph)	152	314	118	374	116	542	38	609
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	21.0	26.0	18.0	23.0	12.0	36.0	10.0	34.0
Total Split (%)	23.3%	28.9%	20.0%	25.6%	13.3%	40.0%	11.1%	37.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	13.0	17.7	11.1	15.8	7.7	41.3	6.0	35.6
Actuated g/C Ratio	0.14	0.20	0.12	0.18	0.09	0.46	0.07	0.40
v/c Ratio	0.63	0.65	0.57	0.69	0.42	0.42	0.18	0.53
Control Delay	41.5	18.9	47.3	39.9	43.4	19.0	41.6	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	18.9	47.3	39.9	43.4	19.0	41.6	23.3
LOS	D	B	D	D	D	B	D	C
Approach Delay		24.6		41.6		22.8		24.3
Approach LOS		C		D		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 58.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	314	129	118	374	31	116	542	90	38	609	88
Future Volume (veh/h)	152	314	129	118	374	31	116	542	90	38	609	88
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	160	331	136	124	394	33	122	571	95	40	641	93
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	2	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	430	173	156	502	42	189	1527	253	121	1498	217
Arrive On Green	0.11	0.17	0.17	0.09	0.15	0.15	0.05	0.50	0.50	0.04	0.48	0.48
Sat Flow, veh/h	1774	2463	994	1774	3308	276	3442	3039	504	3442	3103	450
Grp Volume(v), veh/h	160	236	231	124	210	217	122	332	334	40	365	369
Grp Sat Flow(s),veh/h/ln	1774	1770	1687	1774	1770	1814	1721	1770	1774	1721	1770	1783
Q Serve(g_s), s	7.9	11.4	11.8	6.2	10.3	10.4	3.1	10.3	10.4	1.0	12.1	12.1
Cycle Q Clear(g_c), s	7.9	11.4	11.8	6.2	10.3	10.4	3.1	10.3	10.4	1.0	12.1	12.1
Prop In Lane	1.00		0.59	1.00		0.15	1.00		0.28	1.00		0.25
Lane Grp Cap(c), veh/h	196	309	294	156	269	275	189	889	891	121	854	861
V/C Ratio(X)	0.81	0.76	0.78	0.79	0.78	0.79	0.64	0.37	0.37	0.33	0.43	0.43
Avail Cap(c_a), veh/h	325	423	403	266	364	373	287	889	891	210	854	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.24	0.24	0.24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	35.4	35.5	40.2	36.7	36.8	41.7	13.7	13.7	42.4	15.2	15.2
Incr Delay (d2), s/veh	2.0	1.4	1.7	8.8	7.5	7.8	3.6	1.2	1.2	1.6	1.6	1.6
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	4.0	5.7	5.7	3.4	5.6	5.8	1.6	5.3	5.3	0.5	6.3	6.3
LnGrp Delay(d),s/veh	41.2	36.8	37.3	49.0	44.3	44.5	45.3	14.9	14.9	44.0	16.7	16.7
LnGrp LOS	D	D	D	D	D	D	D	B	B	D	B	B
Approach Vol, veh/h		627			551			788			774	
Approach Delay, s/veh		38.1			45.4			19.6			18.2	
Approach LOS		D			D			B			B	

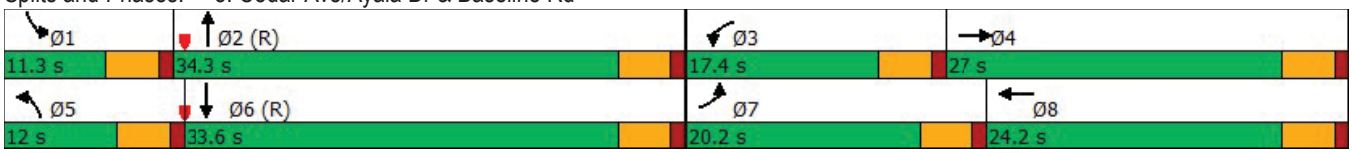
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	49.7	12.4	20.2	9.4	47.9	14.5	18.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	31.5	13.5	21.5	7.5	29.5	16.5	18.5
Max Q Clear Time (g_c+I1), s	3.0	12.4	8.2	13.8	5.1	14.1	9.9	12.4
Green Ext Time (p_c), s	0.0	4.1	0.1	1.7	0.1	4.2	0.2	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.6
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	149	444	116	384	119	517	104	586
Future Volume (vph)	149	444	116	384	119	517	104	586
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	20.2	27.0	17.4	24.2	12.0	34.3	11.3	33.6
Total Split (%)	22.4%	30.0%	19.3%	26.9%	13.3%	38.1%	12.6%	37.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.6	19.6	10.8	17.8	7.5	36.7	7.0	34.1
Actuated g/C Ratio	0.14	0.22	0.12	0.20	0.08	0.41	0.08	0.38
v/c Ratio	0.62	0.77	0.57	0.63	0.43	0.47	0.40	0.55
Control Delay	46.0	23.4	48.0	36.3	44.1	21.8	44.2	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	23.4	48.0	36.3	44.1	21.8	44.2	24.3
LOS	D	C	D	D	D	C	D	C
Approach Delay		28.0		38.9		25.3		26.9
Approach LOS		C		D		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 61.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	444	130	116	384	37	119	517	119	104	586	115
Future Volume (veh/h)	149	444	130	116	384	37	119	517	119	104	586	115
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	155	462	135	121	400	39	124	539	124	108	610	120
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	2	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	560	163	153	604	59	192	1303	299	178	1332	262
Arrive On Green	0.11	0.21	0.21	0.09	0.19	0.19	0.06	0.46	0.46	0.05	0.45	0.45
Sat Flow, veh/h	1774	2708	786	1774	3260	316	3442	2861	656	3442	2951	579
Grp Volume(v), veh/h	155	301	296	121	216	223	124	333	330	108	365	365
Grp Sat Flow(s),veh/h/ln	1774	1770	1724	1774	1770	1807	1721	1770	1747	1721	1770	1761
Q Serve(g_s), s	7.7	14.6	14.8	6.0	10.2	10.3	3.2	11.3	11.4	2.8	12.8	12.9
Cycle Q Clear(g_c), s	7.7	14.6	14.8	6.0	10.2	10.3	3.2	11.3	11.4	2.8	12.8	12.9
Prop In Lane	1.00		0.46	1.00		0.18	1.00		0.38	1.00		0.33
Lane Grp Cap(c), veh/h	191	366	357	153	328	335	192	806	795	178	799	795
V/C Ratio(X)	0.81	0.82	0.83	0.79	0.66	0.67	0.65	0.41	0.42	0.61	0.46	0.46
Avail Cap(c_a), veh/h	309	442	431	254	387	396	287	806	795	260	799	795
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.34	0.34	0.34	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	34.1	34.2	40.3	34.0	34.1	41.6	16.4	16.5	41.8	17.1	17.1
Incr Delay (d2), s/veh	2.9	3.6	4.0	8.9	3.2	3.3	3.6	1.6	1.6	3.3	1.9	1.9
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	3.9	7.5	7.5	3.3	5.3	5.4	1.6	5.9	5.9	1.4	6.6	6.7
LnGrp Delay(d),s/veh	42.2	37.7	38.2	49.3	37.2	37.4	45.3	18.0	18.1	45.1	18.9	19.0
LnGrp LOS	D	D	D	D	D	D	D	B	B	D	B	B
Approach Vol, veh/h		752			560			787			838	
Approach Delay, s/veh		38.8			39.9			22.3			22.3	
Approach LOS		D			D			C			C	

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	9.2	45.5	12.2	23.1	9.5	45.1	14.2	21.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.8	29.8	12.9	22.5	7.5	29.1	15.7	19.7
Max Q Clear Time (g_c+I1), s	4.8	13.4	8.0	16.8	5.2	14.9	9.7	12.3
Green Ext Time (p_c), s	0.1	3.8	0.1	1.8	0.1	4.0	0.2	1.5

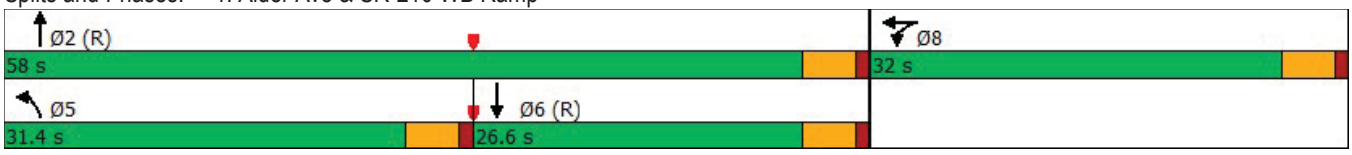
Intersection Summary	
HCM 2010 Ctrl Delay	29.9
HCM 2010 LOS	C

- Project Completion 2020 plus Project Conditions

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	345	2	310	400	196
Future Volume (vph)	345	2	310	400	196
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	32.0	32.0	31.4	58.0	26.6
Total Split (%)	35.6%	35.6%	34.9%	64.4%	29.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	24.1	24.1	22.3	56.9	30.1
Actuated g/C Ratio	0.27	0.27	0.25	0.63	0.33
v/c Ratio	0.83	0.35	0.81	0.20	0.51
Control Delay	46.0	5.6	43.1	7.9	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	5.6	43.1	7.9	9.8
LOS	D	A	D	A	A
Approach Delay		32.2		23.2	9.8
Approach LOS		C		C	A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 21.3	Intersection LOS: C
Intersection Capacity Utilization 66.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	345	2	177	310	400	0	0	196	427
Future Volume (veh/h)	0	0	0	345	2	177	310	400	0	0	196	427
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				392	2	201	352	455	0	0	223	485
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				459	4	406	396	2271	0	0	652	583
Arrive On Green				0.26	0.26	0.26	0.45	1.00	0.00	0.00	0.37	0.37
Sat Flow, veh/h				1774	16	1570	1774	3632	0	0	1863	1583
Grp Volume(v), veh/h				392	0	203	352	455	0	0	223	485
Grp Sat Flow(s),veh/h/ln				1774	0	1586	1774	1770	0	0	1770	1583
Q Serve(g_s), s				18.9	0.0	9.8	16.4	0.0	0.0	0.0	8.2	25.1
Cycle Q Clear(g_c), s				18.9	0.0	9.8	16.4	0.0	0.0	0.0	8.2	25.1
Prop In Lane				1.00		0.99	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				459	0	410	396	2271	0	0	652	583
V/C Ratio(X)				0.85	0.00	0.50	0.89	0.20	0.00	0.00	0.34	0.83
Avail Cap(c_a), veh/h				542	0	485	530	2271	0	0	652	583
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.90	0.90	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.8	0.0	28.4	23.9	0.0	0.0	0.0	20.5	25.9
Incr Delay (d2), s/veh				11.2	0.0	0.9	12.5	0.2	0.0	0.0	1.4	13.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.7	0.0	4.4	9.2	0.1	0.0	0.0	4.2	13.0
LnGrp Delay(d),s/veh				42.9	0.0	29.3	36.4	0.2	0.0	0.0	22.0	38.9
LnGrp LOS				D		C	D	A			C	D
Approach Vol, veh/h					595			807			708	
Approach Delay, s/veh					38.3			16.0			33.5	
Approach LOS					D			B			C	

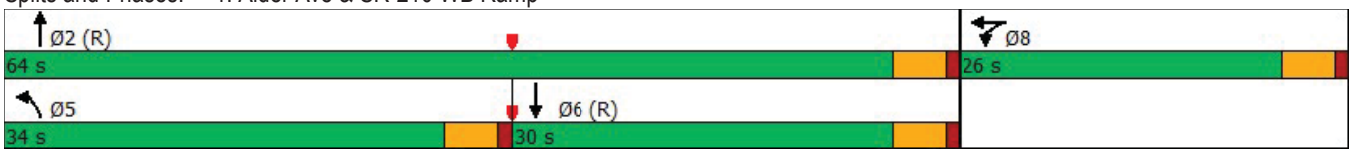
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		62.2			24.6	37.7		27.8
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		53.5			26.9	22.1		27.5
Max Q Clear Time (g_c+I1), s		3.0			19.4	28.1		21.9
Green Ext Time (p_c), s		3.4			0.7	0.0		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	266	5	408	419	344
Future Volume (vph)	266	5	408	419	344
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	26.0	26.0	34.0	64.0	30.0
Total Split (%)	28.9%	28.9%	37.8%	71.1%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	19.2	19.2	27.1	61.8	30.2
Actuated g/C Ratio	0.21	0.21	0.30	0.69	0.34
v/c Ratio	0.81	0.30	0.88	0.20	0.66
Control Delay	51.1	8.0	45.2	10.4	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	8.0	45.2	10.4	19.1
LOS	D	A	D	B	B
Approach Delay		38.1		27.5	19.1
Approach LOS		D		C	B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 26.3	Intersection LOS: C
Intersection Capacity Utilization 71.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	266	5	110	408	419	0	0	344	416
Future Volume (veh/h)	0	0	0	266	5	110	408	419	0	0	344	416
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				306	6	126	469	482	0	0	395	478
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				365	15	314	504	2456	0	0	637	570
Arrive On Green				0.21	0.21	0.21	0.57	1.00	0.00	0.00	0.36	0.36
Sat Flow, veh/h				1774	72	1522	1774	3632	0	0	1863	1583
Grp Volume(v), veh/h				306	0	132	469	482	0	0	395	478
Grp Sat Flow(s),veh/h/ln				1774	0	1594	1774	1770	0	0	1770	1583
Q Serve(g_s), s				14.9	0.0	6.5	21.8	0.0	0.0	0.0	16.5	24.9
Cycle Q Clear(g_c), s				14.9	0.0	6.5	21.8	0.0	0.0	0.0	16.5	24.9
Prop In Lane				1.00		0.95	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				365	0	328	504	2456	0	0	637	570
V/C Ratio(X)				0.84	0.00	0.40	0.93	0.20	0.00	0.00	0.62	0.84
Avail Cap(c_a), veh/h				424	0	381	581	2456	0	0	637	570
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.78	0.78	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.3	0.0	30.9	18.6	0.0	0.0	0.0	23.7	26.4
Incr Delay (d2), s/veh				12.2	0.0	0.8	17.0	0.1	0.0	0.0	4.5	13.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.6	0.0	2.9	12.8	0.0	0.0	0.0	8.8	13.1
LnGrp Delay(d),s/veh				46.5	0.0	31.7	35.6	0.1	0.0	0.0	28.2	40.2
LnGrp LOS				D		C	D	A			C	D
Approach Vol, veh/h					438			951			873	
Approach Delay, s/veh					42.1			17.6			34.8	
Approach LOS					D			B			C	

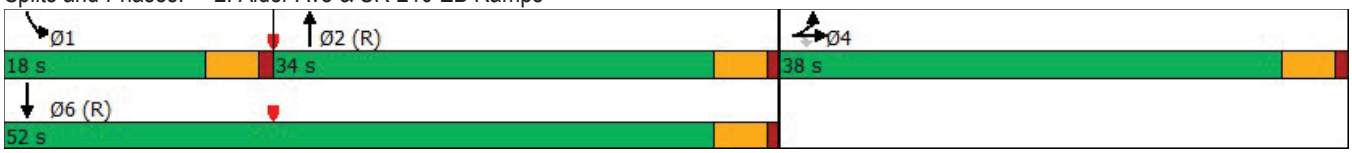
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		67.0			30.1	36.9		23.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		59.5			29.5	25.5		21.5
Max Q Clear Time (g_c+I1), s		3.0			24.8	27.9		17.9
Green Ext Time (p_c), s		3.7			0.7	0.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	29.0
HCM 2010 LOS	C

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	1	529	410	105	424
Future Volume (vph)	1	529	410	105	424
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	38.0	38.0	34.0	18.0	52.0
Total Split (%)	42.2%	42.2%	37.8%	20.0%	57.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	23.5	23.5	44.8	10.5	57.5
Actuated g/C Ratio	0.26	0.26	0.50	0.12	0.64
v/c Ratio	0.65	0.79	0.43	0.52	0.19
Control Delay	35.2	17.7	10.1	32.7	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	17.7	10.1	32.7	12.6
LOS	D	B	B	C	B
Approach Delay	23.9		10.1		16.6
Approach LOS	C		B		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 17.2	Intersection LOS: B
Intersection Capacity Utilization 66.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	289	1	529	0	0	0	0	410	333	105	424	0
Future Volume (veh/h)	289	1	529	0	0	0	0	410	333	105	424	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	298	1	545				0	423	343	108	437	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	643	2	576				0	763	615	137	1899	0
Arrive On Green	0.36	0.36	0.36				0.00	0.54	0.54	0.10	0.71	0.00
Sat Flow, veh/h	1768	6	1583				0	1958	1503	1774	3632	0
Grp Volume(v), veh/h	299	0	545				0	401	365	108	437	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1770	1598	1774	1770	0
Q Serve(g_s), s	11.6	0.0	30.1				0.0	13.3	13.4	5.3	3.8	0.0
Cycle Q Clear(g_c), s	11.6	0.0	30.1				0.0	13.3	13.4	5.3	3.8	0.0
Prop In Lane	1.00		1.00				0.00		0.94	1.00		0.00
Lane Grp Cap(c), veh/h	645	0	576				0	724	654	137	1899	0
V/C Ratio(X)	0.46	0.00	0.95				0.00	0.55	0.56	0.79	0.23	0.00
Avail Cap(c_a), veh/h	660	0	589				0	724	654	266	1899	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.94	0.94	0.74	0.74	0.00
Uniform Delay (d), s/veh	21.9	0.0	27.8				0.0	15.2	15.2	39.6	6.5	0.0
Incr Delay (d2), s/veh	0.5	0.0	24.3				0.0	2.9	3.2	7.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.0	16.9				0.0	7.1	6.5	2.9	1.9	0.0
LnGrp Delay(d),s/veh	22.4	0.0	52.1				0.0	18.0	18.4	46.9	6.7	0.0
LnGrp LOS	C		D					B	B	D	A	
Approach Vol, veh/h		844						766			545	
Approach Delay, s/veh		41.6						18.2			14.7	
Approach LOS		D						B			B	

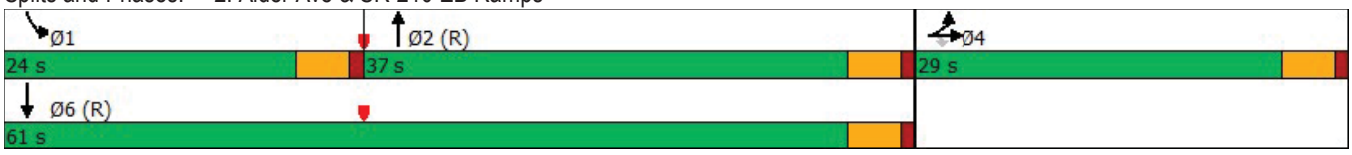
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.5	41.3		37.2		52.8		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	13.5	29.5		33.5		47.5		
Max Q Clear Time (g_c+I1), s	7.3	15.4		32.1		5.8		
Green Ext Time (p_c), s	0.1	4.3		0.7		3.3		

Intersection Summary	
HCM 2010 Ctrl Delay	26.5
HCM 2010 LOS	C

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	3	394	551	210	405
Future Volume (vph)	3	394	551	210	405
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	29.0	29.0	37.0	24.0	61.0
Total Split (%)	32.2%	32.2%	41.1%	26.7%	67.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	18.5	18.5	42.3	15.7	62.5
Actuated g/C Ratio	0.21	0.21	0.47	0.17	0.69
v/c Ratio	0.66	0.63	0.59	0.71	0.17
Control Delay	41.3	7.7	8.8	39.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	7.7	8.8	39.2	7.8
LOS	D	A	A	D	A
Approach Delay	20.2		8.8		18.5
Approach LOS	C		A		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 71.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	3	394	0	0	0	0	551	396	210	405	0
Future Volume (veh/h)	229	3	394	0	0	0	0	551	396	210	405	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	239	3	410				0	574	412	219	422	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	477	6	431				0	857	615	253	2222	0
Arrive On Green	0.27	0.27	0.27				0.00	0.87	0.87	0.29	1.00	0.00
Sat Flow, veh/h	1753	22	1583				0	2063	1414	1774	3632	0
Grp Volume(v), veh/h	242	0	410				0	516	470	219	422	0
Grp Sat Flow(s),veh/h/ln	1775	0	1583				0	1770	1613	1774	1770	0
Q Serve(g_s), s	10.3	0.0	22.9				0.0	8.2	8.2	10.5	0.0	0.0
Cycle Q Clear(g_c), s	10.3	0.0	22.9				0.0	8.2	8.2	10.5	0.0	0.0
Prop In Lane	0.99		1.00				0.00		0.88	1.00		0.00
Lane Grp Cap(c), veh/h	483	0	431				0	770	702	253	2222	0
V/C Ratio(X)	0.50	0.00	0.95				0.00	0.67	0.67	0.87	0.19	0.00
Avail Cap(c_a), veh/h	483	0	431				0	770	702	384	2222	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.54	0.54	0.65	0.65	0.00
Uniform Delay (d), s/veh	27.6	0.0	32.2				0.0	3.8	3.8	31.3	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	31.1				0.0	2.5	2.8	8.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	13.7				0.0	4.0	3.7	5.7	0.0	0.0
LnGrp Delay(d),s/veh	28.4	0.0	63.3				0.0	6.3	6.6	39.8	0.1	0.0
LnGrp LOS	C		E					A	A	D	A	
Approach Vol, veh/h		652						986			641	
Approach Delay, s/veh		50.3						6.5			13.7	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.3	43.7		29.0		61.0		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.5	32.5		24.5		56.5		
Max Q Clear Time (g_c+I1), s	12.5	10.2		24.9		2.0		
Green Ext Time (p_c), s	0.3	7.2		0.0		3.2		

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	95	110	45	10	145	55	482	141	756
Future Volume (vph)	95	110	45	10	145	55	482	141	756
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.0	30.0	30.0	10.0	24.0	13.0	29.0	21.0	37.0
Total Split (%)	17.8%	33.3%	33.3%	11.1%	26.7%	14.4%	32.2%	23.3%	41.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	9.8	20.1	20.1	5.5	10.1	8.4	41.4	13.0	47.9
Actuated g/C Ratio	0.11	0.22	0.22	0.06	0.11	0.09	0.46	0.14	0.53
v/c Ratio	0.54	0.29	0.10	0.10	0.61	0.36	0.33	0.60	0.46
Control Delay	48.1	29.5	0.4	42.2	24.6	38.9	23.3	52.7	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	29.5	0.4	42.2	24.6	38.9	23.3	52.7	15.7
LOS	D	C	A	D	C	D	C	D	B
Approach Delay		31.3			25.2		24.9		21.3
Approach LOS		C			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 55.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	110	45	10	145	136	55	482	5	141	756	40
Future Volume (veh/h)	95	110	45	10	145	136	55	482	5	141	756	40
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	103	120	49	11	158	148	60	524	5	153	822	43
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	349	297	24	227	198	78	1777	17	186	1901	99
Arrive On Green	0.07	0.19	0.19	0.01	0.13	0.13	0.01	0.16	0.16	0.21	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	1793	1564	1774	3592	34	1774	3422	179
Grp Volume(v), veh/h	103	120	49	11	156	150	60	258	271	153	425	440
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1587	1774	1770	1857	1774	1770	1831
Q Serve(g_s), s	5.1	5.0	2.3	0.6	7.6	8.2	3.0	11.5	11.5	7.4	0.0	0.0
Cycle Q Clear(g_c), s	5.1	5.0	2.3	0.6	7.6	8.2	3.0	11.5	11.5	7.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.99	1.00		0.02	1.00		0.10
Lane Grp Cap(c), veh/h	131	349	297	24	224	201	78	875	918	186	983	1017
V/C Ratio(X)	0.78	0.34	0.17	0.46	0.69	0.75	0.77	0.29	0.30	0.82	0.43	0.43
Avail Cap(c_a), veh/h	227	528	449	108	383	344	168	875	918	325	983	1017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.84	0.84	0.84
Uniform Delay (d), s/veh	41.0	31.8	30.7	44.1	37.6	37.9	43.9	23.9	23.9	34.8	0.0	0.0
Incr Delay (d2), s/veh	9.8	0.6	0.3	13.5	3.8	5.4	14.7	0.8	0.8	7.5	1.2	1.1
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	2.9	2.7	1.0	0.4	4.0	3.9	1.8	5.9	6.1	4.0	0.3	0.3
LnGrp Delay(d),s/veh	50.7	32.3	30.9	57.5	41.5	43.3	58.6	24.7	24.7	42.3	1.2	1.1
LnGrp LOS	D	C	C	E	D	D	E	C	C	D	A	A
Approach Vol, veh/h		272			317			589			1018	
Approach Delay, s/veh		39.0			42.9			28.1			7.3	
Approach LOS		D			D			C			A	

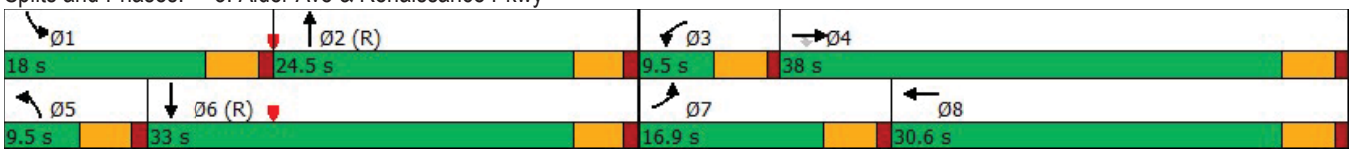
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	49.0	5.7	21.4	8.4	54.5	11.2	15.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	24.5	5.5	25.5	8.5	32.5	11.5	19.5
Max Q Clear Time (g_c+I1), s	9.4	13.5	2.6	7.0	5.0	2.0	7.1	10.2
Green Ext Time (p_c), s	0.2	2.4	0.0	0.7	0.0	6.3	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	22.0
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	108	589	103	13	37	18	607	212	493
Future Volume (vph)	108	589	103	13	37	18	607	212	493
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.9	38.0	38.0	9.5	30.6	9.5	24.5	18.0	33.0
Total Split (%)	18.8%	42.2%	42.2%	10.6%	34.0%	10.6%	27.2%	20.0%	36.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.6	36.9	36.9	5.0	23.7	5.5	22.9	14.8	38.4
Actuated g/C Ratio	0.12	0.41	0.41	0.06	0.26	0.06	0.25	0.16	0.43
v/c Ratio	0.58	0.86	0.15	0.14	0.19	0.18	0.81	0.81	0.45
Control Delay	48.7	37.3	1.0	43.9	7.8	43.6	41.9	52.1	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	37.3	1.0	43.9	7.8	43.6	41.9	52.1	20.7
LOS	D	D	A	D	A	D	D	D	C
Approach Delay		34.2			10.4		41.9		28.9
Approach LOS		C			B		D		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 80.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	589	103	13	37	125	18	607	45	212	493	114
Future Volume (veh/h)	108	589	103	13	37	125	18	607	45	212	493	114
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	120	654	114	14	41	139	20	674	50	236	548	127
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	686	583	29	530	474	39	890	66	264	1124	260
Arrive On Green	0.09	0.37	0.37	0.02	0.30	0.30	0.01	0.09	0.09	0.30	0.79	0.79
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	3341	248	1774	2856	660
Grp Volume(v), veh/h	120	654	114	14	41	139	20	357	367	236	339	336
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1819	1774	1770	1746
Q Serve(g_s), s	6.0	30.8	4.4	0.7	1.5	6.1	1.0	17.7	17.8	11.4	5.9	6.0
Cycle Q Clear(g_c), s	6.0	30.8	4.4	0.7	1.5	6.1	1.0	17.7	17.8	11.4	5.9	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.38
Lane Grp Cap(c), veh/h	151	686	583	29	530	474	39	471	484	264	696	687
V/C Ratio(X)	0.79	0.95	0.20	0.48	0.08	0.29	0.52	0.76	0.76	0.89	0.49	0.49
Avail Cap(c_a), veh/h	244	693	589	99	530	474	99	471	484	266	696	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.92	0.92	0.92
Uniform Delay (d), s/veh	40.4	27.7	19.4	43.9	22.6	24.2	44.2	38.2	38.2	30.9	6.4	6.5
Incr Delay (d2), s/veh	9.0	23.2	0.2	11.8	0.1	0.3	9.7	10.3	10.1	27.4	2.2	2.3
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	3.3	20.2	2.0	0.4	0.7	2.7	0.6	10.0	10.3	7.5	3.1	3.1
LnGrp Delay(d),s/veh	49.4	50.9	19.5	55.7	22.7	24.6	53.9	48.5	48.3	58.3	8.7	8.7
LnGrp LOS	D	D	B	E	C	C	D	D	D	E	A	A
Approach Vol, veh/h		888			194			744			911	
Approach Delay, s/veh		46.7			26.4			48.6			21.6	
Approach LOS		D			C			D			C	

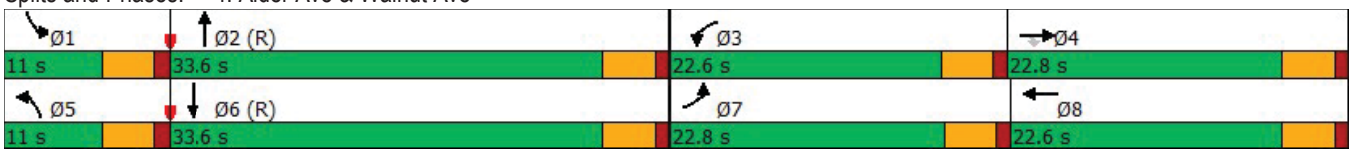
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.9	28.5	6.0	37.6	6.5	39.9	12.2	31.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	20.0	5.0	33.5	5.0	28.5	12.4	26.1
Max Q Clear Time (g_c+I1), s	13.4	19.8	2.7	32.8	3.0	8.0	8.0	8.1
Green Ext Time (p_c), s	0.0	0.1	0.0	0.4	0.0	4.2	0.1	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	37.4
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	59	5	21	10	0	32	485	36	661
Future Volume (vph)	59	5	21	10	0	32	485	36	661
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.8	22.8	22.8	22.6	22.6	11.0	33.6	11.0	33.6
Total Split (%)	25.3%	25.3%	25.3%	25.1%	25.1%	12.2%	37.3%	12.2%	37.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	8.7	8.4	8.4	6.2	5.5	7.3	65.3	7.5	65.5
Actuated g/C Ratio	0.10	0.09	0.09	0.07	0.06	0.08	0.73	0.08	0.73
v/c Ratio	0.39	0.03	0.09	0.09	0.01	0.25	0.22	0.27	0.34
Control Delay	43.8	36.4	0.7	40.5	0.0	42.4	7.1	20.4	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	36.4	0.7	40.5	0.0	42.4	7.1	20.4	21.0
LOS	D	D	A	D	A	D	A	C	C
Approach Delay		32.6			31.8		9.2		21.0
Approach LOS		C			C		A		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 46.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	5	21	10	0	3	32	485	10	36	661	103
Future Volume (veh/h)	59	5	21	10	0	3	32	485	10	36	661	103
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	66	6	24	11	0	3	36	545	11	40	743	116
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	95	81	85	0	69	58	2363	48	62	2050	320
Arrive On Green	0.06	0.05	0.05	0.05	0.00	0.04	0.07	1.00	1.00	0.07	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3548	72	1774	3069	479
Grp Volume(v), veh/h	66	6	24	11	0	3	36	272	284	40	428	431
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1850	1774	1770	1778
Q Serve(g_s), s	3.3	0.3	1.3	0.5	0.0	0.2	1.8	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.3	1.3	0.5	0.0	0.2	1.8	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		0.27
Lane Grp Cap(c), veh/h	99	95	81	85	0	69	58	1178	1232	62	1182	1188
V/C Ratio(X)	0.67	0.06	0.30	0.13	0.00	0.04	0.62	0.23	0.23	0.64	0.36	0.36
Avail Cap(c_a), veh/h	361	379	322	357	0	318	128	1178	1232	128	1182	1188
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	41.7	40.7	41.2	41.0	0.0	41.3	41.5	0.0	0.0	41.3	0.0	0.0
Incr Delay (d2), s/veh	7.6	0.3	2.0	0.7	0.0	0.3	10.1	0.5	0.4	9.5	0.8	0.8
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	1.8	0.1	0.6	0.3	0.0	0.1	1.0	0.1	0.1	1.1	0.3	0.3
LnGrp Delay(d),s/veh	49.2	40.9	43.2	41.7	0.0	41.5	51.5	0.5	0.4	50.8	0.8	0.8
LnGrp LOS	D	D	D	D		D	D	A	A	D	A	A
Approach Vol, veh/h		96			14			592			899	
Approach Delay, s/veh		47.2			41.7			3.6			3.0	
Approach LOS		D			D			A			A	

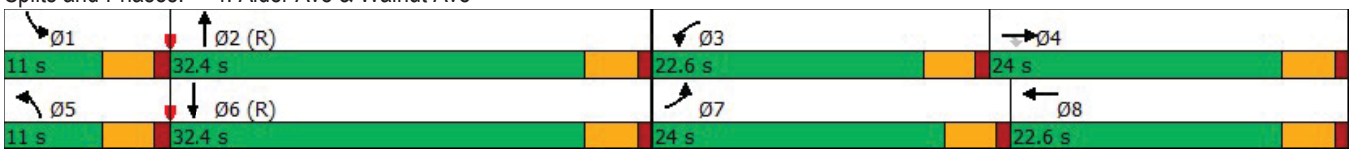
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	64.4	8.8	9.1	7.5	64.6	9.5	8.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	29.1	18.1	18.3	6.5	29.1	18.3	18.1
Max Q Clear Time (g_c+I1), s	4.0	2.0	2.5	3.3	3.8	2.0	5.3	2.2
Green Ext Time (p_c), s	0.0	3.5	0.0	0.0	0.0	6.2	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.2
HCM 2010 LOS	A

Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	167	25	3	0	23	573	21	555
Future Volume (vph)	167	25	3	0	23	573	21	555
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7		3	8	5	2	1	6
Permitted Phases		4						
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	24.0	24.0	22.6	22.6	11.0	32.4	11.0	32.4
Total Split (%)	26.7%	26.7%	25.1%	25.1%	12.2%	36.0%	12.2%	36.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	13.9	13.8	5.8	5.5	6.8	60.1	6.7	60.1
Actuated g/C Ratio	0.15	0.15	0.06	0.06	0.08	0.67	0.07	0.67
v/c Ratio	0.63	0.04	0.03	0.01	0.18	0.25	0.17	0.28
Control Delay	45.3	0.1	39.7	0.0	41.6	8.8	23.6	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	0.1	39.7	0.0	41.6	8.8	23.6	18.6
LOS	D	A	D	A	D	A	C	B
Approach Delay				23.8		10.0		18.8
Approach LOS				C		B		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 17.9	Intersection LOS: B
Intersection Capacity Utilization 42.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	0	25	3	0	2	23	573	5	21	555	77
Future Volume (veh/h)	167	0	25	3	0	2	23	573	5	21	555	77
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	172	0	26	3	0	2	24	591	5	22	572	79
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	176	149	97	0	47	44	2256	19	42	1956	269
Arrive On Green	0.12	0.00	0.09	0.05	0.00	0.03	0.05	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3597	30	1774	3126	431
Grp Volume(v), veh/h	172	0	26	3	0	2	24	291	305	22	323	328
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1857	1774	1770	1787
Q Serve(g_s), s	8.5	0.0	1.4	0.1	0.0	0.1	1.2	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	8.5	0.0	1.4	0.1	0.0	0.1	1.2	0.0	0.0	1.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		0.24
Lane Grp Cap(c), veh/h	212	176	149	97	0	47	44	1110	1165	42	1107	1118
V/C Ratio(X)	0.81	0.00	0.17	0.03	0.00	0.04	0.54	0.26	0.26	0.53	0.29	0.29
Avail Cap(c_a), veh/h	384	404	343	357	0	318	128	1110	1165	128	1107	1118
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	38.7	0.0	37.5	40.3	0.0	42.4	42.2	0.0	0.0	42.4	0.0	0.0
Incr Delay (d2), s/veh	7.4	0.0	0.5	0.1	0.0	0.4	9.8	0.6	0.5	9.2	0.6	0.6
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	4.6	0.0	0.6	0.1	0.0	0.1	0.7	0.2	0.2	0.6	0.2	0.2
LnGrp Delay(d),s/veh	46.0	0.0	38.1	40.4	0.0	42.8	52.0	0.6	0.5	51.6	0.6	0.6
LnGrp LOS	D		D	D		D	D	A	A	D	A	A
Approach Vol, veh/h		198			5			620			673	
Approach Delay, s/veh		45.0			41.3			2.6			2.3	
Approach LOS		D			D			A			A	

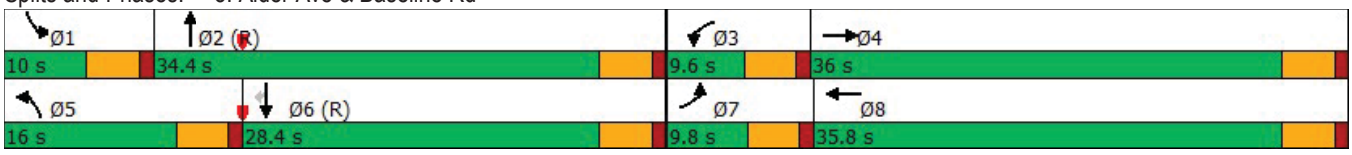
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	61.0	9.4	13.0	6.8	60.8	15.2	7.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	27.9	18.1	19.5	6.5	27.9	19.5	18.1
Max Q Clear Time (g_c+I1), s	3.1	2.0	2.1	3.4	3.2	2.0	10.5	2.1
Green Ext Time (p_c), s	0.0	3.8	0.0	0.0	0.0	4.3	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	59	432	42	406	169	320	63	310	99
Future Volume (vph)	59	432	42	406	169	320	63	310	99
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	9.8	36.0	9.6	35.8	16.0	34.4	10.0	28.4	28.4
Total Split (%)	10.9%	40.0%	10.7%	39.8%	17.8%	38.2%	11.1%	31.6%	31.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.3	31.3	5.1	31.1	11.8	34.1	5.7	25.8	25.8
Actuated g/C Ratio	0.06	0.35	0.06	0.35	0.13	0.38	0.06	0.29	0.29
v/c Ratio	0.70	0.97	0.52	0.87	0.90	0.79	0.70	0.72	0.21
Control Delay	76.5	58.7	71.3	31.2	79.6	36.0	74.5	38.9	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.5	58.7	71.3	31.2	79.6	36.0	74.5	38.9	2.0
LOS	E	E	E	C	E	D	E	D	A
Approach Delay		60.6		34.7		48.1		36.0	
Approach LOS		E		C		D		D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 45.6	Intersection LOS: D
Intersection Capacity Utilization 74.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	432	70	42	406	42	169	320	120	63	310	99
Future Volume (veh/h)	59	432	70	42	406	42	169	320	120	63	310	99
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	73	533	86	52	501	52	209	395	148	78	383	122
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	548	88	72	561	58	227	456	171	100	525	446
Arrive On Green	0.05	0.35	0.35	0.04	0.34	0.34	0.13	0.35	0.35	0.02	0.09	0.09
Sat Flow, veh/h	1774	1566	253	1774	1660	172	1774	1293	484	1774	1863	1583
Grp Volume(v), veh/h	73	0	619	52	0	553	209	0	543	78	383	122
Grp Sat Flow(s),veh/h/ln	1774	0	1818	1774	0	1832	1774	0	1777	1774	1863	1583
Q Serve(g_s), s	3.7	0.0	30.2	2.6	0.0	25.8	10.5	0.0	25.6	3.9	18.0	6.5
Cycle Q Clear(g_c), s	3.7	0.0	30.2	2.6	0.0	25.8	10.5	0.0	25.6	3.9	18.0	6.5
Prop In Lane	1.00		0.14	1.00		0.09	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	94	0	636	72	0	619	227	0	627	100	525	446
V/C Ratio(X)	0.78	0.00	0.97	0.73	0.00	0.89	0.92	0.00	0.87	0.78	0.73	0.27
Avail Cap(c_a), veh/h	104	0	636	101	0	637	227	0	627	108	525	446
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.74	0.00	0.74	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	28.8	42.7	0.0	28.3	38.8	0.0	27.1	43.6	37.5	32.2
Incr Delay (d2), s/veh	28.1	0.0	28.8	10.9	0.0	11.5	39.0	0.0	14.8	27.4	8.6	1.5
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	2.5	0.0	20.2	1.5	0.0	15.0	7.6	0.0	15.1	2.7	10.6	3.0
LnGrp Delay(d),s/veh	70.2	0.0	57.7	53.6	0.0	39.8	77.8	0.0	42.0	71.0	46.1	33.8
LnGrp LOS	E		E	D		D	E		D	E	D	C
Approach Vol, veh/h		692			605			752			583	
Approach Delay, s/veh		59.0			41.0			51.9			46.9	
Approach LOS		E			D			D			D	

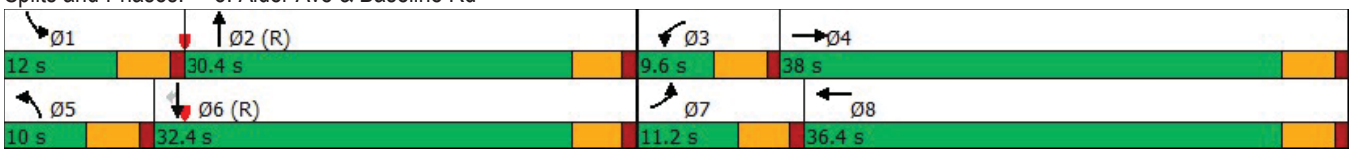
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	36.3	8.1	36.0	16.0	29.9	9.2	34.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	29.9	5.1	31.5	11.5	23.9	5.3	31.3
Max Q Clear Time (g_c+I1), s	5.9	27.6	4.6	32.2	12.5	20.0	5.7	27.8
Green Ext Time (p_c), s	0.0	0.8	0.0	0.0	0.0	1.0	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	50.1
HCM 2010 LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	46	498	34	293	60	346	109	291	79
Future Volume (vph)	46	498	34	293	60	346	109	291	79
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	11.2	38.0	9.6	36.4	10.0	30.4	12.0	32.4	32.4
Total Split (%)	12.4%	42.2%	10.7%	40.4%	11.1%	33.8%	13.3%	36.0%	36.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.5	32.4	5.1	31.5	5.9	30.2	8.1	34.4	34.4
Actuated g/C Ratio	0.07	0.36	0.06	0.35	0.07	0.34	0.09	0.38	0.38
v/c Ratio	0.38	0.93	0.36	0.57	0.54	0.66	0.72	0.43	0.12
Control Delay	48.7	49.9	64.7	19.0	59.3	33.3	66.8	25.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	49.9	64.7	19.0	59.3	33.3	66.8	25.6	1.9
LOS	D	D	E	B	E	C	E	C	A
Approach Delay		49.8		23.0		36.8		31.1	
Approach LOS		D		C		D		C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 36.9	Intersection LOS: D
Intersection Capacity Utilization 76.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	498	88	34	293	58	60	346	44	109	291	79
Future Volume (veh/h)	46	498	88	34	293	58	60	346	44	109	291	79
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	48	524	93	36	308	61	63	364	46	115	306	83
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	555	99	58	536	106	81	527	67	145	673	572
Arrive On Green	0.04	0.36	0.36	0.03	0.35	0.35	0.05	0.32	0.32	0.03	0.12	0.12
Sat Flow, veh/h	1774	1541	273	1774	1511	299	1774	1622	205	1774	1863	1583
Grp Volume(v), veh/h	48	0	617	36	0	369	63	0	410	115	306	83
Grp Sat Flow(s),veh/h/ln	1774	0	1814	1774	0	1810	1774	0	1827	1774	1863	1583
Q Serve(g_s), s	2.4	0.0	29.7	1.8	0.0	14.9	3.2	0.0	17.6	5.8	13.8	4.2
Cycle Q Clear(g_c), s	2.4	0.0	29.7	1.8	0.0	14.9	3.2	0.0	17.6	5.8	13.8	4.2
Prop In Lane	1.00		0.15	1.00		0.17	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	69	0	654	58	0	642	81	0	593	145	673	572
V/C Ratio(X)	0.70	0.00	0.94	0.62	0.00	0.58	0.78	0.00	0.69	0.79	0.45	0.15
Avail Cap(c_a), veh/h	132	0	675	101	0	642	108	0	593	148	673	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.78	0.00	0.78	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	0.0	27.9	43.0	0.0	23.6	42.5	0.0	26.4	43.0	31.4	27.2
Incr Delay (d2), s/veh	11.9	0.0	21.5	8.0	0.0	1.0	22.2	0.0	6.5	24.5	2.2	0.5
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	1.4	0.0	18.7	1.0	0.0	7.6	2.1	0.0	10.0	3.8	7.5	1.9
LnGrp Delay(d),s/veh	54.7	0.0	49.4	50.9	0.0	24.5	64.7	0.0	32.9	67.5	33.6	27.7
LnGrp LOS	D		D	D		C	E		C	E	C	C
Approach Vol, veh/h		665			405			473			504	
Approach Delay, s/veh		49.8			26.9			37.2			40.4	
Approach LOS		D			C			D			D	

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	11.9	33.7	7.5	36.9	8.6	37.0	8.0	36.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	25.9	5.1	33.5	5.5	27.9	6.7	31.9
Max Q Clear Time (g_c+I1), s	7.8	19.6	3.8	31.7	5.2	15.8	4.4	16.9
Green Ext Time (p_c), s	0.0	1.3	0.0	0.8	0.0	1.6	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.0
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	5.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	35	14	11	23	5	57
Future Vol, veh/h	35	14	11	23	5	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	18	14	30	7	75

Major/Minor	Minor2		Major2	
Conflicting Flow All	58	30	0	0
Stage 1	58	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	833	1044	-	-
Stage 1	847	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1044	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.7	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1044	-	-
HCM Lane V/C Ratio	0.062	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	48	9	51	31	16	46
Future Vol, veh/h	48	9	51	31	16	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	12	67	41	21	61

Major/Minor	Minor2		Major2	
Conflicting Flow All	175	41	0	0
Stage 1	175	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	718	1030	-	-
Stage 1	754	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1030	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.8	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1030	-	-
HCM Lane V/C Ratio	0.073	-	-
HCM Control Delay (s)	8.8	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection	
Int Delay, s/veh	20.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	501	150	86	540	38	86	5	61	1	3	7
Future Vol, veh/h	25	501	150	86	540	38	86	5	61	1	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	634	190	109	684	48	109	6	77	1	4	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	732	0	0	824	0	0	1260	1648	634	1761	1814	366
Stage 1	-	-	-	-	-	-	698	698	-	926	926	-
Stage 2	-	-	-	-	-	-	562	950	-	835	888	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	870	-	-	804	-	-	137	99	478	59	78	632
Stage 1	-	-	-	-	-	-	430	441	-	290	347	-
Stage 2	-	-	-	-	-	-	480	338	-	361	361	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	870	-	-	804	-	-	113	82	478	41	65	632
Mov Cap-2 Maneuver	-	-	-	-	-	-	113	82	-	41	65	-
Stage 1	-	-	-	-	-	-	414	425	-	279	300	-
Stage 2	-	-	-	-	-	-	404	292	-	287	348	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.3	192.5	34.7
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	160	870	-	-	804	-	-	135
HCM Lane V/C Ratio	1.203	0.036	-	-	0.135	-	-	0.103
HCM Control Delay (s)	192.5	9.3	-	-	10.2	-	-	34.7
HCM Lane LOS	F	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	10.8	0.1	-	-	0.5	-	-	0.3

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	580	75	52	385	87	59	7	36	7	6	23
Future Vol, veh/h	12	580	75	52	385	87	59	7	36	7	6	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	637	82	57	423	96	65	8	40	8	7	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	519	0	0	719	0	0	992	1296	637	1313	1330	260
Stage 1	-	-	-	-	-	-	663	663	-	585	585	-
Stage 2	-	-	-	-	-	-	329	633	-	728	745	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1045	-	-	880	-	-	212	162	476	125	154	740
Stage 1	-	-	-	-	-	-	450	458	-	465	497	-
Stage 2	-	-	-	-	-	-	659	472	-	414	420	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1045	-	-	880	-	-	186	150	476	104	142	740
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	150	-	104	142	-
Stage 1	-	-	-	-	-	-	445	453	-	459	465	-
Stage 2	-	-	-	-	-	-	587	441	-	369	415	-

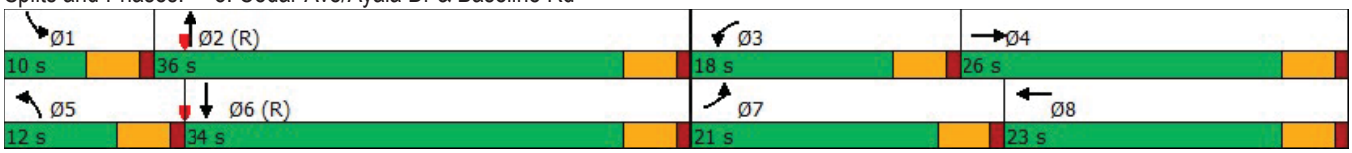
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	34.2	21.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	232	1045	-	-	880	-	-	256
HCM Lane V/C Ratio	0.483	0.013	-	-	0.065	-	-	0.155
HCM Control Delay (s)	34.2	8.5	-	-	9.4	-	-	21.6
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2.4	0	-	-	0.2	-	-	0.5

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	152	314	118	376	118	542	38	609
Future Volume (vph)	152	314	118	376	118	542	38	609
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	21.0	26.0	18.0	23.0	12.0	36.0	10.0	34.0
Total Split (%)	23.3%	28.9%	20.0%	25.6%	13.3%	40.0%	11.1%	37.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	13.0	17.7	11.1	15.8	7.7	41.3	6.0	35.5
Actuated g/C Ratio	0.14	0.20	0.12	0.18	0.09	0.46	0.07	0.39
v/c Ratio	0.63	0.65	0.57	0.69	0.42	0.42	0.18	0.53
Control Delay	41.6	19.2	47.3	39.9	43.5	19.0	41.6	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	19.2	47.3	39.9	43.5	19.0	41.6	23.4
LOS	D	B	D	D	D	B	D	C
Approach Delay		24.9		41.6		22.8		24.4
Approach LOS		C		D		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 27.5	Intersection LOS: C
Intersection Capacity Utilization 58.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	314	129	118	376	31	118	542	90	38	609	88
Future Volume (veh/h)	152	314	129	118	376	31	118	542	90	38	609	88
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	160	331	136	124	396	33	124	571	95	40	641	93
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	2	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	431	174	156	504	42	192	1525	253	121	1494	216
Arrive On Green	0.11	0.17	0.17	0.09	0.15	0.15	0.06	0.50	0.50	0.04	0.48	0.48
Sat Flow, veh/h	1774	2463	994	1774	3309	275	3442	3039	504	3442	3103	450
Grp Volume(v), veh/h	160	236	231	124	211	218	124	332	334	40	365	369
Grp Sat Flow(s),veh/h/ln	1774	1770	1687	1774	1770	1814	1721	1770	1774	1721	1770	1783
Q Serve(g_s), s	7.9	11.4	11.8	6.2	10.3	10.4	3.2	10.3	10.4	1.0	12.1	12.2
Cycle Q Clear(g_c), s	7.9	11.4	11.8	6.2	10.3	10.4	3.2	10.3	10.4	1.0	12.1	12.2
Prop In Lane	1.00		0.59	1.00		0.15	1.00		0.28	1.00		0.25
Lane Grp Cap(c), veh/h	196	310	295	156	269	276	192	888	890	121	852	859
V/C Ratio(X)	0.81	0.76	0.78	0.79	0.78	0.79	0.65	0.37	0.38	0.33	0.43	0.43
Avail Cap(c_a), veh/h	325	423	403	266	364	373	287	888	890	210	852	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.23	0.23	0.23	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	35.3	35.5	40.2	36.7	36.8	41.6	13.7	13.8	42.4	15.2	15.3
Incr Delay (d2), s/veh	2.0	1.3	1.6	8.8	7.6	7.9	3.6	1.2	1.2	1.6	1.6	1.6
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	4.0	5.7	5.6	3.4	5.6	5.8	1.6	5.4	5.4	0.5	6.3	6.3
LnGrp Delay(d),s/veh	41.1	36.7	37.1	49.0	44.3	44.6	45.3	14.9	15.0	44.0	16.8	16.8
LnGrp LOS	D	D	D	D	D	D	D	B	B	D	B	B
Approach Vol, veh/h		627			553			790			774	
Approach Delay, s/veh		38.0			45.5			19.7			18.2	
Approach LOS		D			D			B			B	

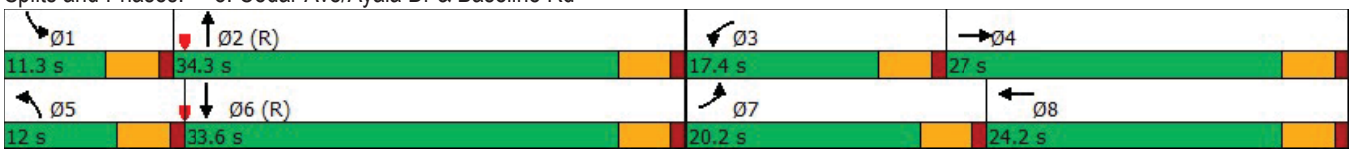
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	49.7	12.4	20.2	9.5	47.8	14.5	18.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	31.5	13.5	21.5	7.5	29.5	16.5	18.5
Max Q Clear Time (g_c+I1), s	3.0	12.4	8.2	13.8	5.2	14.2	9.9	12.4
Green Ext Time (p_c), s	0.0	4.1	0.1	1.7	0.1	4.1	0.2	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.7
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	149	446	116	385	120	517	104	586
Future Volume (vph)	149	446	116	385	120	517	104	586
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	20.2	27.0	17.4	24.2	12.0	34.3	11.3	33.6
Total Split (%)	22.4%	30.0%	19.3%	26.9%	13.3%	38.1%	12.6%	37.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.6	19.7	10.8	17.8	7.5	36.7	7.0	34.1
Actuated g/C Ratio	0.14	0.22	0.12	0.20	0.08	0.41	0.08	0.38
v/c Ratio	0.62	0.78	0.57	0.63	0.44	0.47	0.40	0.55
Control Delay	46.2	24.4	48.0	36.3	44.2	21.8	44.2	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	24.4	48.0	36.3	44.2	21.8	44.2	24.3
LOS	D	C	D	D	D	C	D	C
Approach Delay		28.8		38.8		25.4		26.9
Approach LOS		C		D		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 29.3	Intersection LOS: C
Intersection Capacity Utilization 62.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	446	132	116	385	37	120	517	119	104	586	115
Future Volume (veh/h)	149	446	132	116	385	37	120	517	119	104	586	115
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	155	465	138	121	401	39	125	539	124	108	610	120
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	2	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	562	166	153	610	59	193	1298	298	178	1327	260
Arrive On Green	0.11	0.21	0.21	0.09	0.19	0.19	0.06	0.45	0.45	0.05	0.45	0.45
Sat Flow, veh/h	1774	2697	795	1774	3261	316	3442	2861	656	3442	2951	579
Grp Volume(v), veh/h	155	304	299	121	217	223	125	333	330	108	365	365
Grp Sat Flow(s),veh/h/ln	1774	1770	1722	1774	1770	1807	1721	1770	1747	1721	1770	1761
Q Serve(g_s), s	7.7	14.8	15.0	6.0	10.2	10.3	3.2	11.4	11.5	2.8	12.9	12.9
Cycle Q Clear(g_c), s	7.7	14.8	15.0	6.0	10.2	10.3	3.2	11.4	11.5	2.8	12.9	12.9
Prop In Lane	1.00		0.46	1.00		0.17	1.00		0.38	1.00		0.33
Lane Grp Cap(c), veh/h	191	369	359	153	331	338	193	803	793	178	796	792
V/C Ratio(X)	0.81	0.82	0.83	0.79	0.66	0.66	0.65	0.41	0.42	0.61	0.46	0.46
Avail Cap(c_a), veh/h	309	442	431	254	387	396	287	803	793	260	796	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	34.0	34.1	40.3	33.9	33.9	41.6	16.5	16.6	41.8	17.2	17.2
Incr Delay (d2), s/veh	2.7	3.5	3.9	8.9	3.1	3.2	3.6	1.6	1.6	3.3	1.9	1.9
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	3.9	7.5	7.5	3.3	5.3	5.5	1.6	5.9	5.9	1.4	6.7	6.7
LnGrp Delay(d),s/veh	42.0	37.6	38.1	49.3	37.0	37.2	45.2	18.1	18.2	45.1	19.1	19.1
LnGrp LOS	D	D	D	D	D	D	D	B	B	D	B	B
Approach Vol, veh/h		758			561			788			838	
Approach Delay, s/veh		38.7			39.7			22.4			22.4	
Approach LOS		D			D			C			C	

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	9.2	45.3	12.2	23.3	9.5	45.0	14.2	21.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.8	29.8	12.9	22.5	7.5	29.1	15.7	19.7
Max Q Clear Time (g_c+I1), s	4.8	13.5	8.0	17.0	5.2	14.9	9.7	12.3
Green Ext Time (p_c), s	0.1	3.8	0.1	1.8	0.1	4.0	0.2	1.5

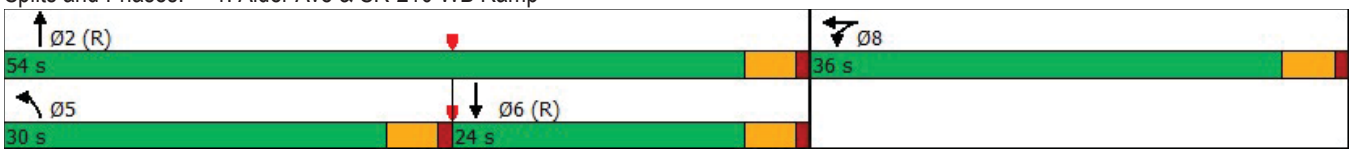
Intersection Summary	
HCM 2010 Ctrl Delay	29.9
HCM 2010 LOS	C

- Cumulative 2020 Conditions

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	735	2	656	964	428
Future Volume (vph)	735	2	656	964	428
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	36.0	36.0	30.0	54.0	24.0
Total Split (%)	40.0%	40.0%	33.3%	60.0%	26.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	31.5	31.5	25.5	49.5	19.5
Actuated g/C Ratio	0.35	0.35	0.28	0.55	0.22
v/c Ratio	1.19	0.72	1.31	0.50	1.01
Control Delay	129.0	27.0	170.0	23.0	56.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	129.0	27.0	170.0	23.0	56.0
LOS	F	C	F	C	E
Approach Delay		90.2		82.5	56.0
Approach LOS		F		F	E

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.31	
Intersection Signal Delay: 78.2	Intersection LOS: E
Intersection Capacity Utilization 117.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	735	2	450	656	964	0	0	428	533
Future Volume (veh/h)	0	0	0	735	2	450	656	964	0	0	428	533
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				735	2	450	656	964	0	0	428	533
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				621	2	552	503	1947	0	0	383	343
Arrive On Green				0.35	0.35	0.35	0.57	1.00	0.00	0.00	0.22	0.22
Sat Flow, veh/h				1774	7	1577	1774	3632	0	0	1863	1583
Grp Volume(v), veh/h				735	0	452	656	964	0	0	428	533
Grp Sat Flow(s),veh/h/ln				1774	0	1584	1774	1770	0	0	1770	1583
Q Serve(g_s), s				31.5	0.0	23.4	25.5	0.0	0.0	0.0	19.5	19.5
Cycle Q Clear(g_c), s				31.5	0.0	23.4	25.5	0.0	0.0	0.0	19.5	19.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				621	0	555	503	1947	0	0	383	343
V/C Ratio(X)				1.18	0.00	0.82	1.31	0.50	0.00	0.00	1.12	1.55
Avail Cap(c_a), veh/h				621	0	555	503	1947	0	0	383	343
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.3	0.0	26.6	19.5	0.0	0.0	0.0	35.3	35.3
Incr Delay (d2), s/veh				98.4	0.0	9.2	138.7	0.1	0.0	0.0	81.3	263.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				32.3	0.0	11.6	31.4	0.0	0.0	0.0	18.1	33.6
LnGrp Delay(d),s/veh				127.6	0.0	35.8	158.2	0.1	0.0	0.0	116.6	298.4
LnGrp LOS				F		D	F	A			F	F
Approach Vol, veh/h					1187			1620			961	
Approach Delay, s/veh					92.6			64.1			217.4	
Approach LOS					F			E			F	

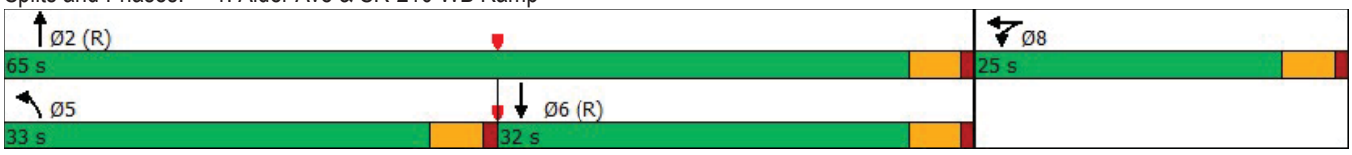
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		54.0			30.0	24.0		36.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		49.5			25.5	19.5		31.5
Max Q Clear Time (g_c+I1), s		3.0			28.5	22.5		34.5
Green Ext Time (p_c), s		8.8			0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		112.2
HCM 2010 LOS		F

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	480	5	1046	663	892
Future Volume (vph)	480	5	1046	663	892
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	25.0	25.0	33.0	65.0	32.0
Total Split (%)	27.8%	27.8%	36.7%	72.2%	35.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	20.5	20.5	28.5	60.5	27.5
Actuated g/C Ratio	0.23	0.23	0.32	0.67	0.31
v/c Ratio	1.19	0.43	1.87	0.28	1.35
Control Delay	141.3	7.3	414.9	11.3	189.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	141.3	7.3	414.9	11.3	189.8
LOS	F	A	F	B	F
Approach Delay		98.0		258.3	189.8
Approach LOS		F		F	F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.87	
Intersection Signal Delay: 202.8	Intersection LOS: F
Intersection Capacity Utilization 142.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	480	5	224	1046	663	0	0	892	681
Future Volume (veh/h)	0	0	0	480	5	224	1046	663	0	0	892	681
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				480	5	224	1046	663	0	0	892	681
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				404	8	354	562	2379	0	0	598	435
Arrive On Green				0.23	0.23	0.23	0.53	1.00	0.00	0.00	0.31	0.31
Sat Flow, veh/h				1774	35	1554	1774	3632	0	0	2050	1424
Grp Volume(v), veh/h				480	0	229	1046	663	0	0	803	770
Grp Sat Flow(s),veh/h/ln				1774	0	1589	1774	1770	0	0	1770	1611
Q Serve(g_s), s				20.5	0.0	11.7	28.5	0.0	0.0	0.0	27.5	27.5
Cycle Q Clear(g_c), s				20.5	0.0	11.7	28.5	0.0	0.0	0.0	27.5	27.5
Prop In Lane				1.00		0.98	1.00		0.00	0.00		0.88
Lane Grp Cap(c), veh/h				404	0	362	562	2379	0	0	541	492
V/C Ratio(X)				1.19	0.00	0.63	1.86	0.28	0.00	0.00	1.48	1.56
Avail Cap(c_a), veh/h				404	0	362	562	2379	0	0	541	492
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.7	0.0	31.4	21.2	0.0	0.0	0.0	31.3	31.3
Incr Delay (d2), s/veh				106.8	0.0	3.6	388.5	0.0	0.0	0.0	227.7	263.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				22.0	0.0	5.5	74.1	0.0	0.0	0.0	47.6	48.3
LnGrp Delay(d),s/veh				141.6	0.0	34.9	409.7	0.0	0.0	0.0	259.0	295.1
LnGrp LOS				F		C	F	A			F	F
Approach Vol, veh/h					709			1709			1573	
Approach Delay, s/veh					107.1			250.8			276.7	
Approach LOS					F			F			F	

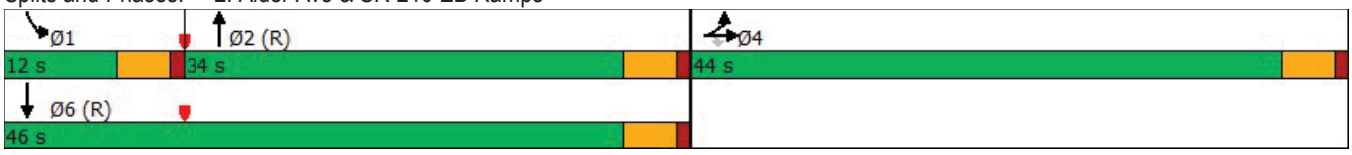
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		65.0			33.0	32.0		25.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		60.5			28.5	27.5		20.5
Max Q Clear Time (g_c+I1), s		3.0			31.5	30.5		23.5
Green Ext Time (p_c), s		5.4			0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		235.5
HCM 2010 LOS		F

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	1	1166	1048	211	940
Future Volume (vph)	1	1166	1048	211	940
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	44.0	44.0	34.0	12.0	46.0
Total Split (%)	48.9%	48.9%	37.8%	13.3%	51.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	39.5	39.5	29.5	7.5	41.5
Actuated g/C Ratio	0.44	0.44	0.33	0.08	0.46
v/c Ratio	0.72	1.59	1.33	1.44	0.58
Control Delay	27.3	293.4	173.1	230.6	26.3
Queue Delay	0.0	0.1	0.0	0.0	1.4
Total Delay	27.3	293.4	173.1	230.6	27.7
LOS	C	F	F	F	C
Approach Delay	206.8		173.1		64.9
Approach LOS	F		F		E

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.59	
Intersection Signal Delay: 158.1	Intersection LOS: F
Intersection Capacity Utilization 117.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	562	1	1166	0	0	0	0	1048	500	211	940	0
Future Volume (veh/h)	562	1	1166	0	0	0	0	1048	500	211	940	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	562	1	1166				0	1048	500	211	940	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	777	1	695				0	770	357	148	1632	0
Arrive On Green	0.44	0.44	0.44				0.00	0.44	0.44	0.17	0.92	0.00
Sat Flow, veh/h	1771	3	1583				0	2443	1090	1774	3632	0
Grp Volume(v), veh/h	563	0	1166				0	782	766	211	940	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1770	1670	1774	1770	0
Q Serve(g_s), s	23.5	0.0	39.5				0.0	29.5	29.5	7.5	4.0	0.0
Cycle Q Clear(g_c), s	23.5	0.0	39.5				0.0	29.5	29.5	7.5	4.0	0.0
Prop In Lane	1.00		1.00				0.00		0.65	1.00		0.00
Lane Grp Cap(c), veh/h	779	0	695				0	580	547	148	1632	0
V/C Ratio(X)	0.72	0.00	1.68				0.00	1.35	1.40	1.43	0.58	0.00
Avail Cap(c_a), veh/h	779	0	695				0	580	547	148	1632	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.09	0.09	0.09	0.09	0.00
Uniform Delay (d), s/veh	20.8	0.0	25.2				0.0	25.4	25.4	37.5	2.0	0.0
Incr Delay (d2), s/veh	3.3	0.0	311.3				0.0	157.9	180.5	195.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	0.0	77.3				0.0	39.7	40.9	11.7	1.6	0.0
LnGrp Delay(d),s/veh	24.1	0.0	336.6				0.0	183.2	205.9	233.4	2.2	0.0
LnGrp LOS	C		F					F	F	F	A	
Approach Vol, veh/h		1729						1548			1151	
Approach Delay, s/veh		234.8						194.5			44.6	
Approach LOS		F						F			D	

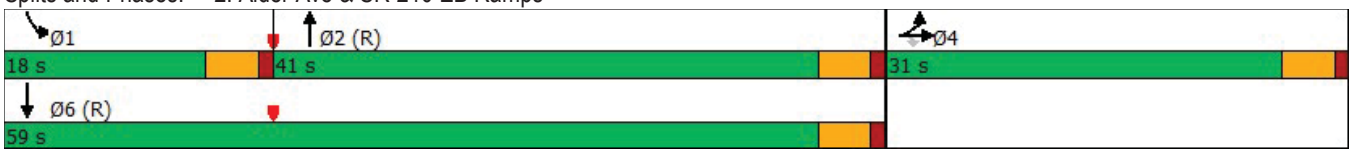
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	12.0	34.0		44.0		46.0		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	7.5	29.5		39.5		41.5		
Max Q Clear Time (g_c+I1), s	9.5	31.5		41.5		6.0		
Green Ext Time (p_c), s	0.0	0.0		0.0		8.2		

Intersection Summary	
HCM 2010 Ctrl Delay	171.3
HCM 2010 LOS	F

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	3	861	1320	475	902
Future Volume (vph)	3	861	1320	475	902
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	31.0	31.0	41.0	18.0	59.0
Total Split (%)	34.4%	34.4%	45.6%	20.0%	65.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	26.5	26.5	36.5	13.5	54.5
Actuated g/C Ratio	0.29	0.29	0.41	0.15	0.61
v/c Ratio	0.66	1.50	1.45	1.79	0.42
Control Delay	35.1	257.7	221.2	384.9	13.1
Queue Delay	0.0	0.1	0.0	0.0	0.1
Total Delay	35.1	257.8	221.2	384.9	13.2
LOS	D	F	F	F	B
Approach Delay	194.0		221.2		141.4
Approach LOS	F		F		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.79	
Intersection Signal Delay: 190.7	Intersection LOS: F
Intersection Capacity Utilization 142.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	343	3	861	0	0	0	0	1320	780	475	902	0
Future Volume (veh/h)	343	3	861	0	0	0	0	1320	780	475	902	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	343	3	861				0	1320	780	475	902	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	518	5	466				0	902	485	266	2143	0
Arrive On Green	0.29	0.29	0.29				0.00	0.81	0.81	0.30	1.00	0.00
Sat Flow, veh/h	1759	15	1583				0	2318	1196	1774	3632	0
Grp Volume(v), veh/h	346	0	861				0	1023	1077	475	902	0
Grp Sat Flow(s),veh/h/ln	1775	0	1583				0	1770	1652	1774	1770	0
Q Serve(g_s), s	15.4	0.0	26.5				0.0	36.5	36.5	13.5	0.0	0.0
Cycle Q Clear(g_c), s	15.4	0.0	26.5				0.0	36.5	36.5	13.5	0.0	0.0
Prop In Lane	0.99		1.00				0.00		0.72	1.00		0.00
Lane Grp Cap(c), veh/h	523	0	466				0	718	670	266	2143	0
V/C Ratio(X)	0.66	0.00	1.85				0.00	1.43	1.61	1.78	0.42	0.00
Avail Cap(c_a), veh/h	523	0	466				0	718	670	266	2143	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.09	0.09	0.09	0.09	0.00
Uniform Delay (d), s/veh	27.8	0.0	31.8				0.0	8.5	8.5	31.5	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.0	389.3				0.0	192.2	274.1	354.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	61.9				0.0	54.3	65.9	32.7	0.0	0.0
LnGrp Delay(d),s/veh	30.9	0.0	421.1				0.0	200.7	282.6	386.1	0.1	0.0
LnGrp LOS	C		F					F	F	F	A	
Approach Vol, veh/h		1207						2100			1377	
Approach Delay, s/veh		309.2						242.7			133.2	
Approach LOS		F						F			F	

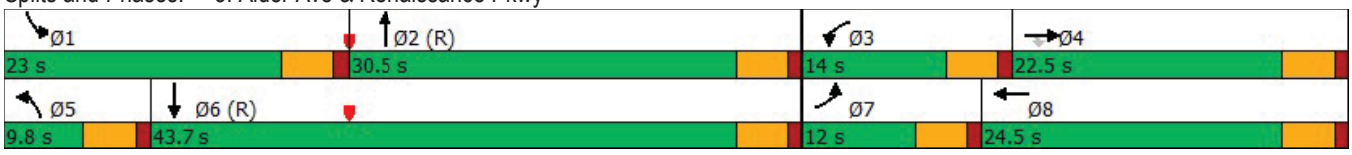
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	18.0	41.0		31.0		59.0		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	13.5	36.5		26.5		54.5		
Max Q Clear Time (g_c+I1), s	15.5	38.5		28.5		2.0		
Green Ext Time (p_c), s	0.0	0.0		0.0		8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	227.7
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	187	250	63	238	254	60	948	546	1474
Future Volume (vph)	187	250	63	238	254	60	948	546	1474
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	12.0	22.5	22.5	14.0	24.5	9.8	30.5	23.0	43.7
Total Split (%)	13.3%	25.0%	25.0%	15.6%	27.2%	10.9%	33.9%	25.6%	48.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	7.5	15.9	15.9	9.5	17.9	6.0	26.0	20.6	42.7
Actuated g/C Ratio	0.08	0.18	0.18	0.11	0.20	0.07	0.29	0.23	0.47
v/c Ratio	1.27	0.76	0.15	1.28	0.80	0.51	1.20	1.35	0.92
Control Delay	201.6	50.7	0.7	196.1	25.0	47.2	131.9	188.9	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4
Total Delay	201.6	50.7	0.7	196.1	25.0	47.2	131.9	188.9	24.6
LOS	F	D	A	F	C	D	F	F	C
Approach Delay		100.8			67.5		127.9		67.7
Approach LOS		F			E		F		E

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.35	
Intersection Signal Delay: 87.1	Intersection LOS: F
Intersection Capacity Utilization 112.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	250	63	238	254	467	60	948	269	546	1474	61
Future Volume (veh/h)	187	250	63	238	254	467	60	948	269	546	1474	61
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	187	250	63	238	254	467	60	948	269	546	1474	61
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	373	317	187	393	352	77	787	223	365	1562	65
Arrive On Green	0.08	0.20	0.20	0.11	0.22	0.22	0.01	0.10	0.10	0.14	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	2725	771	1774	3464	143
Grp Volume(v), veh/h	187	250	63	238	254	467	60	615	602	546	751	784
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1727	1774	1770	1838
Q Serve(g_s), s	7.5	11.2	3.0	9.5	11.7	20.0	3.0	26.0	26.0	18.5	37.3	37.5
Cycle Q Clear(g_c), s	7.5	11.2	3.0	9.5	11.7	20.0	3.0	26.0	26.0	18.5	37.3	37.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.08
Lane Grp Cap(c), veh/h	148	373	317	187	393	352	77	511	499	365	798	829
V/C Ratio(X)	1.26	0.67	0.20	1.27	0.65	1.33	0.78	1.20	1.21	1.50	0.94	0.95
Avail Cap(c_a), veh/h	148	373	317	187	393	352	104	511	499	365	798	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.87	0.87	0.09	0.09	0.09
Uniform Delay (d), s/veh	41.3	33.3	30.0	40.3	31.8	35.0	43.9	40.7	40.7	38.8	30.2	30.3
Incr Delay (d2), s/veh	162.0	4.6	0.3	157.0	3.6	165.7	19.7	106.5	109.1	225.1	2.9	3.0
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	10.3	6.2	1.3	12.8	6.1	24.9	1.9	27.9	27.5	31.9	18.9	19.7
LnGrp Delay(d),s/veh	203.2	37.9	30.3	197.2	35.4	200.7	63.6	147.2	149.8	263.9	33.2	33.4
LnGrp LOS	F	D	C	F	D	F	E	F	F	F	C	C
Approach Vol, veh/h		500			959			1277			2081	
Approach Delay, s/veh		98.8			156.1			144.5			93.8	
Approach LOS		F			F			F			F	

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	23.0	30.5	14.0	22.5	8.4	45.1	12.0	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	26.0	9.5	18.0	5.3	39.2	7.5	20.0
Max Q Clear Time (g_c+I1), s	20.5	28.0	11.5	13.2	5.0	39.5	9.5	22.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	120.1
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	193	773	109	309	222	36	1348	654	989
Future Volume (vph)	193	773	109	309	222	36	1348	654	989
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	15.4	28.0	28.0	12.0	24.6	9.6	32.0	18.0	40.4
Total Split (%)	17.1%	31.1%	31.1%	13.3%	27.3%	10.7%	35.6%	20.0%	44.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.9	23.5	23.5	7.5	20.1	5.1	27.5	13.5	39.7
Actuated g/C Ratio	0.12	0.26	0.26	0.08	0.22	0.06	0.31	0.15	0.44
v/c Ratio	0.90	1.59	0.20	2.10	0.97dr	0.36	1.61	2.47	0.73
Control Delay	81.8	302.5	1.4	542.6	31.6	43.7	303.2	685.0	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0	4.1	0.0	0.1
Total Delay	81.8	302.5	1.4	542.6	32.0	43.7	307.3	685.0	26.0
LOS	F	F	A	F	C	D	F	F	C
Approach Delay		232.3			181.3		301.9		268.7
Approach LOS		F			F		F		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.47	
Intersection Signal Delay: 255.8	Intersection LOS: F
Intersection Capacity Utilization 158.4%	ICU Level of Service H
Analysis Period (min) 15	

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 3: Alder Ave & Renaissance Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	773	109	309	222	526	36	1348	379	654	989	133
Future Volume (veh/h)	193	773	109	309	222	526	36	1348	379	654	989	133
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	193	773	109	309	222	526	36	1348	379	654	989	133
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	486	413	148	395	354	58	840	230	266	1325	178
Arrive On Green	0.12	0.26	0.26	0.08	0.22	0.22	0.01	0.10	0.10	0.20	0.56	0.56
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	2748	751	1774	3136	422
Grp Volume(v), veh/h	193	773	109	309	222	526	36	854	873	654	558	564
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1730	1774	1770	1788
Q Serve(g_s), s	9.7	23.5	4.9	7.5	10.0	20.1	1.8	27.5	27.5	13.5	21.4	21.4
Cycle Q Clear(g_c), s	9.7	23.5	4.9	7.5	10.0	20.1	1.8	27.5	27.5	13.5	21.4	21.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		0.24
Lane Grp Cap(c), veh/h	215	486	413	148	395	354	58	541	529	266	748	756
V/C Ratio(X)	0.90	1.59	0.26	2.09	0.56	1.49	0.62	1.58	1.65	2.46	0.75	0.75
Avail Cap(c_a), veh/h	215	486	413	148	395	354	101	541	529	266	748	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.69	0.69	0.21	0.21	0.21
Uniform Delay (d), s/veh	39.0	33.3	26.4	41.3	31.0	35.0	43.9	40.5	40.5	36.0	16.1	16.1
Incr Delay (d2), s/veh	35.2	274.8	0.3	512.9	1.8	233.9	7.1	267.2	298.7	658.4	1.5	1.5
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	6.8	49.2	2.2	24.7	5.1	31.7	1.0	53.6	57.0	55.2	10.5	10.7
LnGrp Delay(d),s/veh	74.2	308.1	26.7	554.1	32.8	268.9	51.0	307.7	339.1	694.4	17.5	17.5
LnGrp LOS	E	F	C	F	C	F	D	F	F	F	B	B
Approach Vol, veh/h		1075			1057			1763			1776	
Approach Delay, s/veh		237.5			302.7			318.0			266.8	
Approach LOS		F			F			F			F	

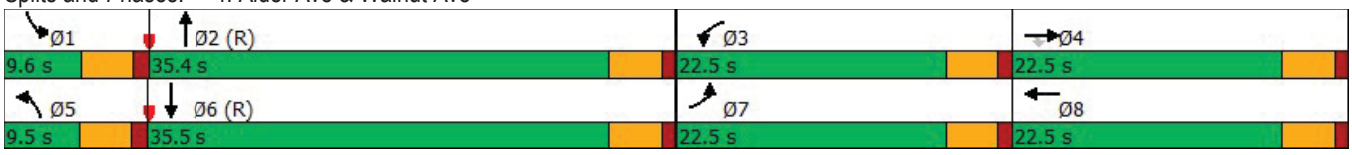
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	32.0	12.0	28.0	7.5	42.5	15.4	24.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	27.5	7.5	23.5	5.1	35.9	10.9	20.1
Max Q Clear Time (g_c+I1), s	15.5	29.5	9.5	25.5	3.8	23.4	11.7	22.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	283.9
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	97	5	37	10	0	46	1218	36	1219
Future Volume (vph)	97	5	37	10	0	46	1218	36	1219
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	35.4	9.6	35.5
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	10.6%	39.3%	10.7%	39.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.2	9.7	9.7	6.1	5.5	7.8	64.1	7.3	63.7
Actuated g/C Ratio	0.11	0.11	0.11	0.07	0.06	0.09	0.71	0.08	0.71
v/c Ratio	0.48	0.02	0.13	0.08	0.01	0.30	0.49	0.25	0.63
Control Delay	44.7	34.2	0.9	40.4	0.0	42.9	10.3	32.2	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	34.2	0.9	40.4	0.0	42.9	10.3	32.2	22.9
LOS	D	C	A	D	A	D	B	C	C
Approach Delay		32.7			31.1		11.5		23.1
Approach LOS		C			C		B		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 18.6	Intersection LOS: B
Intersection Capacity Utilization 63.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	5	37	10	0	3	46	1218	10	36	1219	311
Future Volume (veh/h)	97	5	37	10	0	3	46	1218	10	36	1219	311
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	97	5	37	10	0	3	46	1218	10	36	1219	311
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	121	103	92	0	66	67	2339	19	58	1808	455
Arrive On Green	0.08	0.06	0.06	0.05	0.00	0.04	0.08	1.00	1.00	0.02	0.43	0.43
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3598	30	1774	2803	705
Grp Volume(v), veh/h	97	5	37	10	0	3	46	599	629	36	763	767
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1858	1774	1770	1738
Q Serve(g_s), s	4.8	0.2	2.0	0.5	0.0	0.2	2.3	0.0	0.0	1.8	31.0	32.0
Cycle Q Clear(g_c), s	4.8	0.2	2.0	0.5	0.0	0.2	2.3	0.0	0.0	1.8	31.0	32.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		0.41
Lane Grp Cap(c), veh/h	134	121	103	92	0	66	67	1150	1207	58	1141	1121
V/C Ratio(X)	0.72	0.04	0.36	0.11	0.00	0.05	0.68	0.52	0.52	0.62	0.67	0.68
Avail Cap(c_a), veh/h	355	373	317	355	0	317	99	1150	1207	101	1141	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.23	0.23	0.23
Uniform Delay (d), s/veh	40.7	39.4	40.3	40.7	0.0	41.4	41.1	0.0	0.0	43.4	17.9	18.2
Incr Delay (d2), s/veh	7.2	0.1	2.1	0.5	0.0	0.3	11.5	1.7	1.6	2.4	0.7	0.8
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	2.6	0.1	0.9	0.2	0.0	0.1	1.3	0.5	0.5	0.9	15.3	15.6
LnGrp Delay(d),s/veh	47.9	39.6	42.4	41.2	0.0	41.7	52.6	1.7	1.6	45.9	18.6	19.0
LnGrp LOS	D	D	D	D		D	D	A	A	D	B	B
Approach Vol, veh/h		139			13			1274			1566	
Approach Delay, s/veh		46.1			41.3			3.5			19.4	
Approach LOS		D			D			A			B	

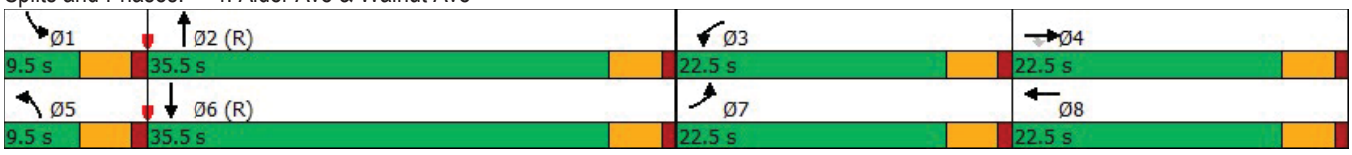
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	63.0	9.2	10.3	7.9	62.6	11.3	8.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	30.9	18.0	18.0	5.0	31.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	3.8	2.0	2.5	4.0	4.3	34.0	6.8	2.2
Green Ext Time (p_c), s	0.0	10.1	0.0	0.1	0.0	0.0	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	334	102	3	0	28	1306	21	1305
Future Volume (vph)	334	102	3	0	28	1306	21	1305
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7		3	8	5	2	1	6
Permitted Phases		4						
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	35.5	9.5	35.5
Total Split (%)	25.0%	25.0%	25.0%	25.0%	10.6%	39.4%	10.6%	39.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	18.0	17.8	5.8	5.5	7.0	56.1	6.6	55.9
Actuated g/C Ratio	0.20	0.20	0.06	0.06	0.08	0.62	0.07	0.62
v/c Ratio	0.94	0.15	0.03	0.01	0.20	0.59	0.16	0.67
Control Delay	73.0	0.5	39.7	0.0	41.9	13.7	31.8	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.0	0.5	39.7	0.0	41.9	13.7	31.8	24.3
LOS	E	A	D	A	D	B	C	C
Approach Delay				23.8		14.3		24.4
Approach LOS				C		B		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 24.5	Intersection LOS: C
Intersection Capacity Utilization 73.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	334	0	102	3	0	2	28	1306	5	21	1305	147
Future Volume (veh/h)	334	0	102	3	0	2	28	1306	5	21	1305	147
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	334	0	102	3	0	2	28	1306	5	21	1305	147
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	355	365	311	99	0	82	50	1901	7	40	1670	187
Arrive On Green	0.20	0.00	0.20	0.06	0.00	0.05	0.06	1.00	1.00	0.02	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3616	14	1774	3209	360
Grp Volume(v), veh/h	334	0	102	3	0	2	28	639	672	21	717	735
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1860	1774	1770	1799
Q Serve(g_s), s	16.7	0.0	5.0	0.1	0.0	0.1	1.4	0.0	0.0	1.1	29.4	29.8
Cycle Q Clear(g_c), s	16.7	0.0	5.0	0.1	0.0	0.1	1.4	0.0	0.0	1.1	29.4	29.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		0.20
Lane Grp Cap(c), veh/h	355	365	311	99	0	82	50	930	978	40	921	936
V/C Ratio(X)	0.94	0.00	0.33	0.03	0.00	0.02	0.56	0.69	0.69	0.52	0.78	0.79
Avail Cap(c_a), veh/h	355	373	317	355	0	317	99	930	978	99	921	936
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.17	0.17	0.17
Uniform Delay (d), s/veh	35.5	0.0	31.1	40.2	0.0	40.5	41.9	0.0	0.0	43.5	17.4	17.5
Incr Delay (d2), s/veh	32.9	0.0	0.6	0.1	0.0	0.1	9.7	4.1	3.9	1.8	1.2	1.2
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	11.4	0.0	2.2	0.1	0.0	0.0	0.8	1.1	1.1	0.5	14.4	15.0
LnGrp Delay(d),s/veh	68.4	0.0	31.7	40.3	0.0	40.6	51.6	4.1	3.9	45.3	18.6	18.7
LnGrp LOS	E		C	D		D	D	A	A	D	B	B
Approach Vol, veh/h		436			5			1339			1473	
Approach Delay, s/veh		59.8			40.5			5.0			19.0	
Approach LOS		E			D			A			B	

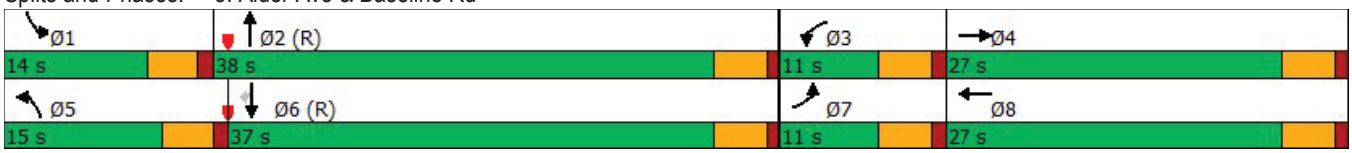
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	51.8	9.5	22.2	7.0	51.3	22.5	9.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	31.0	18.0	18.0	5.0	31.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	3.1	2.0	2.1	7.0	3.4	31.8	18.7	2.1
Green Ext Time (p_c), s	0.0	11.1	0.0	0.2	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.8
HCM 2010 LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	206	542	205	524	197	763	347	568	168
Future Volume (vph)	206	542	205	524	197	763	347	568	168
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	11.0	27.0	11.0	27.0	15.0	38.0	14.0	37.0	37.0
Total Split (%)	12.2%	30.0%	12.2%	30.0%	16.7%	42.2%	15.6%	41.1%	41.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.5	22.5	6.5	22.5	10.5	33.5	9.5	32.5	32.5
Actuated g/C Ratio	0.07	0.25	0.07	0.25	0.12	0.37	0.11	0.36	0.36
v/c Ratio	1.62	1.32	1.61	1.57	0.96	1.68	1.87	0.85	0.26
Control Delay	343.4	187.8	329.3	286.1	94.4	337.0	435.8	40.1	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	343.4	187.8	329.3	286.1	94.4	337.0	435.8	40.1	7.4
LOS	F	F	F	F	F	F	F	D	A
Approach Delay		227.1		295.6		301.3		161.8	
Approach LOS		F		F		F		F	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.87	
Intersection Signal Delay: 249.2	Intersection LOS: F
Intersection Capacity Utilization 148.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	542	68	205	524	200	197	763	377	347	568	168
Future Volume (veh/h)	206	542	68	205	524	200	197	763	377	347	568	168
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	206	542	68	205	524	200	197	763	377	347	568	168
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	406	51	128	321	123	207	438	217	187	673	572
Arrive On Green	0.07	0.25	0.25	0.07	0.25	0.25	0.12	0.37	0.37	0.07	0.24	0.24
Sat Flow, veh/h	1774	1623	204	1774	1286	491	1774	1178	582	1774	1863	1583
Grp Volume(v), veh/h	206	0	610	205	0	724	197	0	1140	347	568	168
Grp Sat Flow(s),veh/h/ln	1774	0	1827	1774	0	1776	1774	0	1760	1774	1863	1583
Q Serve(g_s), s	6.5	0.0	22.5	6.5	0.0	22.5	9.9	0.0	33.5	9.5	26.1	7.8
Cycle Q Clear(g_c), s	6.5	0.0	22.5	6.5	0.0	22.5	9.9	0.0	33.5	9.5	26.1	7.8
Prop In Lane	1.00		0.11	1.00		0.28	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	128	0	457	128	0	444	207	0	655	187	673	572
V/C Ratio(X)	1.61	0.00	1.34	1.60	0.00	1.63	0.95	0.00	1.74	1.85	0.84	0.29
Avail Cap(c_a), veh/h	128	0	457	128	0	444	207	0	655	187	673	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	0.29	0.00	0.29	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	0.0	33.8	41.8	0.0	33.8	39.5	0.0	28.3	41.8	31.7	24.7
Incr Delay (d2), s/veh	306.7	0.0	165.4	280.5	0.0	286.7	48.8	0.0	339.4	403.7	12.3	1.3
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	14.1	0.0	32.3	13.1	0.0	46.3	7.7	0.0	78.0	25.6	15.8	3.6
LnGrp Delay(d),s/veh	348.4	0.0	199.1	322.2	0.0	320.5	88.3	0.0	367.6	445.5	44.0	26.1
LnGrp LOS	F		F	F		F	F		F	F	D	C
Approach Vol, veh/h		816			929			1337			1083	
Approach Delay, s/veh		236.8			320.9			326.5			169.9	
Approach LOS		F			F			F			F	

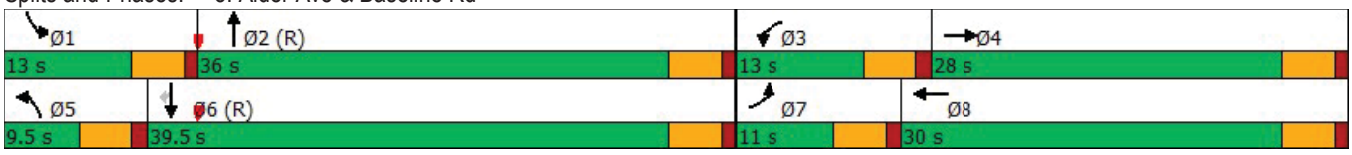
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	38.0	11.0	27.0	15.0	37.0	11.0	27.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	33.5	6.5	22.5	10.5	32.5	6.5	22.5
Max Q Clear Time (g_c+I1), s	11.5	35.5	8.5	24.5	11.9	28.1	8.5	24.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	266.9
HCM 2010 LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	172	636	303	441	70	673	303	777	236
Future Volume (vph)	172	636	303	441	70	673	303	777	236
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	11.0	28.0	13.0	30.0	9.5	36.0	13.0	39.5	39.5
Total Split (%)	12.2%	31.1%	14.4%	33.3%	10.6%	40.0%	14.4%	43.9%	43.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.5	23.5	8.5	25.5	5.0	31.5	8.5	36.9	36.9
Actuated g/C Ratio	0.07	0.26	0.09	0.28	0.06	0.35	0.09	0.41	0.41
v/c Ratio	1.35	1.48	1.81	1.50	0.71	1.49	1.81	1.02	0.33
Control Delay	237.4	254.3	407.9	252.7	80.0	255.6	416.3	66.3	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	237.4	254.3	407.9	252.7	80.0	255.6	416.3	66.3	10.3
LOS	F	F	F	F	F	F	F	E	B
Approach Delay		251.0		296.0		243.6		136.9	
Approach LOS		F		F		F		F	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.81	
Intersection Signal Delay: 225.7	Intersection LOS: F
Intersection Capacity Utilization 139.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	636	78	303	441	343	70	673	282	303	777	236
Future Volume (veh/h)	172	636	78	303	441	343	70	673	282	303	777	236
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	172	636	78	303	441	343	70	673	282	303	777	236
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	425	52	168	276	214	90	437	183	168	734	624
Arrive On Green	0.07	0.26	0.26	0.09	0.28	0.28	0.05	0.35	0.35	0.19	0.79	0.79
Sat Flow, veh/h	1774	1628	200	1774	973	757	1774	1248	523	1774	1863	1583
Grp Volume(v), veh/h	172	0	714	303	0	784	70	0	955	303	777	236
Grp Sat Flow(s),veh/h/ln	1774	0	1828	1774	0	1729	1774	0	1770	1774	1863	1583
Q Serve(g_s), s	6.5	0.0	23.5	8.5	0.0	25.5	3.5	0.0	31.5	8.5	35.4	4.1
Cycle Q Clear(g_c), s	6.5	0.0	23.5	8.5	0.0	25.5	3.5	0.0	31.5	8.5	35.4	4.1
Prop In Lane	1.00		0.11	1.00		0.44	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	128	0	477	168	0	490	90	0	620	168	734	624
V/C Ratio(X)	1.34	0.00	1.50	1.81	0.00	1.60	0.78	0.00	1.54	1.81	1.06	0.38
Avail Cap(c_a), veh/h	128	0	477	168	0	490	99	0	620	168	734	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	0.28	0.00	0.28	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	0.0	33.3	40.8	0.0	32.3	42.2	0.0	29.3	36.5	9.6	6.2
Incr Delay (d2), s/veh	197.1	0.0	234.2	370.4	0.0	272.8	29.8	0.0	251.5	386.4	50.0	1.7
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	10.2	0.0	42.8	21.4	0.0	49.2	2.5	0.0	58.6	22.1	26.9	1.9
LnGrp Delay(d),s/veh	238.9	0.0	267.4	411.2	0.0	305.0	72.1	0.0	280.8	422.9	59.5	8.0
LnGrp LOS	F		F	F		F	E		F	F	F	A
Approach Vol, veh/h		886			1087			1025			1316	
Approach Delay, s/veh		261.9			334.6			266.5			134.0	
Approach LOS		F			F			F			F	

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	13.0	36.0	13.0	28.0	9.1	39.9	11.0	30.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	31.5	8.5	23.5	5.0	35.0	6.5	25.5
Max Q Clear Time (g_c+I1), s	10.5	33.5	10.5	25.5	5.5	37.4	8.5	27.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	242.3
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	35	14	193	23	5	94
Future Vol, veh/h	35	14	193	23	5	94
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	14	193	23	5	94

Major/Minor	Minor2		Major2	
Conflicting Flow All	409	23	0	0
Stage 1	409	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	532	1054	-	-
Stage 1	596	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1054	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.6	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1054	-	-
HCM Lane V/C Ratio	0.046	-	-
HCM Control Delay (s)	8.6	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	48	9	112	31	16	301
Future Vol, veh/h	48	9	112	31	16	301
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	9	112	31	16	301

Major/Minor	Minor2		Major2	
Conflicting Flow All	255	31	0	0
Stage 1	255	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	649	1043	-	-
Stage 1	696	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1043	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.7	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1043	-	-
HCM Lane V/C Ratio	0.055	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection	
Int Delay, s/veh	13.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	759	151	83	723	79	86	5	61	1	3	10
Future Vol, veh/h	34	759	151	83	723	79	86	5	61	1	3	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	759	151	83	723	79	86	5	61	1	3	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	802	0	0	910	0	0	1356	1795	759	1865	1907	401
Stage 1	-	-	-	-	-	-	827	827	-	929	929	-
Stage 2	-	-	-	-	-	-	529	968	-	936	978	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	819	-	-	746	-	-	117	80	405	50	68	600
Stage 1	-	-	-	-	-	-	365	385	-	289	345	-
Stage 2	-	-	-	-	-	-	502	331	-	317	328	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	819	-	-	746	-	-	98	68	405	36	58	600
Mov Cap-2 Maneuver	-	-	-	-	-	-	98	68	-	36	58	-
Stage 1	-	-	-	-	-	-	350	369	-	277	307	-
Stage 2	-	-	-	-	-	-	434	294	-	255	314	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1	169.9	32.3
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	138	819	-	-	746	-	-	146
HCM Lane V/C Ratio	1.101	0.042	-	-	0.111	-	-	0.096
HCM Control Delay (s)	169.9	9.6	-	-	10.4	-	-	32.3
HCM Lane LOS	F	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	8.5	0.1	-	-	0.4	-	-	0.3

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	845	76	41	686	23	60	7	36	7	6	36
Future Vol, veh/h	15	845	76	41	686	23	60	7	36	7	6	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	845	76	41	686	23	60	7	36	7	6	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	709	0	0	921	0	0	1303	1666	845	1715	1731	355
Stage 1	-	-	-	-	-	-	875	875	-	780	780	-
Stage 2	-	-	-	-	-	-	428	791	-	935	951	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	888	-	-	739	-	-	127	96	362	64	88	642
Stage 1	-	-	-	-	-	-	343	366	-	355	405	-
Stage 2	-	-	-	-	-	-	576	400	-	318	337	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	888	-	-	739	-	-	107	89	362	51	82	642
Mov Cap-2 Maneuver	-	-	-	-	-	-	107	89	-	51	82	-
Stage 1	-	-	-	-	-	-	337	360	-	349	383	-
Stage 2	-	-	-	-	-	-	505	378	-	276	331	-

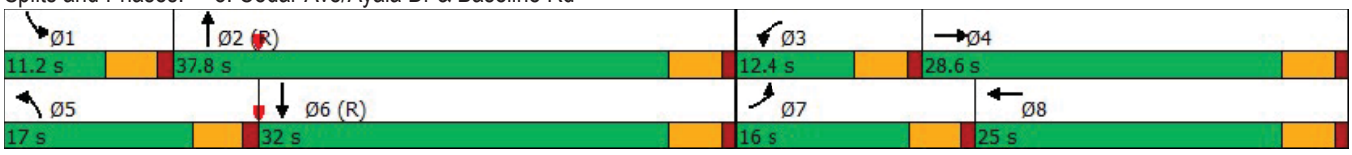
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.6	82.3	31.5
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	139	888	-	-	739	-	-	184
HCM Lane V/C Ratio	0.741	0.017	-	-	0.055	-	-	0.266
HCM Control Delay (s)	82.3	9.1	-	-	10.2	-	-	31.5
HCM Lane LOS	F	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	4.4	0.1	-	-	0.2	-	-	1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	194	480	120	638	407	715	107	780
Future Volume (vph)	194	480	120	638	407	715	107	780
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.0	28.6	12.4	25.0	17.0	37.8	11.2	32.0
Total Split (%)	17.8%	31.8%	13.8%	27.8%	18.9%	42.0%	12.4%	35.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	11.4	24.1	7.9	20.6	12.5	35.5	6.6	27.5
Actuated g/C Ratio	0.13	0.27	0.09	0.23	0.14	0.39	0.07	0.31
v/c Ratio	0.87	0.79	0.77	0.94	0.86	0.58	0.43	0.86
Control Delay	57.5	25.9	72.8	54.5	56.7	23.7	45.5	38.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	25.9	72.8	54.5	56.7	23.7	45.5	38.2
LOS	E	C	E	D	E	C	D	D
Approach Delay		32.0		57.0		34.8		39.0
Approach LOS		C		E		C		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 39.9	Intersection LOS: D
Intersection Capacity Utilization 84.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	480	337	120	638	122	407	715	90	107	780	141
Future Volume (veh/h)	194	480	337	120	638	122	407	715	90	107	780	141
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	194	480	337	120	638	122	407	715	90	107	780	141
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	2	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	540	378	149	676	129	475	1243	156	178	918	166
Arrive On Green	0.13	0.27	0.27	0.08	0.23	0.23	0.14	0.39	0.39	0.05	0.31	0.31
Sat Flow, veh/h	1774	1992	1394	1774	2966	566	3442	3164	398	3442	2995	541
Grp Volume(v), veh/h	194	426	391	120	380	380	407	400	405	107	461	460
Grp Sat Flow(s),veh/h/ln	1774	1770	1617	1774	1770	1763	1721	1770	1793	1721	1770	1767
Q Serve(g_s), s	9.6	20.8	20.9	6.0	19.0	19.1	10.4	15.9	16.0	2.7	22.0	22.0
Cycle Q Clear(g_c), s	9.6	20.8	20.9	6.0	19.0	19.1	10.4	15.9	16.0	2.7	22.0	22.0
Prop In Lane	1.00		0.86	1.00		0.32	1.00		0.22	1.00		0.31
Lane Grp Cap(c), veh/h	227	480	439	149	403	402	475	695	704	178	542	542
V/C Ratio(X)	0.86	0.89	0.89	0.80	0.94	0.95	0.86	0.58	0.58	0.60	0.85	0.85
Avail Cap(c_a), veh/h	227	480	439	156	403	402	478	695	704	256	542	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	31.5	31.5	40.5	34.2	34.2	37.9	21.4	21.4	41.8	29.3	29.3
Incr Delay (d2), s/veh	3.1	2.1	2.4	24.6	30.7	31.3	14.2	3.4	3.4	3.2	15.3	15.3
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	4.9	10.5	9.6	4.0	12.7	12.8	5.9	8.4	8.5	1.4	13.1	13.0
LnGrp Delay(d),s/veh	41.6	33.6	33.9	65.1	64.9	65.5	52.2	24.9	24.9	45.0	44.6	44.6
LnGrp LOS	D	C	C	E	E	E	D	C	C	D	D	D
Approach Vol, veh/h		1011			880			1212			1028	
Approach Delay, s/veh		35.2			65.2			34.0			44.6	
Approach LOS		D			E			C			D	

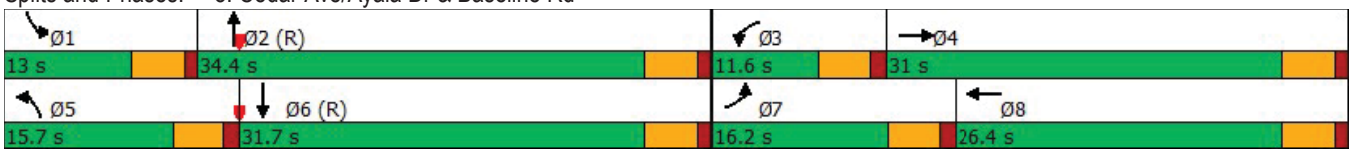
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	39.8	12.1	28.9	16.9	32.1	16.0	25.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	33.3	7.9	24.1	12.5	27.5	11.5	20.5
Max Q Clear Time (g_c+I1), s	4.7	18.0	8.0	22.9	12.4	24.0	11.6	21.1
Green Ext Time (p_c), s	0.0	4.6	0.0	0.6	0.0	1.9	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	43.6
HCM 2010 LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	205	697	119	606	397	819	268	891
Future Volume (vph)	205	697	119	606	397	819	268	891
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.2	31.0	11.6	26.4	15.7	34.4	13.0	31.7
Total Split (%)	18.0%	34.4%	12.9%	29.3%	17.4%	38.2%	14.4%	35.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	11.7	26.5	7.1	21.9	11.2	29.9	8.5	27.2
Actuated g/C Ratio	0.13	0.29	0.08	0.24	0.12	0.33	0.09	0.30
v/c Ratio	0.89	1.02	0.86	0.91	0.93	0.80	0.83	0.99
Control Delay	60.4	41.3	88.9	47.6	69.6	33.2	62.2	56.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	41.3	88.9	47.6	69.6	33.2	62.2	56.2
LOS	E	D	F	D	E	C	E	E
Approach Delay		44.3		53.1		44.1		57.4
Approach LOS		D		D		D		E

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 49.4	Intersection LOS: D
Intersection Capacity Utilization 94.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	697	404	119	606	178	397	819	119	268	891	155
Future Volume (veh/h)	205	697	404	119	606	178	397	819	119	268	891	155
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	205	697	404	119	606	178	397	819	119	268	891	155
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	2	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	636	368	140	657	193	428	1031	150	325	911	159
Arrive On Green	0.13	0.29	0.29	0.08	0.24	0.24	0.12	0.33	0.33	0.09	0.30	0.30
Sat Flow, veh/h	1774	2161	1251	1774	2701	792	3442	3102	451	3442	3015	524
Grp Volume(v), veh/h	205	571	530	119	397	387	397	467	471	268	523	523
Grp Sat Flow(s),veh/h/ln	1774	1770	1642	1774	1770	1723	1721	1770	1783	1721	1770	1770
Q Serve(g_s), s	10.2	26.5	26.5	6.0	19.7	19.7	10.3	21.6	21.6	6.9	26.3	26.3
Cycle Q Clear(g_c), s	10.2	26.5	26.5	6.0	19.7	19.7	10.3	21.6	21.6	6.9	26.3	26.3
Prop In Lane	1.00		0.76	1.00		0.46	1.00		0.25	1.00		0.30
Lane Grp Cap(c), veh/h	231	521	483	140	431	419	428	588	592	325	535	535
V/C Ratio(X)	0.89	1.09	1.10	0.85	0.92	0.92	0.93	0.79	0.79	0.82	0.98	0.98
Avail Cap(c_a), veh/h	231	521	483	140	431	419	428	588	592	325	535	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	31.8	31.8	40.9	33.2	33.2	39.0	27.3	27.3	40.0	31.1	31.1
Incr Delay (d2), s/veh	4.3	46.0	47.2	36.3	25.1	26.0	26.3	10.6	10.6	15.7	33.8	33.8
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	5.3	19.5	18.3	4.3	12.6	12.4	6.4	12.2	12.3	4.0	17.8	17.8
LnGrp Delay(d),s/veh	42.8	77.8	79.0	77.2	58.3	59.3	65.2	37.9	37.8	55.7	64.9	64.9
LnGrp LOS	D	F	F	E	E	E	E	D	D	E	E	E
Approach Vol, veh/h		1306			903			1335			1314	
Approach Delay, s/veh		72.8			61.2			46.0			63.0	
Approach LOS		E			E			D			E	

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	13.0	34.4	11.6	31.0	15.7	31.7	16.2	26.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	29.9	7.1	26.5	11.2	27.2	11.7	21.9
Max Q Clear Time (g_c+I1), s	8.9	23.6	8.0	28.5	12.3	28.3	12.2	21.7
Green Ext Time (p_c), s	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.1

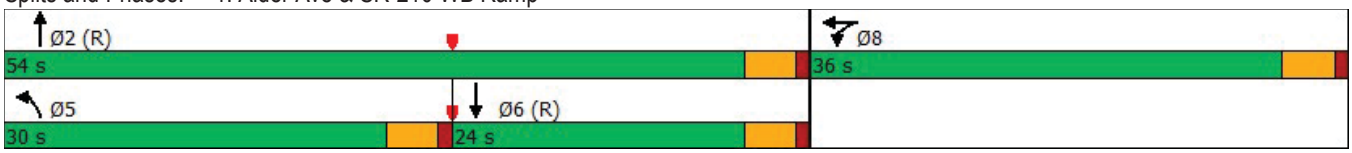
Intersection Summary	
HCM 2010 Ctrl Delay	60.6
HCM 2010 LOS	E

- Cumulative 2020 plus Project Conditions

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	776	2	668	964	428
Future Volume (vph)	776	2	668	964	428
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	36.0	36.0	30.0	54.0	24.0
Total Split (%)	40.0%	40.0%	33.3%	60.0%	26.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	31.5	31.5	25.5	49.5	19.5
Actuated g/C Ratio	0.35	0.35	0.28	0.55	0.22
v/c Ratio	1.25	0.72	1.33	0.50	1.01
Control Delay	155.6	27.0	180.4	23.0	56.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	155.6	27.0	180.4	23.0	56.0
LOS	F	C	F	C	E
Approach Delay		108.2		87.5	56.0
Approach LOS		F		F	E

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.33	
Intersection Signal Delay: 86.2	Intersection LOS: F
Intersection Capacity Utilization 120.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	776	2	450	668	964	0	0	428	533
Future Volume (veh/h)	0	0	0	776	2	450	668	964	0	0	428	533
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				776	2	450	668	964	0	0	428	533
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				621	2	552	503	1947	0	0	383	343
Arrive On Green				0.35	0.35	0.35	0.57	1.00	0.00	0.00	0.22	0.22
Sat Flow, veh/h				1774	7	1577	1774	3632	0	0	1863	1583
Grp Volume(v), veh/h				776	0	452	668	964	0	0	428	533
Grp Sat Flow(s),veh/h/ln				1774	0	1584	1774	1770	0	0	1770	1583
Q Serve(g_s), s				31.5	0.0	23.4	25.5	0.0	0.0	0.0	19.5	19.5
Cycle Q Clear(g_c), s				31.5	0.0	23.4	25.5	0.0	0.0	0.0	19.5	19.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				621	0	555	503	1947	0	0	383	343
V/C Ratio(X)				1.25	0.00	0.82	1.33	0.50	0.00	0.00	1.12	1.55
Avail Cap(c_a), veh/h				621	0	555	503	1947	0	0	383	343
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.3	0.0	26.6	19.5	0.0	0.0	0.0	35.3	35.3
Incr Delay (d2), s/veh				125.4	0.0	9.2	149.3	0.1	0.0	0.0	81.3	263.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				37.0	0.0	11.6	32.9	0.0	0.0	0.0	18.1	33.6
LnGrp Delay(d),s/veh				154.6	0.0	35.8	168.8	0.1	0.0	0.0	116.6	298.4
LnGrp LOS				F		D	F	A			F	F
Approach Vol, veh/h					1228			1632			961	
Approach Delay, s/veh					110.9			69.2			217.4	
Approach LOS					F			E			F	

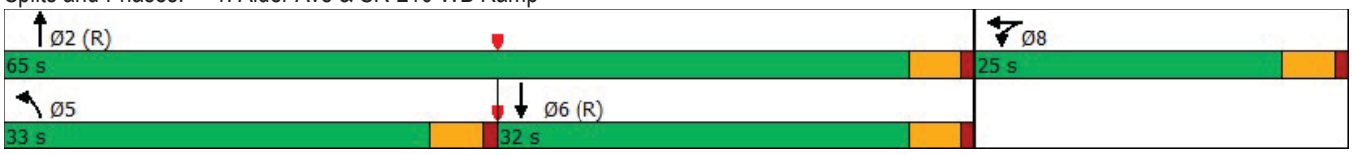
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		54.0			30.0	24.0		36.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		49.5			25.5	19.5		31.5
Max Q Clear Time (g_c+I1), s		3.0			28.5	22.5		34.5
Green Ext Time (p_c), s		8.8			0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		119.8
HCM 2010 LOS		F

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	493	5	1089	663	892
Future Volume (vph)	493	5	1089	663	892
Turn Type	Split	NA	Prot	NA	NA
Protected Phases	8	8	5	2	6
Permitted Phases					
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	25.0	25.0	33.0	65.0	32.0
Total Split (%)	27.8%	27.8%	36.7%	72.2%	35.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	20.5	20.5	28.5	60.5	27.5
Actuated g/C Ratio	0.23	0.23	0.32	0.67	0.31
v/c Ratio	1.22	0.43	1.94	0.28	1.35
Control Delay	153.5	7.3	448.9	11.3	189.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	153.5	7.3	448.9	11.3	189.8
LOS	F	A	F	B	F
Approach Delay		107.1		283.3	189.8
Approach LOS		F		F	F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.94	
Intersection Signal Delay: 215.5	Intersection LOS: F
Intersection Capacity Utilization 145.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	493	5	224	1089	663	0	0	892	681
Future Volume (veh/h)	0	0	0	493	5	224	1089	663	0	0	892	681
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				493	5	224	1089	663	0	0	892	681
Adj No. of Lanes				1	1	0	1	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				404	8	354	562	2379	0	0	598	435
Arrive On Green				0.23	0.23	0.23	0.53	1.00	0.00	0.00	0.31	0.31
Sat Flow, veh/h				1774	35	1554	1774	3632	0	0	2050	1424
Grp Volume(v), veh/h				493	0	229	1089	663	0	0	803	770
Grp Sat Flow(s),veh/h/ln				1774	0	1589	1774	1770	0	0	1770	1611
Q Serve(g_s), s				20.5	0.0	11.7	28.5	0.0	0.0	0.0	27.5	27.5
Cycle Q Clear(g_c), s				20.5	0.0	11.7	28.5	0.0	0.0	0.0	27.5	27.5
Prop In Lane				1.00		0.98	1.00		0.00	0.00		0.88
Lane Grp Cap(c), veh/h				404	0	362	562	2379	0	0	541	492
V/C Ratio(X)				1.22	0.00	0.63	1.94	0.28	0.00	0.00	1.48	1.56
Avail Cap(c_a), veh/h				404	0	362	562	2379	0	0	541	492
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.7	0.0	31.4	21.2	0.0	0.0	0.0	31.3	31.3
Incr Delay (d2), s/veh				119.5	0.0	3.6	422.9	0.0	0.0	0.0	227.7	263.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				23.4	0.0	5.5	79.5	0.0	0.0	0.0	47.6	48.3
LnGrp Delay(d),s/veh				154.2	0.0	34.9	444.1	0.0	0.0	0.0	259.0	295.1
LnGrp LOS				F		C	F	A			F	F
Approach Vol, veh/h					722			1752			1573	
Approach Delay, s/veh					116.4			276.1			276.7	
Approach LOS					F			F			F	

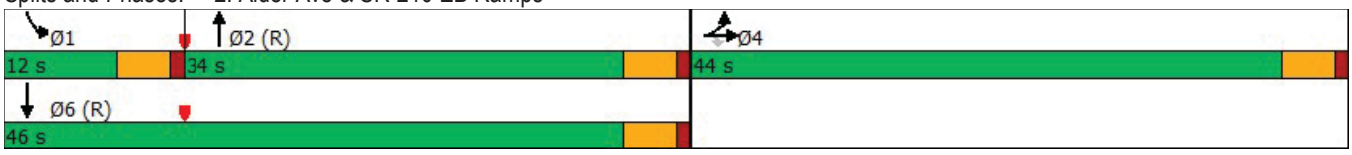
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		65.0			33.0	32.0		25.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		60.5			28.5	27.5		20.5
Max Q Clear Time (g_c+I1), s		3.0			31.5	30.5		23.5
Green Ext Time (p_c), s		5.4			0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		247.8
HCM 2010 LOS		F

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	1	1209	1060	211	981
Future Volume (vph)	1	1209	1060	211	981
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	44.0	44.0	34.0	12.0	46.0
Total Split (%)	48.9%	48.9%	37.8%	13.3%	51.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	39.5	39.5	29.5	7.5	41.5
Actuated g/C Ratio	0.44	0.44	0.33	0.08	0.46
v/c Ratio	0.72	1.64	1.35	1.44	0.60
Control Delay	27.3	319.0	181.7	230.4	26.9
Queue Delay	0.0	0.1	0.0	0.0	3.1
Total Delay	27.3	319.1	181.7	230.4	30.0
LOS	C	F	F	F	C
Approach Delay	226.4		181.7		65.5
Approach LOS	F		F		E

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.64	
Intersection Signal Delay: 168.6	Intersection LOS: F
Intersection Capacity Utilization 120.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	562	1	1209	0	0	0	0	1060	512	211	981	0
Future Volume (veh/h)	562	1	1209	0	0	0	0	1060	512	211	981	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	562	1	1209				0	1060	512	211	981	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	777	1	695				0	767	360	148	1632	0
Arrive On Green	0.44	0.44	0.44				0.00	0.44	0.44	0.17	0.92	0.00
Sat Flow, veh/h	1771	3	1583				0	2435	1097	1774	3632	0
Grp Volume(v), veh/h	563	0	1209				0	793	779	211	981	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1770	1669	1774	1770	0
Q Serve(g_s), s	23.5	0.0	39.5				0.0	29.5	29.5	7.5	4.4	0.0
Cycle Q Clear(g_c), s	23.5	0.0	39.5				0.0	29.5	29.5	7.5	4.4	0.0
Prop In Lane	1.00		1.00				0.00		0.66	1.00		0.00
Lane Grp Cap(c), veh/h	779	0	695				0	580	547	148	1632	0
V/C Ratio(X)	0.72	0.00	1.74				0.00	1.37	1.42	1.43	0.60	0.00
Avail Cap(c_a), veh/h	779	0	695				0	580	547	148	1632	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.09	0.09	0.09	0.09	0.00
Uniform Delay (d), s/veh	20.8	0.0	25.2				0.0	25.4	25.4	37.5	2.1	0.0
Incr Delay (d2), s/veh	3.3	0.0	338.9				0.0	166.4	191.6	195.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	0.0	82.6				0.0	41.1	42.6	11.7	1.7	0.0
LnGrp Delay(d),s/veh	24.1	0.0	364.1				0.0	191.8	217.0	233.4	2.2	0.0
LnGrp LOS	C		F					F	F	F	A	
Approach Vol, veh/h		1772						1572			1192	
Approach Delay, s/veh		256.1						204.3			43.1	
Approach LOS		F						F			D	

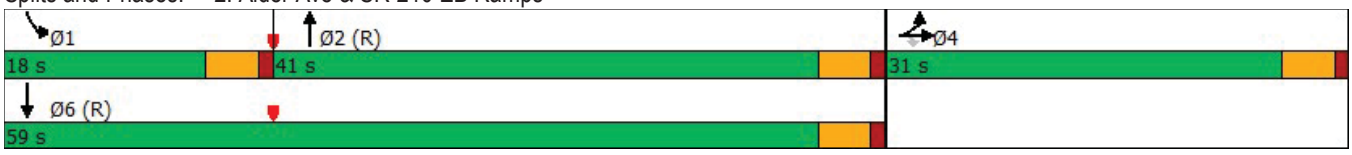
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	12.0	34.0		44.0		46.0		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	7.5	29.5		39.5		41.5		
Max Q Clear Time (g_c+I1), s	9.5	31.5		41.5		6.4		
Green Ext Time (p_c), s	0.0	0.0		0.0		8.6		

Intersection Summary	
HCM 2010 Ctrl Delay	182.2
HCM 2010 LOS	F

Lane Group	EBT	EBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	3	875	1363	475	915
Future Volume (vph)	3	875	1363	475	915
Turn Type	NA	Perm	NA	Prot	NA
Protected Phases	4		2	1	6
Permitted Phases		4			
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	31.0	31.0	41.0	18.0	59.0
Total Split (%)	34.4%	34.4%	45.6%	20.0%	65.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	26.5	26.5	36.5	13.5	54.5
Actuated g/C Ratio	0.29	0.29	0.41	0.15	0.61
v/c Ratio	0.66	1.53	1.50	1.79	0.43
Control Delay	35.1	271.9	245.2	384.8	13.3
Queue Delay	0.0	0.1	0.0	0.0	0.1
Total Delay	35.1	272.0	245.2	384.8	13.3
LOS	D	F	F	F	B
Approach Delay	204.9		245.2		140.3
Approach LOS	F		F		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.79	
Intersection Signal Delay: 204.5	Intersection LOS: F
Intersection Capacity Utilization 145.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	343	3	875	0	0	0	0	1363	821	475	915	0
Future Volume (veh/h)	343	3	875	0	0	0	0	1363	821	475	915	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	343	3	875				0	1363	821	475	915	0
Adj No. of Lanes	0	1	1				0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	518	5	466				0	896	490	266	2143	0
Arrive On Green	0.29	0.29	0.29				0.00	0.81	0.81	0.30	1.00	0.00
Sat Flow, veh/h	1759	15	1583				0	2303	1209	1774	3632	0
Grp Volume(v), veh/h	346	0	875				0	1064	1120	475	915	0
Grp Sat Flow(s),veh/h/ln	1775	0	1583				0	1770	1649	1774	1770	0
Q Serve(g_s), s	15.4	0.0	26.5				0.0	36.5	36.5	13.5	0.0	0.0
Cycle Q Clear(g_c), s	15.4	0.0	26.5				0.0	36.5	36.5	13.5	0.0	0.0
Prop In Lane	0.99		1.00				0.00		0.73	1.00		0.00
Lane Grp Cap(c), veh/h	523	0	466				0	718	669	266	2143	0
V/C Ratio(X)	0.66	0.00	1.88				0.00	1.48	1.67	1.78	0.43	0.00
Avail Cap(c_a), veh/h	523	0	466				0	718	669	266	2143	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.09	0.09	0.09	0.09	0.00
Uniform Delay (d), s/veh	27.8	0.0	31.8				0.0	8.5	8.5	31.5	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.0	402.7				0.0	217.8	304.1	354.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	63.7				0.0	59.4	71.4	32.7	0.0	0.0
LnGrp Delay(d),s/veh	30.9	0.0	434.4				0.0	226.3	312.6	386.1	0.1	0.0
LnGrp LOS	C		F					F	F	F	A	
Approach Vol, veh/h		1221						2184			1390	
Approach Delay, s/veh		320.1						270.6			132.0	
Approach LOS		F						F			F	

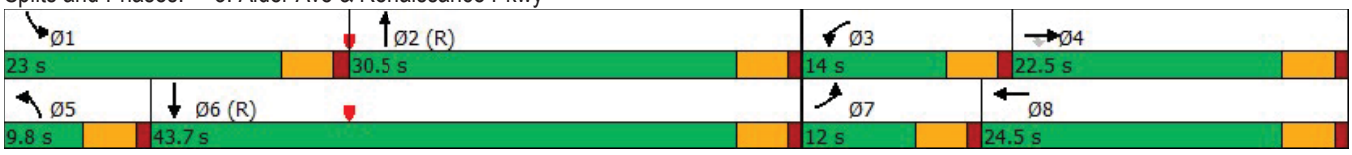
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	18.0	41.0		31.0		59.0		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	13.5	36.5		26.5		54.5		
Max Q Clear Time (g_c+I1), s	15.5	38.5		28.5		2.0		
Green Ext Time (p_c), s	0.0	0.0		0.0		8.3		

Intersection Summary	
HCM 2010 Ctrl Delay	243.0
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	187	250	63	240	254	60	971	546	1558
Future Volume (vph)	187	250	63	240	254	60	971	546	1558
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	12.0	22.5	22.5	14.0	24.5	9.8	30.5	23.0	43.7
Total Split (%)	13.3%	25.0%	25.0%	15.6%	27.2%	10.9%	33.9%	25.6%	48.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	7.5	15.9	15.9	9.5	17.9	6.0	26.0	20.6	42.7
Actuated g/C Ratio	0.08	0.18	0.18	0.11	0.20	0.07	0.29	0.23	0.47
v/c Ratio	1.27	0.76	0.15	1.29	0.80	0.51	1.22	1.35	0.97
Control Delay	201.6	50.7	0.7	200.2	25.1	47.6	141.4	188.9	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3
Total Delay	201.6	50.7	0.7	200.2	25.1	47.6	141.4	188.9	31.9
LOS	F	D	A	F	C	D	F	F	C
Approach Delay		100.8			68.8		137.0		71.5
Approach LOS		F			E		F		E

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.35	
Intersection Signal Delay: 91.3	Intersection LOS: F
Intersection Capacity Utilization 113.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	250	63	240	254	467	60	971	269	546	1558	61
Future Volume (veh/h)	187	250	63	240	254	467	60	971	269	546	1558	61
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	187	250	63	240	254	467	60	971	269	546	1558	61
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	373	317	187	393	352	77	792	219	365	1566	61
Arrive On Green	0.08	0.20	0.20	0.11	0.22	0.22	0.01	0.10	0.10	0.14	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	2742	757	1774	3473	136
Grp Volume(v), veh/h	187	250	63	240	254	467	60	625	615	546	792	827
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1729	1774	1770	1839
Q Serve(g_s), s	7.5	11.2	3.0	9.5	11.7	20.0	3.0	26.0	26.0	18.5	40.1	40.5
Cycle Q Clear(g_c), s	7.5	11.2	3.0	9.5	11.7	20.0	3.0	26.0	26.0	18.5	40.1	40.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.44	1.00		0.07
Lane Grp Cap(c), veh/h	148	373	317	187	393	352	77	511	500	365	798	829
V/C Ratio(X)	1.26	0.67	0.20	1.28	0.65	1.33	0.78	1.22	1.23	1.50	0.99	1.00
Avail Cap(c_a), veh/h	148	373	317	187	393	352	104	511	500	365	798	829
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.84	0.84	0.84	0.09	0.09	0.09
Uniform Delay (d), s/veh	41.3	33.3	30.0	40.3	31.8	35.0	43.9	40.7	40.7	38.8	31.2	31.4
Incr Delay (d2), s/veh	162.0	4.6	0.3	161.1	3.6	165.7	19.2	114.8	117.8	225.1	7.9	8.9
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	10.3	6.2	1.3	13.0	6.1	24.9	1.9	29.0	28.8	31.9	21.4	22.6
LnGrp Delay(d),s/veh	203.2	37.9	30.3	201.4	35.4	200.7	63.1	155.5	158.5	263.9	39.1	40.2
LnGrp LOS	F	D	C	F	D	F	E	F	F	F	D	D
Approach Vol, veh/h		500			961			1300			2165	
Approach Delay, s/veh		98.8			157.2			152.6			96.2	
Approach LOS		F			F			F			F	

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	23.0	30.5	14.0	22.5	8.4	45.1	12.0	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	26.0	9.5	18.0	5.3	39.2	7.5	20.0
Max Q Clear Time (g_c+I1), s	20.5	28.0	11.5	13.2	5.0	42.5	9.5	22.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	123.3
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	193	773	109	310	222	36	1432	654	1016
Future Volume (vph)	193	773	109	310	222	36	1432	654	1016
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	15.4	28.0	28.0	12.0	24.6	9.6	32.0	18.0	40.4
Total Split (%)	17.1%	31.1%	31.1%	13.3%	27.3%	10.7%	35.6%	20.0%	44.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.9	23.5	23.5	7.5	20.1	5.1	27.5	13.5	39.7
Actuated g/C Ratio	0.12	0.26	0.26	0.08	0.22	0.06	0.31	0.15	0.44
v/c Ratio	0.90	1.59	0.20	2.11	0.97dr	0.36	1.69	2.47	0.74
Control Delay	81.8	302.5	1.4	545.5	31.6	44.7	338.3	684.5	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0	4.4	0.0	0.2
Total Delay	81.8	302.5	1.4	545.5	32.0	44.7	342.8	684.5	26.3
LOS	F	F	A	F	C	D	F	F	C
Approach Delay		232.3			182.5		337.0		265.0
Approach LOS		F			F		F		F

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.47	
Intersection Signal Delay: 266.8	Intersection LOS: F
Intersection Capacity Utilization 160.8%	ICU Level of Service H
Analysis Period (min) 15	

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 3: Alder Ave & Renaissance Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	773	109	310	222	526	36	1432	381	654	1016	133
Future Volume (veh/h)	193	773	109	310	222	526	36	1432	381	654	1016	133
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	193	773	109	310	222	526	36	1432	381	654	1016	133
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	486	413	148	395	354	58	852	219	266	1330	174
Arrive On Green	0.12	0.26	0.26	0.08	0.22	0.22	0.01	0.10	0.10	0.15	0.42	0.42
Sat Flow, veh/h	1774	1863	1583	1774	1770	1583	1774	2788	718	1774	3148	412
Grp Volume(v), veh/h	193	773	109	310	222	526	36	892	921	654	571	578
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1583	1774	1770	1736	1774	1770	1790
Q Serve(g_s), s	9.7	23.5	4.9	7.5	10.0	20.1	1.8	27.5	27.5	13.5	24.7	24.8
Cycle Q Clear(g_c), s	9.7	23.5	4.9	7.5	10.0	20.1	1.8	27.5	27.5	13.5	24.7	24.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.23
Lane Grp Cap(c), veh/h	215	486	413	148	395	354	58	541	530	266	748	756
V/C Ratio(X)	0.90	1.59	0.26	2.10	0.56	1.49	0.62	1.65	1.74	2.46	0.76	0.76
Avail Cap(c_a), veh/h	215	486	413	148	395	354	101	541	530	266	748	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.60	0.60	0.60	0.17	0.17	0.17
Uniform Delay (d), s/veh	39.0	33.3	26.4	41.3	31.0	35.0	43.9	40.5	40.5	38.3	22.1	22.2
Incr Delay (d2), s/veh	35.2	274.8	0.3	515.9	1.8	233.9	6.1	297.0	336.3	657.9	1.3	1.3
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	6.8	49.2	2.2	24.8	5.1	31.7	1.0	58.1	62.8	55.2	12.3	12.5
LnGrp Delay(d),s/veh	74.2	308.1	26.7	557.1	32.8	268.9	50.1	337.4	376.8	696.1	23.4	23.4
LnGrp LOS	E	F	C	F	C	F	D	F	F	F	C	C
Approach Vol, veh/h		1075			1058			1849			1803	
Approach Delay, s/veh		237.5			303.8			351.5			267.4	
Approach LOS		F			F			F			F	

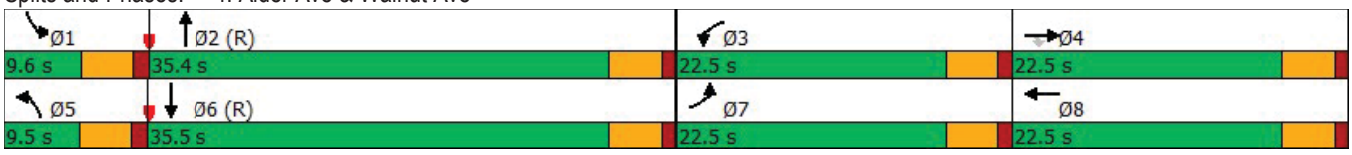
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	32.0	12.0	28.0	7.5	42.5	15.4	24.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	27.5	7.5	23.5	5.1	35.9	10.9	20.1
Max Q Clear Time (g_c+I1), s	15.5	29.5	9.5	25.5	3.8	26.8	11.7	22.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	295.4
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	121	5	41	10	0	46	1218	36	1305
Future Volume (vph)	121	5	41	10	0	46	1218	36	1305
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	35.4	9.6	35.5
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	10.6%	39.3%	10.7%	39.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	11.4	11.1	11.1	6.1	5.5	7.8	59.9	7.3	59.5
Actuated g/C Ratio	0.13	0.12	0.12	0.07	0.06	0.09	0.67	0.08	0.66
v/c Ratio	0.54	0.02	0.13	0.08	0.01	0.30	0.52	0.25	0.71
Control Delay	45.1	33.0	0.9	40.4	0.0	42.9	11.5	31.5	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	33.0	0.9	40.4	0.0	42.9	11.5	31.5	25.5
LOS	D	C	A	D	A	D	B	C	C
Approach Delay		33.9			31.1		12.6		25.6
Approach LOS		C			C		B		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 66.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	5	41	10	0	3	46	1218	10	36	1305	311
Future Volume (veh/h)	121	5	41	10	0	3	46	1218	10	36	1305	311
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	121	5	41	10	0	3	46	1218	10	36	1305	311
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	147	125	95	0	68	67	2282	19	58	1792	420
Arrive On Green	0.09	0.08	0.08	0.05	0.00	0.04	0.08	1.00	1.00	0.01	0.21	0.21
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3598	30	1774	2848	667
Grp Volume(v), veh/h	121	5	41	10	0	3	46	599	629	36	802	814
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1858	1774	1770	1745
Q Serve(g_s), s	6.0	0.2	2.2	0.5	0.0	0.2	2.3	0.0	0.0	1.8	38.0	39.3
Cycle Q Clear(g_c), s	6.0	0.2	2.2	0.5	0.0	0.2	2.3	0.0	0.0	1.8	38.0	39.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		0.38
Lane Grp Cap(c), veh/h	159	147	125	95	0	68	67	1122	1178	58	1114	1098
V/C Ratio(X)	0.76	0.03	0.33	0.11	0.00	0.04	0.68	0.53	0.53	0.62	0.72	0.74
Avail Cap(c_a), veh/h	355	373	317	355	0	317	99	1122	1178	101	1114	1098
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.13	0.13	0.13
Uniform Delay (d), s/veh	40.0	38.3	39.2	40.5	0.0	41.3	41.1	0.0	0.0	43.9	28.3	28.8
Incr Delay (d2), s/veh	7.2	0.1	1.5	0.5	0.0	0.3	11.5	1.8	1.7	1.4	0.6	0.6
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	3.2	0.1	1.0	0.2	0.0	0.1	1.3	0.6	0.6	0.9	18.8	19.2
LnGrp Delay(d),s/veh	47.2	38.4	40.7	41.0	0.0	41.6	52.6	1.8	1.7	45.4	28.8	29.4
LnGrp LOS	D	D	D	D		D	D	A	A	D	C	C
Approach Vol, veh/h		167			13			1274			1652	
Approach Delay, s/veh		45.3			41.1			3.6			29.5	
Approach LOS		D			D			A			C	

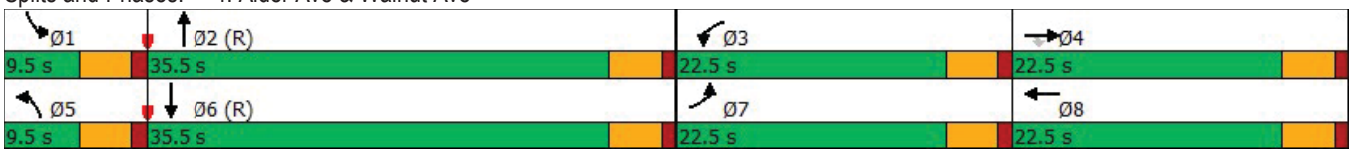
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	61.6	9.3	11.6	7.9	61.1	12.6	8.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	30.9	18.0	18.0	5.0	31.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	3.8	2.0	2.5	4.2	4.3	41.3	8.0	2.2
Green Ext Time (p_c), s	0.0	10.1	0.0	0.1	0.0	0.0	0.2	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.8
HCM 2010 LOS	B

Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	420	103	3	0	28	1306	21	1333
Future Volume (vph)	420	103	3	0	28	1306	21	1333
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7		3	8	5	2	1	6
Permitted Phases		4						
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	35.5	9.5	35.5
Total Split (%)	25.0%	25.0%	25.0%	25.0%	10.6%	39.4%	10.6%	39.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	18.0	17.8	5.8	5.5	7.0	56.1	6.6	55.9
Actuated g/C Ratio	0.20	0.20	0.06	0.06	0.08	0.62	0.07	0.62
v/c Ratio	1.19	0.15	0.03	0.01	0.20	0.59	0.16	0.68
Control Delay	143.1	0.5	39.7	0.0	41.9	13.7	32.0	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	143.1	0.5	39.7	0.0	41.9	13.7	32.0	24.6
LOS	F	A	D	A	D	B	C	C
Approach Delay				23.8		14.3		24.7
Approach LOS				C		B		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 34.6	Intersection LOS: C
Intersection Capacity Utilization 79.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Alder Ave & Walnut Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	420	0	103	3	0	2	28	1306	5	21	1333	147
Future Volume (veh/h)	420	0	103	3	0	2	28	1306	5	21	1333	147
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	420	0	103	3	0	2	28	1306	5	21	1333	147
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	355	366	311	99	0	82	50	1900	7	40	1674	184
Arrive On Green	0.20	0.00	0.20	0.06	0.00	0.05	0.06	1.00	1.00	0.02	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	0	1583	1774	3616	14	1774	3217	353
Grp Volume(v), veh/h	420	0	103	3	0	2	28	639	672	21	730	750
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1583	1774	1770	1860	1774	1770	1800
Q Serve(g_s), s	18.0	0.0	5.0	0.1	0.0	0.1	1.4	0.0	0.0	1.1	30.3	30.8
Cycle Q Clear(g_c), s	18.0	0.0	5.0	0.1	0.0	0.1	1.4	0.0	0.0	1.1	30.3	30.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		0.20
Lane Grp Cap(c), veh/h	355	366	311	99	0	82	50	930	978	40	921	937
V/C Ratio(X)	1.18	0.00	0.33	0.03	0.00	0.02	0.56	0.69	0.69	0.52	0.79	0.80
Avail Cap(c_a), veh/h	355	373	317	355	0	317	99	930	978	99	921	937
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.15	0.15	0.15
Uniform Delay (d), s/veh	36.0	0.0	31.1	40.2	0.0	40.5	41.9	0.0	0.0	43.5	17.6	17.8
Incr Delay (d2), s/veh	107.8	0.0	0.6	0.1	0.0	0.1	9.7	4.1	3.9	1.6	1.1	1.1
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	19.4	0.0	2.2	0.1	0.0	0.0	0.8	1.1	1.1	0.5	14.9	15.5
LnGrp Delay(d),s/veh	143.8	0.0	31.7	40.3	0.0	40.6	51.6	4.1	3.9	45.1	18.7	18.9
LnGrp LOS	F		C	D		D	D	A	A	D	B	B
Approach Vol, veh/h		523			5			1339			1501	
Approach Delay, s/veh		121.7			40.4			5.0			19.2	
Approach LOS		F			D			A			B	

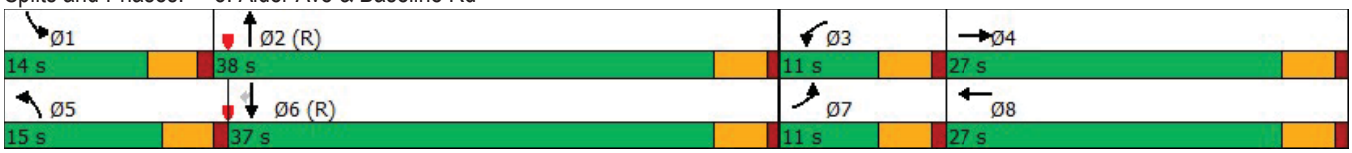
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	51.8	9.5	22.2	7.0	51.3	22.5	9.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	31.0	18.0	18.0	5.0	31.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	3.1	2.0	2.1	7.0	3.4	32.8	20.0	2.1
Green Ext Time (p_c), s	0.0	11.1	0.0	0.2	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	206	542	205	528	208	763	348	568	187
Future Volume (vph)	206	542	205	528	208	763	348	568	187
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	11.0	27.0	11.0	27.0	15.0	38.0	14.0	37.0	37.0
Total Split (%)	12.2%	30.0%	12.2%	30.0%	16.7%	42.2%	15.6%	41.1%	41.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.5	22.5	6.5	22.5	10.5	33.5	9.5	32.5	32.5
Actuated g/C Ratio	0.07	0.25	0.07	0.25	0.12	0.37	0.11	0.36	0.36
v/c Ratio	1.62	1.32	1.61	1.58	1.01	1.68	1.87	0.85	0.29
Control Delay	343.4	190.5	329.2	289.8	107.5	337.0	438.1	40.1	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	343.4	190.5	329.2	289.8	107.5	337.0	438.1	40.1	8.7
LOS	F	F	F	F	F	F	F	D	A
Approach Delay		229.0		298.5		301.6		160.3	
Approach LOS		F		F		F		F	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.87	
Intersection Signal Delay: 249.7	Intersection LOS: F
Intersection Capacity Utilization 148.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	542	71	205	528	200	208	763	377	348	568	187
Future Volume (veh/h)	206	542	71	205	528	200	208	763	377	348	568	187
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	206	542	71	205	528	200	208	763	377	348	568	187
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	404	53	128	322	122	207	438	217	187	673	572
Arrive On Green	0.07	0.25	0.25	0.07	0.25	0.25	0.12	0.37	0.37	0.07	0.24	0.24
Sat Flow, veh/h	1774	1614	211	1774	1289	488	1774	1178	582	1774	1863	1583
Grp Volume(v), veh/h	206	0	613	205	0	728	208	0	1140	348	568	187
Grp Sat Flow(s),veh/h/ln	1774	0	1825	1774	0	1777	1774	0	1760	1774	1863	1583
Q Serve(g_s), s	6.5	0.0	22.5	6.5	0.0	22.5	10.5	0.0	33.5	9.5	26.1	8.8
Cycle Q Clear(g_c), s	6.5	0.0	22.5	6.5	0.0	22.5	10.5	0.0	33.5	9.5	26.1	8.8
Prop In Lane	1.00		0.12	1.00		0.27	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	128	0	456	128	0	444	207	0	655	187	673	572
V/C Ratio(X)	1.61	0.00	1.34	1.60	0.00	1.64	1.00	0.00	1.74	1.86	0.84	0.33
Avail Cap(c_a), veh/h	128	0	456	128	0	444	207	0	655	187	673	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	0.29	0.00	0.29	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	0.0	33.8	41.8	0.0	33.8	39.8	0.0	28.3	41.8	31.7	25.1
Incr Delay (d2), s/veh	306.7	0.0	168.6	280.3	0.0	290.5	63.8	0.0	339.4	406.1	12.3	1.5
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	14.1	0.0	32.7	13.1	0.0	46.8	8.8	0.0	78.0	25.8	15.8	4.1
LnGrp Delay(d),s/veh	348.4	0.0	202.3	322.0	0.0	324.3	103.6	0.0	367.6	447.9	44.0	26.6
LnGrp LOS	F		F	F		F	F		F	F	D	C
Approach Vol, veh/h		819			933			1348			1103	
Approach Delay, s/veh		239.1			323.8			326.9			168.5	
Approach LOS		F			F			F			F	

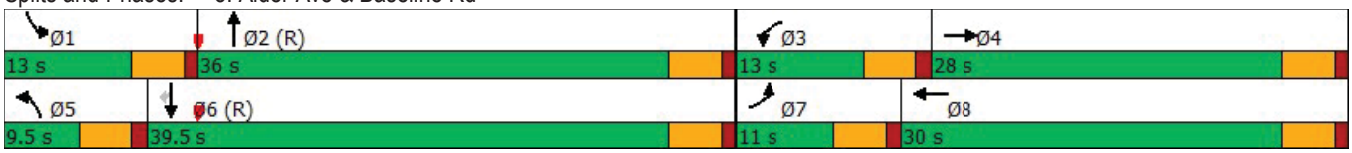
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	38.0	11.0	27.0	15.0	37.0	11.0	27.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	33.5	6.5	22.5	10.5	32.5	6.5	22.5
Max Q Clear Time (g_c+I1), s	11.5	35.5	8.5	24.5	12.5	28.1	8.5	24.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	267.5
HCM 2010 LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	172	636	303	442	74	673	307	777	242
Future Volume (vph)	172	636	303	442	74	673	307	777	242
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases									6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	11.0	28.0	13.0	30.0	9.5	36.0	13.0	39.5	39.5
Total Split (%)	12.2%	31.1%	14.4%	33.3%	10.6%	40.0%	14.4%	43.9%	43.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.5	23.5	8.5	25.5	5.0	31.5	8.5	36.9	36.9
Actuated g/C Ratio	0.07	0.26	0.09	0.28	0.06	0.35	0.09	0.41	0.41
v/c Ratio	1.35	1.50	1.81	1.50	0.76	1.49	1.84	1.02	0.33
Control Delay	237.4	264.0	407.9	253.5	85.8	255.6	426.5	66.3	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	237.4	264.0	407.9	253.5	85.8	255.6	426.5	66.3	10.5
LOS	F	F	F	F	F	F	F	E	B
Approach Delay		258.9		296.5		243.3		139.5	
Approach LOS		F		F		F		F	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.84	
Intersection Signal Delay: 228.2	Intersection LOS: F
Intersection Capacity Utilization 140.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	636	89	303	442	343	74	673	282	307	777	242
Future Volume (veh/h)	172	636	89	303	442	343	74	673	282	307	777	242
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	172	636	89	303	442	343	74	673	282	307	777	242
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	418	58	168	276	214	95	437	183	168	728	619
Arrive On Green	0.07	0.26	0.26	0.09	0.28	0.28	0.05	0.35	0.35	0.19	0.78	0.78
Sat Flow, veh/h	1774	1599	224	1774	974	756	1774	1248	523	1774	1863	1583
Grp Volume(v), veh/h	172	0	725	303	0	785	74	0	955	307	777	242
Grp Sat Flow(s),veh/h/ln	1774	0	1823	1774	0	1729	1774	0	1770	1774	1863	1583
Q Serve(g_s), s	6.5	0.0	23.5	8.5	0.0	25.5	3.7	0.0	31.5	8.5	35.2	4.3
Cycle Q Clear(g_c), s	6.5	0.0	23.5	8.5	0.0	25.5	3.7	0.0	31.5	8.5	35.2	4.3
Prop In Lane	1.00		0.12	1.00		0.44	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	128	0	476	168	0	490	95	0	620	168	728	619
V/C Ratio(X)	1.34	0.00	1.52	1.81	0.00	1.60	0.78	0.00	1.54	1.83	1.07	0.39
Avail Cap(c_a), veh/h	128	0	476	168	0	490	99	0	620	168	728	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	0.28	0.00	0.28	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	0.0	33.3	40.8	0.0	32.3	42.1	0.0	29.3	36.5	9.8	6.4
Incr Delay (d2), s/veh	197.1	0.0	245.8	370.3	0.0	273.6	31.2	0.0	251.5	396.9	52.6	1.9
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	10.2	0.0	44.3	21.4	0.0	49.4	2.6	0.0	58.6	22.6	27.2	2.0
LnGrp Delay(d),s/veh	238.9	0.0	279.1	411.1	0.0	305.9	73.3	0.0	280.8	433.4	62.4	8.3
LnGrp LOS	F		F	F		F	E		F	F	F	A
Approach Vol, veh/h		897			1088			1029			1326	
Approach Delay, s/veh		271.4			335.2			265.9			138.4	
Approach LOS		F			F			F			F	

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	13.0	36.0	13.0	28.0	9.3	39.7	11.0	30.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	31.5	8.5	23.5	5.0	35.0	6.5	25.5
Max Q Clear Time (g_c+I1), s	10.5	33.5	10.5	25.5	5.7	37.2	8.5	27.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	245.4
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	35	14	193	23	5	121
Future Vol, veh/h	35	14	193	23	5	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	14	193	23	5	121

Major/Minor	Minor2		Major2	
Conflicting Flow All	409	23	0	0
Stage 1	409	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	532	1054	-	-
Stage 1	596	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1054	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.6	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1054	-	-
HCM Lane V/C Ratio	0.046	-	-
HCM Control Delay (s)	8.6	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	48	9	112	31	16	388
Future Vol, veh/h	48	9	112	31	16	388
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	9	112	31	16	388

Major/Minor	Minor2		Major2	
Conflicting Flow All	255	31	0	0
Stage 1	255	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	649	1043	-	-
Stage 1	696	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1043	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.7	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1043	-	-
HCM Lane V/C Ratio	0.055	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Intersection	
Int Delay, s/veh	14.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	759	151	86	724	103	86	5	61	1	3	10
Future Vol, veh/h	38	759	151	86	724	103	86	5	61	1	3	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	759	151	86	724	103	86	5	61	1	3	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	827	0	0	910	0	0	1371	1834	759	1892	1934	414
Stage 1	-	-	-	-	-	-	835	835	-	948	948	-
Stage 2	-	-	-	-	-	-	536	999	-	944	986	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	802	-	-	746	-	-	114	76	405	48	65	588
Stage 1	-	-	-	-	-	-	361	382	-	281	338	-
Stage 2	-	-	-	-	-	-	497	320	-	314	325	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	802	-	-	746	-	-	95	64	405	34	55	588
Mov Cap-2 Maneuver	-	-	-	-	-	-	95	64	-	34	55	-
Stage 1	-	-	-	-	-	-	344	364	-	268	299	-
Stage 2	-	-	-	-	-	-	428	283	-	251	310	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1	183	33.8
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	134	802	-	-	746	-	-	139
HCM Lane V/C Ratio	1.134	0.047	-	-	0.115	-	-	0.101
HCM Control Delay (s)	183	9.7	-	-	10.5	-	-	33.8
HCM Lane LOS	F	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	8.8	0.1	-	-	0.4	-	-	0.3

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	845	76	52	690	109	60	7	36	7	6	36
Future Vol, veh/h	16	845	76	52	690	109	60	7	36	7	6	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	550	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	845	76	52	690	109	60	7	36	7	6	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	799	0	0	921	0	0	1329	1780	845	1786	1802	400
Stage 1	-	-	-	-	-	-	877	877	-	849	849	-
Stage 2	-	-	-	-	-	-	452	903	-	937	953	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.23	7.33	6.53	6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	822	-	-	739	-	-	122	82	362	57	79	600
Stage 1	-	-	-	-	-	-	342	365	-	323	376	-
Stage 2	-	-	-	-	-	-	557	355	-	317	337	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	822	-	-	739	-	-	100	75	362	44	72	600
Mov Cap-2 Maneuver	-	-	-	-	-	-	100	75	-	44	72	-
Stage 1	-	-	-	-	-	-	336	358	-	317	350	-
Stage 2	-	-	-	-	-	-	478	330	-	274	331	-

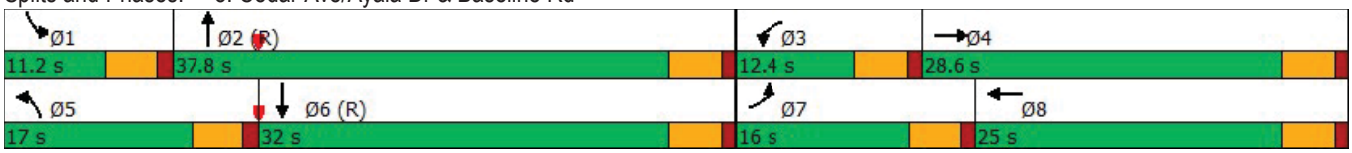
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	95.8	36.6
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	130	822	-	-	739	-	-	162
HCM Lane V/C Ratio	0.792	0.019	-	-	0.07	-	-	0.302
HCM Control Delay (s)	95.8	9.5	-	-	10.2	-	-	36.6
HCM Lane LOS	F	A	-	-	B	-	-	E
HCM 95th %tile Q(veh)	4.8	0.1	-	-	0.2	-	-	1.2

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	194	480	120	640	409	715	107	780
Future Volume (vph)	194	480	120	640	409	715	107	780
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.0	28.6	12.4	25.0	17.0	37.8	11.2	32.0
Total Split (%)	17.8%	31.8%	13.8%	27.8%	18.9%	42.0%	12.4%	35.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	11.4	24.1	7.9	20.6	12.5	35.5	6.6	27.5
Actuated g/C Ratio	0.13	0.27	0.09	0.23	0.14	0.39	0.07	0.31
v/c Ratio	0.87	0.79	0.77	0.94	0.86	0.58	0.43	0.86
Control Delay	57.5	26.0	72.8	54.9	56.9	23.7	45.5	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	26.0	72.8	54.9	56.9	23.7	45.5	38.3
LOS	E	C	E	D	E	C	D	D
Approach Delay		32.0		57.3		34.9		39.0
Approach LOS		C		E		C		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 40.0	Intersection LOS: D
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	480	337	120	640	122	409	715	90	107	780	141
Future Volume (veh/h)	194	480	337	120	640	122	409	715	90	107	780	141
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	194	480	337	120	640	122	409	715	90	107	780	141
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	2	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	540	378	149	676	129	477	1243	156	178	916	166
Arrive On Green	0.13	0.27	0.27	0.08	0.23	0.23	0.14	0.39	0.39	0.05	0.31	0.31
Sat Flow, veh/h	1774	1992	1394	1774	2968	565	3442	3164	398	3442	2995	541
Grp Volume(v), veh/h	194	426	391	120	381	381	409	400	405	107	461	460
Grp Sat Flow(s),veh/h/ln	1774	1770	1617	1774	1770	1763	1721	1770	1793	1721	1770	1767
Q Serve(g_s), s	9.6	20.8	20.9	6.0	19.1	19.1	10.5	15.9	16.0	2.7	22.0	22.0
Cycle Q Clear(g_c), s	9.6	20.8	20.9	6.0	19.1	19.1	10.5	15.9	16.0	2.7	22.0	22.0
Prop In Lane	1.00		0.86	1.00		0.32	1.00		0.22	1.00		0.31
Lane Grp Cap(c), veh/h	227	480	439	149	403	402	477	695	704	178	541	541
V/C Ratio(X)	0.86	0.89	0.89	0.80	0.95	0.95	0.86	0.58	0.58	0.60	0.85	0.85
Avail Cap(c_a), veh/h	227	480	439	156	403	402	478	695	704	256	541	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	31.5	31.5	40.5	34.2	34.2	37.9	21.4	21.4	41.8	29.3	29.3
Incr Delay (d2), s/veh	3.1	2.1	2.4	24.6	31.3	31.8	14.4	3.4	3.4	3.2	15.4	15.5
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	4.9	10.5	9.6	4.0	12.8	12.9	5.9	8.4	8.5	1.4	13.1	13.1
LnGrp Delay(d),s/veh	41.6	33.6	33.9	65.1	65.5	66.1	52.3	24.9	24.9	45.0	44.7	44.8
LnGrp LOS	D	C	C	E	E	E	D	C	C	D	D	D
Approach Vol, veh/h		1011			882			1214			1028	
Approach Delay, s/veh		35.2			65.7			34.1			44.8	
Approach LOS		D			E			C			D	

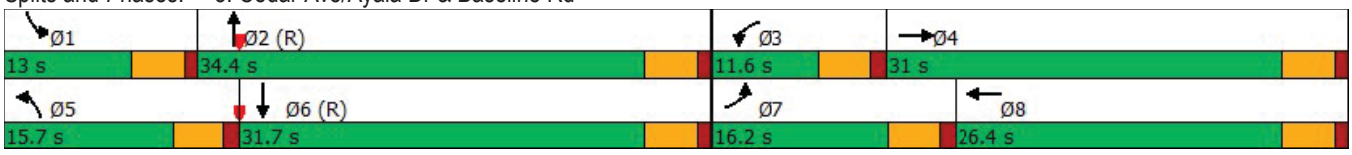
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	39.8	12.1	28.9	17.0	32.0	16.0	25.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	33.3	7.9	24.1	12.5	27.5	11.5	20.5
Max Q Clear Time (g_c+I1), s	4.7	18.0	8.0	22.9	12.5	24.0	11.6	21.1
Green Ext Time (p_c), s	0.0	4.6	0.0	0.6	0.0	1.9	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	43.8
HCM 2010 LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	205	699	119	607	398	819	268	891
Future Volume (vph)	205	699	119	607	398	819	268	891
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.2	31.0	11.6	26.4	15.7	34.4	13.0	31.7
Total Split (%)	18.0%	34.4%	12.9%	29.3%	17.4%	38.2%	14.4%	35.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	11.7	26.5	7.1	21.9	11.2	29.9	8.5	27.2
Actuated g/C Ratio	0.13	0.29	0.08	0.24	0.12	0.33	0.09	0.30
v/c Ratio	0.89	1.03	0.86	0.91	0.93	0.80	0.83	0.99
Control Delay	60.3	42.8	88.9	47.8	70.0	33.2	62.2	56.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	42.8	88.9	47.8	70.0	33.2	62.2	56.2
LOS	E	D	F	D	E	C	E	E
Approach Delay		45.5		53.2		44.2		57.4
Approach LOS		D		D		D		E

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 49.8	Intersection LOS: D
Intersection Capacity Utilization 94.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 8: Cedar Ave/Ayala Dr & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	699	406	119	607	178	398	819	119	268	891	155
Future Volume (veh/h)	205	699	406	119	607	178	398	819	119	268	891	155
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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	205	699	406	119	607	178	398	819	119	268	891	155
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	2	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	636	369	140	657	192	428	1031	150	325	911	159
Arrive On Green	0.13	0.29	0.29	0.08	0.24	0.24	0.12	0.33	0.33	0.09	0.30	0.30
Sat Flow, veh/h	1774	2159	1252	1774	2702	791	3442	3102	451	3442	3015	524
Grp Volume(v), veh/h	205	573	532	119	397	388	398	467	471	268	523	523
Grp Sat Flow(s),veh/h/ln	1774	1770	1642	1774	1770	1723	1721	1770	1783	1721	1770	1770
Q Serve(g_s), s	10.2	26.5	26.5	6.0	19.7	19.8	10.3	21.6	21.6	6.9	26.3	26.3
Cycle Q Clear(g_c), s	10.2	26.5	26.5	6.0	19.7	19.8	10.3	21.6	21.6	6.9	26.3	26.3
Prop In Lane	1.00		0.76	1.00		0.46	1.00		0.25	1.00		0.30
Lane Grp Cap(c), veh/h	231	521	483	140	431	419	428	588	592	325	535	535
V/C Ratio(X)	0.89	1.10	1.10	0.85	0.92	0.92	0.93	0.79	0.79	0.82	0.98	0.98
Avail Cap(c_a), veh/h	231	521	483	140	431	419	428	588	592	325	535	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	31.8	31.8	40.9	33.2	33.2	39.0	27.3	27.3	40.0	31.1	31.1
Incr Delay (d2), s/veh	4.3	47.7	49.0	36.3	25.3	26.3	26.7	10.6	10.6	15.7	33.8	33.8
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	5.3	19.8	18.5	4.3	12.6	12.4	6.5	12.2	12.3	4.0	17.8	17.8
LnGrp Delay(d),s/veh	42.8	79.5	80.7	77.2	58.5	59.5	65.7	37.9	37.8	55.7	64.9	64.9
LnGrp LOS	D	F	F	E	E	E	E	D	D	E	E	E
Approach Vol, veh/h		1310			904			1336			1314	
Approach Delay, s/veh		74.3			61.4			46.2			63.0	
Approach LOS		E			E			D			E	

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	13.0	34.4	11.6	31.0	15.7	31.7	16.2	26.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	29.9	7.1	26.5	11.2	27.2	11.7	21.9
Max Q Clear Time (g_c+I1), s	8.9	23.6	8.0	28.5	12.3	28.3	12.2	21.8
Green Ext Time (p_c), s	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	61.1
HCM 2010 LOS	E

- Project Access Analysis

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	421	471	71
Future Vol, veh/h	0	1	0	421	471	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	458	512	77

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	551	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	533	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	533	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	533	-	-
HCM Lane V/C Ratio	-	0.002	-	-
HCM Control Delay (s)	-	11.8	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	0	450	475	23
Future Vol, veh/h	0	4	0	450	475	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	0	489	516	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	529	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	549	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	549	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	549	-	-
HCM Lane V/C Ratio	-	0.008	-	-
HCM Control Delay (s)	-	11.6	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	560	652	22	0	5
Future Vol, veh/h	0	560	652	22	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	609	709	24	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	721
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	427
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	427
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	427
HCM Lane V/C Ratio	-	-	-	0.013
HCM Control Delay (s)	-	-	-	13.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	632	425	7	0	22
Future Vol, veh/h	0	632	425	7	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	687	462	8	0	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	466
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	597
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	597
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	597
HCM Lane V/C Ratio	-	-	-	0.04
HCM Control Delay (s)	-	-	-	11.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	560	646	11	0	22
Future Vol, veh/h	0	560	646	11	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	609	702	12	0	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	708
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	435
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	435
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	435
HCM Lane V/C Ratio	-	-	-	0.055
HCM Control Delay (s)	-	-	-	13.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	632	443	4	0	78
Future Vol, veh/h	0	632	443	4	0	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	687	482	4	0	85

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	484
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	583
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	583
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	583
HCM Lane V/C Ratio	-	-	-	0.145
HCM Control Delay (s)	-	-	-	12.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.5

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	1169	1102	71
Future Vol, veh/h	0	1	0	1169	1102	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	1169	1102	71

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1138	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	244	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	244	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	244	-	-
HCM Lane V/C Ratio	-	0.004	-	-
HCM Control Delay (s)	-	19.8	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	0	1188	1322	23
Future Vol, veh/h	0	4	0	1188	1322	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	0	1188	1322	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1334	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	187	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	187	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	187	-	-
HCM Lane V/C Ratio	-	0.021	-	-
HCM Control Delay (s)	-	24.7	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	818	901	22	0	5
Future Vol, veh/h	0	818	901	22	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	818	901	22	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	912
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	332
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	332
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	332
HCM Lane V/C Ratio	-	-	-	0.015
HCM Control Delay (s)	-	-	-	16
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	897	751	7	0	22
Future Vol, veh/h	0	897	751	7	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	897	751	7	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	755
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	409
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	409
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	409
HCM Lane V/C Ratio	-	-	-	0.054
HCM Control Delay (s)	-	-	-	14.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	818	895	11	0	22
Future Vol, veh/h	0	818	895	11	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	818	895	11	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	901
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	337
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	337
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	337
HCM Lane V/C Ratio	-	-	-	0.065
HCM Control Delay (s)	-	-	-	16.4
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	897	769	4	0	78
Future Vol, veh/h	0	897	769	4	0	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	897	769	4	0	78

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	771
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	400
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	400
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	400
HCM Lane V/C Ratio	-	-	-	0.195
HCM Control Delay (s)	-	-	-	16.2
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.7

- Queuing Analysis

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:10	8:10	8:10	8:10	8:10	8:10
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	7465	7463	7288	7414	7297	7384
Vehs Exited	7434	7459	7309	7454	7332	7397
Starting Vehs	197	211	204	248	202	211
Ending Vehs	228	215	183	208	167	191
Travel Distance (mi)	3430	3465	3332	3382	3326	3387
Travel Time (hr)	212.4	226.4	202.9	214.3	203.1	211.8
Total Delay (hr)	88.8	101.5	82.8	92.3	83.4	89.8
Total Stops	8384	8848	7975	8409	7931	8309
Fuel Used (gal)	143.8	146.9	138.1	142.4	138.0	141.8

Interval #0 Information Seeding

Start Time	7:00
End Time	7:10
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:10
End Time	7:25
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2059	2165	2056	2079	2034	2076
Vehs Exited	2022	2084	2013	2077	1990	2037
Starting Vehs	197	211	204	248	202	211
Ending Vehs	234	292	247	250	246	248
Travel Distance (mi)	923	982	891	922	879	919
Travel Time (hr)	60.3	70.2	56.6	64.1	55.3	61.3
Total Delay (hr)	27.1	34.9	24.6	30.7	23.6	28.2
Total Stops	2349	2655	2225	2493	2195	2384
Fuel Used (gal)	39.4	43.3	37.7	40.5	36.8	39.6

Interval #2 Information Recording

Start Time	7:25
End Time	8:10
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5406	5298	5232	5335	5263	5306
Vehs Exited	5412	5375	5296	5377	5342	5359
Starting Vehs	234	292	247	250	246	248
Ending Vehs	228	215	183	208	167	191
Travel Distance (mi)	2506	2482	2442	2460	2447	2468
Travel Time (hr)	152.1	156.2	146.3	150.2	147.9	150.5
Total Delay (hr)	61.8	66.6	58.2	61.6	59.8	61.6
Total Stops	6035	6193	5750	5916	5736	5929
Fuel Used (gal)	104.4	103.6	100.4	101.9	101.2	102.3

Intersection: 1: Alder Ave & SR-210 WB Ramp

Movement	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	T	TR
Maximum Queue (ft)	320	151	140	306	242	334	489
Average Queue (ft)	185	51	124	126	60	98	262
95th Queue (ft)	280	99	161	299	157	269	440
Link Distance (ft)	312	312		612	612	540	540
Upstream Blk Time (%)	0	0					0
Queuing Penalty (veh)	0	0					0
Storage Bay Dist (ft)			115				
Storage Blk Time (%)			23	0			
Queuing Penalty (veh)			47	0			

Intersection: 2: Alder Ave & SR-210 EB Ramps

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	252	266	208	192	157	152	154
Average Queue (ft)	137	108	76	91	72	82	80
95th Queue (ft)	230	191	148	165	130	144	144
Link Distance (ft)	494	494	404	404	612	612	612
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Alder Ave & Renaissance Pkwy

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	130	139	47	34	136	138	107	175	183	176	222	222
Average Queue (ft)	62	55	14	8	72	55	37	78	94	84	103	128
95th Queue (ft)	111	109	35	28	124	102	84	148	163	147	182	201
Link Distance (ft)		805			691	691		2048	2048		404	404
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300		170	300			115			275		
Storage Blk Time (%)		0					1	2				
Queuing Penalty (veh)		0					2	1				

Intersection: 4: Alder Ave & Walnut Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	94	34	49	56	24	73	127	92	88	205	218
Average Queue (ft)	41	5	14	10	3	23	41	18	37	83	105
95th Queue (ft)	78	23	40	36	18	57	94	62	80	174	198
Link Distance (ft)		194		557	557		577	577		2048	2048
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	195		195			195			65		
Storage Blk Time (%)									3	6	
Queuing Penalty (veh)									10	2	

Intersection: 5: Alder Ave & Baseline Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	175	202	199	410	175	267	89	457	90
Average Queue (ft)	57	174	50	214	130	188	55	210	56
95th Queue (ft)	135	231	148	336	203	298	101	382	112
Link Distance (ft)		187		3637		233		562	
Upstream Blk Time (%)	0	17				13			
Queuing Penalty (veh)	0	99				0			
Storage Bay Dist (ft)	150		175		150		65		65
Storage Blk Time (%)	0	28		26	8	16	12	39	2
Queuing Penalty (veh)	1	17		11	38	29	49	64	7

Intersection: 6: Tamarind Ave & Walnut Ave

Movement	EB	NB
Directions Served	TR	LR
Maximum Queue (ft)	61	4
Average Queue (ft)	26	0
95th Queue (ft)	51	3
Link Distance (ft)	77	2563
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Baseline Rd & Tamarind Ave

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	43	4	22	78	9	207	31
Average Queue (ft)	9	0	2	33	0	66	11
95th Queue (ft)	33	3	12	66	5	147	35
Link Distance (ft)	486	486	486		505	185	2563
Upstream Blk Time (%)						3	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)				550			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Cedar Ave/Ayala Dr & Baseline Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	L	T	TR	L	L
Maximum Queue (ft)	100	219	224	170	231	209	119	173	271	215	10	138
Average Queue (ft)	80	102	114	99	151	103	14	91	149	118	1	34
95th Queue (ft)	114	199	195	177	233	189	82	156	236	204	7	92
Link Distance (ft)		3637	3637		214	214			282	282		
Upstream Blk Time (%)					4	0			0			
Queuing Penalty (veh)					0	0			0			
Storage Bay Dist (ft)	75			145			250	250			200	200
Storage Blk Time (%)	34	8		2	12				1			
Queuing Penalty (veh)	54	13		3	15				1			

Intersection: 8: Cedar Ave/Ayala Dr & Baseline Rd

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	271	228
Average Queue (ft)	179	132
95th Queue (ft)	252	212
Link Distance (ft)	340	340
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	4	
Queuing Penalty (veh)	1	

Intersection: 12: Alder Ave

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: Alder Ave & Proj Access 1

Movement	EB
Directions Served	R
Maximum Queue (ft)	18
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	297
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 102: Baseline Rd & Proj Access 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	354	29
Average Queue (ft)	96	4
95th Queue (ft)	282	21
Link Distance (ft)	448	160
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 103: Baseline Rd & Proj Access 3

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	15	45
Average Queue (ft)	0	17
95th Queue (ft)	6	42
Link Distance (ft)	505	125
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 201: Project Access 1 & Walnut Ave

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 202: Project Access 2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 203: Project Access 3 & Alder Ave

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	102	82
Average Queue (ft)	22	19
95th Queue (ft)	73	62
Link Distance (ft)	577	577
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 465

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:10	8:10	8:10	8:10	8:10	8:10
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	7721	7863	7725	7814	7819	7789
Vehs Exited	7722	7884	7720	7807	7815	7793
Starting Vehs	220	242	214	227	220	222
Ending Vehs	219	221	219	234	224	219
Travel Distance (mi)	3608	3654	3511	3613	3578	3593
Travel Time (hr)	232.2	231.2	222.1	245.7	241.5	234.5
Total Delay (hr)	102.7	100.0	95.8	115.6	112.7	105.4
Total Stops	8994	9275	8834	9210	9040	9069
Fuel Used (gal)	152.7	153.7	147.8	156.1	154.5	153.0

Interval #0 Information Seeding

Start Time	7:00
End Time	7:10
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:10
End Time	7:25
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2065	2103	2125	2109	2122	2107
Vehs Exited	2026	2095	2090	2056	2043	2061
Starting Vehs	220	242	214	227	220	222
Ending Vehs	259	250	249	280	299	266
Travel Distance (mi)	942	975	947	944	942	950
Travel Time (hr)	64.5	62.0	61.6	67.6	62.2	63.6
Total Delay (hr)	30.8	27.2	27.7	33.5	28.3	29.5
Total Stops	2476	2580	2436	2472	2456	2481
Fuel Used (gal)	40.8	41.3	40.5	41.5	39.9	40.8

Interval #2 Information Recording

Start Time	7:25
End Time	8:10
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5656	5760	5600	5705	5697	5687
Vehs Exited	5696	5789	5630	5751	5772	5730
Starting Vehs	259	250	249	280	299	266
Ending Vehs	219	221	219	234	224	219
Travel Distance (mi)	2666	2679	2564	2668	2636	2643
Travel Time (hr)	167.6	169.2	160.5	178.1	179.3	170.9
Total Delay (hr)	71.9	72.8	68.1	82.1	84.3	75.8
Total Stops	6518	6695	6398	6738	6584	6587
Fuel Used (gal)	111.9	112.4	107.3	114.6	114.6	112.2

Intersection: 1: Alder Ave & SR-210 WB Ramp

Movement	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	T	TR
Maximum Queue (ft)	304	106	140	380	271	573	568
Average Queue (ft)	154	42	132	186	83	259	361
95th Queue (ft)	250	81	154	346	181	585	615
Link Distance (ft)	312	312		612	612	540	540
Upstream Blk Time (%)	0					13	21
Queuing Penalty (veh)	0					0	0
Storage Bay Dist (ft)			115				
Storage Blk Time (%)			26	0			
Queuing Penalty (veh)			55	1			

Intersection: 2: Alder Ave & SR-210 EB Ramps

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	242	166	203	216	261	123	113
Average Queue (ft)	126	85	90	95	135	62	57
95th Queue (ft)	207	139	160	177	222	112	107
Link Distance (ft)	494	494	404	404	612	612	612
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Alder Ave & Renaissance Pkwy

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	324	528	76	44	61	97	140	283	292	256	240	234
Average Queue (ft)	81	277	23	11	21	44	22	146	170	130	97	132
95th Queue (ft)	210	459	53	35	51	77	77	246	261	214	189	211
Link Distance (ft)		805	805		691	691		2048	2048		404	404
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			300			115			275		
Storage Blk Time (%)		7						17		0		
Queuing Penalty (veh)		8						3		1		

Intersection: 4: Alder Ave & Walnut Ave

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	153	39	38	29	68	124	104	81	184	212
Average Queue (ft)	94	15	4	2	20	55	30	20	91	116
95th Queue (ft)	144	40	22	13	51	107	79	56	168	202
Link Distance (ft)			557	557		577	577		2048	2048
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	195	195			195			65		
Storage Blk Time (%)								0	9	
Queuing Penalty (veh)								0	2	

Intersection: 5: Alder Ave & Baseline Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	174	203	125	302	174	259	89	415	90
Average Queue (ft)	51	183	31	153	65	183	77	207	34
95th Queue (ft)	134	228	77	260	155	274	107	383	91
Link Distance (ft)		191		3637		233		565	
Upstream Blk Time (%)	0	18				5			
Queuing Penalty (veh)	0	113				0			
Storage Bay Dist (ft)	150		175		150		65		65
Storage Blk Time (%)		29		9	0	16	32	24	1
Queuing Penalty (veh)		13		3	0	10	120	46	2

Intersection: 6: Tamarind Ave & Walnut Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	65	6	4
Average Queue (ft)	26	0	0
95th Queue (ft)	54	4	3
Link Distance (ft)	77	705	2563
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Baseline Rd & Tamarind Ave

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	R	L	TR	LTR	LTR
Maximum Queue (ft)	31	4	69	8	70	58
Average Queue (ft)	4	0	22	0	36	27
95th Queue (ft)	22	4	54	4	65	53
Link Distance (ft)	486	486		506	184	2563
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			550			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 8: Cedar Ave/Ayala Dr & Baseline Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	L	T	TR	L	L
Maximum Queue (ft)	100	217	242	170	244	220	162	199	259	218	120	181
Average Queue (ft)	81	107	119	102	161	113	25	104	157	125	10	79
95th Queue (ft)	112	188	204	188	248	218	111	179	237	200	63	146
Link Distance (ft)		3637	3637		214	214			282	282		
Upstream Blk Time (%)					9	7		0	0	0		
Queuing Penalty (veh)					0	0		0	0	0		
Storage Bay Dist (ft)	75			145			250	250			200	200
Storage Blk Time (%)	34	13		2	22				0		0	0
Queuing Penalty (veh)	77	20		4	25				0		0	0

Intersection: 8: Cedar Ave/Ayala Dr & Baseline Rd

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	259	250
Average Queue (ft)	163	132
95th Queue (ft)	238	216
Link Distance (ft)	340	340
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	2	
Queuing Penalty (veh)	2	

Intersection: 12: Alder Ave

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: Alder Ave & Proj Access 1

Movement	EB
Directions Served	R
Maximum Queue (ft)	28
Average Queue (ft)	2
95th Queue (ft)	15
Link Distance (ft)	198
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 102: Baseline Rd & Proj Access 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	352	49
Average Queue (ft)	108	19
95th Queue (ft)	266	44
Link Distance (ft)	444	127
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 103: Baseline Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	75
Average Queue (ft)	34
95th Queue (ft)	61
Link Distance (ft)	109
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 201: Project Access 1 & Walnut Ave

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 202: Project Access 2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 203: Project Access 3 & Alder Ave

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	90	90
Average Queue (ft)	21	23
95th Queue (ft)	65	69
Link Distance (ft)	577	577
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 505

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:10	8:10	8:10	8:10	8:10	8:10
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	9505	9604	9348	9367	9454	9452
Vehs Exited	9230	9316	9111	9111	9152	9184
Starting Vehs	581	579	608	530	539	562
Ending Vehs	856	867	845	786	841	843
Travel Distance (mi)	4594	4671	4535	4550	4583	4587
Travel Time (hr)	3253.5	3162.3	3015.3	3011.9	2960.2	3080.6
Total Delay (hr)	3087.6	2993.8	2851.4	2847.4	2795.0	2915.0
Total Stops	18933	19496	18680	18281	18522	18773
Fuel Used (gal)	871.2	850.8	813.4	813.1	801.8	830.1

Interval #0 Information Seeding

Start Time	7:00
End Time	7:10
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:10
End Time	7:25
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2494	2526	2474	2476	2462	2486
Vehs Exited	2299	2291	2313	2315	2312	2304
Starting Vehs	581	579	608	530	539	562
Ending Vehs	776	814	769	691	689	748
Travel Distance (mi)	1160	1182	1178	1185	1193	1180
Travel Time (hr)	368.0	403.7	359.7	350.2	318.4	360.0
Total Delay (hr)	326.2	361.1	317.2	307.3	275.6	317.5
Total Stops	4608	4877	4790	4598	4330	4637
Fuel Used (gal)	115.8	124.7	114.4	112.8	105.9	114.7

Interval #2 Information Recording

Start Time	7:25
End Time	8:10
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7011	7078	6874	6891	6992	6966
Vehs Exited	6931	7025	6798	6796	6840	6880
Starting Vehs	776	814	769	691	689	748
Ending Vehs	856	867	845	786	841	843
Travel Distance (mi)	3434	3490	3357	3365	3391	3407
Travel Time (hr)	2885.5	2758.5	2655.6	2661.7	2641.8	2720.6
Total Delay (hr)	2761.4	2632.7	2534.2	2540.1	2519.4	2597.6
Total Stops	14325	14619	13890	13683	14192	14142
Fuel Used (gal)	755.5	726.1	699.0	700.3	695.9	715.4

Intersection: 1: Alder Ave & SR-210 WB Ramp

Movement	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	T	TR
Maximum Queue (ft)	365	335	140	564	478	586	589
Average Queue (ft)	329	315	139	350	251	555	559
95th Queue (ft)	344	376	140	540	405	574	575
Link Distance (ft)	312	312		612	612	540	540
Upstream Blk Time (%)	72	30		1		74	97
Queuing Penalty (veh)	0	0		5		0	0
Storage Bay Dist (ft)			115				
Storage Blk Time (%)			49	5			
Queuing Penalty (veh)			238	36			

Intersection: 2: Alder Ave & SR-210 EB Ramps

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	537	542	427	423	379	237	215
Average Queue (ft)	507	514	315	338	203	172	163
95th Queue (ft)	578	531	432	466	364	218	204
Link Distance (ft)	494	494	404	404	612	612	612
Upstream Blk Time (%)	45	82	1	5			
Queuing Penalty (veh)	0	0	10	41			
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Alder Ave & Renaissance Pkwy

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	320	735	164	325	710	697	140	2086	2080	300	418	424
Average Queue (ft)	288	564	26	260	438	457	74	1914	1920	285	312	192
95th Queue (ft)	399	1076	98	409	824	757	166	2497	2482	339	510	335
Link Distance (ft)		805			691	691		2048	2048		404	404
Upstream Blk Time (%)		43			22	2		26	28		10	0
Queuing Penalty (veh)		0			0	0		175	186		115	2
Storage Bay Dist (ft)	300		170	300			115			275		
Storage Blk Time (%)	65	8	0	54	1		0	72		50	0	
Queuing Penalty (veh)	204	20	0	69	3		0	43		392	0	

Intersection: 4: Alder Ave & Walnut Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	146	30	81	43	29	220	616	612	89	314	329
Average Queue (ft)	70	3	19	10	2	121	469	463	28	149	178
95th Queue (ft)	125	16	56	35	13	288	808	813	70	269	300
Link Distance (ft)		194		557	557		577	577		2048	2048
Upstream Blk Time (%)			0				34	35			
Queuing Penalty (veh)			0				216	220			
Storage Bay Dist (ft)	195		195			195			65		
Storage Blk Time (%)			0			0	73		1	13	
Queuing Penalty (veh)			0			0	33		9	5	

Intersection: 5: Alder Ave & Baseline Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	175	257	200	1990	175	289	90	579	88
Average Queue (ft)	150	207	173	1211	139	251	88	570	28
95th Queue (ft)	208	240	260	2151	227	266	92	577	82
Link Distance (ft)		187		3637		233		562	
Upstream Blk Time (%)	1	61				63		47	
Queuing Penalty (veh)	0	496				0		517	
Storage Bay Dist (ft)	150		175		150		65		65
Storage Blk Time (%)	29	56	6	70	1	61	73	8	0
Queuing Penalty (veh)	180	116	46	143	14	127	554	42	4

Intersection: 6: Tamarind Ave & Walnut Ave

Movement	EB
Directions Served	TR
Maximum Queue (ft)	62
Average Queue (ft)	27
95th Queue (ft)	50
Link Distance (ft)	77
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Baseline Rd & Tamarind Ave

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	531	528	532	77	9	220	36
Average Queue (ft)	445	474	435	25	0	188	10
95th Queue (ft)	710	643	723	62	6	237	34
Link Distance (ft)	486	486	486		505	185	2563
Upstream Blk Time (%)	75	85	71			91	
Queuing Penalty (veh)	0	0	0			0	
Storage Bay Dist (ft)				550			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Cedar Ave/Ayala Dr & Baseline Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	L	T	TR	L	L
Maximum Queue (ft)	100	190	193	170	258	261	262	275	326	298	145	225
Average Queue (ft)	76	88	108	147	232	233	258	274	300	92	14	105
95th Queue (ft)	109	164	169	232	244	248	266	276	312	250	74	224
Link Distance (ft)		3637	3637		214	214			282	282		
Upstream Blk Time (%)					81	92	0	33	82	1		
Queuing Penalty (veh)					0	0	0	0	0	0		
Storage Bay Dist (ft)	75			145			250	250			200	200
Storage Blk Time (%)	28	11		2	92		11	95	4		0	0
Queuing Penalty (veh)	67	21		6	111		40	340	17		0	0

Intersection: 8: Cedar Ave/Ayala Dr & Baseline Rd

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	355	345
Average Queue (ft)	255	221
95th Queue (ft)	368	340
Link Distance (ft)	340	340
Upstream Blk Time (%)	3	2
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)	18	
Queuing Penalty (veh)	19	

Intersection: 12: Alder Ave

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: Alder Ave & Proj Access 1

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	18	377
Average Queue (ft)	3	347
95th Queue (ft)	14	364
Link Distance (ft)	297	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 102: Baseline Rd & Proj Access 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	463	29
Average Queue (ft)	456	4
95th Queue (ft)	464	20
Link Distance (ft)	448	160
Upstream Blk Time (%)	50	
Queuing Penalty (veh)	413	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 103: Baseline Rd & Proj Access 3

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	520	36
Average Queue (ft)	509	16
95th Queue (ft)	534	39
Link Distance (ft)	505	125
Upstream Blk Time (%)	42	
Queuing Penalty (veh)	344	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 201: Project Access 1 & Walnut Ave

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 202: Project Access 2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 203: Project Access 3 & Alder Ave

Movement	NB	NB	SB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	333	333	167	183
Average Queue (ft)	220	216	69	71
95th Queue (ft)	447	445	146	160
Link Distance (ft)			577	577
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 5638

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:10	8:10	8:10	8:10	8:10	8:10
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	8829	8801	8893	8813	9109	8890
Vehs Exited	8548	8468	8647	8499	8854	8603
Starting Vehs	763	718	736	721	733	731
Ending Vehs	1044	1051	982	1035	988	1010
Travel Distance (mi)	4229	4184	4290	4214	4303	4244
Travel Time (hr)	4466.4	4324.2	4139.6	4145.9	4134.3	4242.1
Total Delay (hr)	4314.5	4173.6	3985.3	3994.0	3979.4	4089.4
Total Stops	19036	18896	18876	19021	18860	18936
Fuel Used (gal)	1133.1	1100.9	1060.9	1059.9	1061.3	1083.2

Interval #0 Information

Start Time	7:00
End Time	7:10
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Seeding

Start Time	7:10
End Time	7:25
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2312	2343	2349	2302	2305	2324
Vehs Exited	2189	2140	2193	2148	2217	2176
Starting Vehs	763	718	736	721	733	731
Ending Vehs	886	921	892	875	821	876
Travel Distance (mi)	1093	1090	1095	1086	1079	1089
Travel Time (hr)	504.0	486.9	464.4	450.3	443.3	469.8
Total Delay (hr)	464.9	447.5	425.1	411.2	404.5	430.6
Total Stops	4812	4819	4937	4853	4892	4866
Fuel Used (gal)	144.9	141.3	136.0	132.5	130.8	137.1

Interval #2 Information Recording

Start Time	7:25
End Time	8:10
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	6517	6458	6544	6511	6804	6566
Vehs Exited	6359	6328	6454	6351	6637	6424
Starting Vehs	886	921	892	875	821	876
Ending Vehs	1044	1051	982	1035	988	1010
Travel Distance (mi)	3136	3094	3195	3128	3224	3156
Travel Time (hr)	3962.4	3837.3	3675.2	3695.6	3691.0	3772.3
Total Delay (hr)	3849.5	3726.1	3560.3	3582.9	3575.0	3658.7
Total Stops	14224	14077	13939	14168	13968	14074
Fuel Used (gal)	988.2	959.6	924.9	927.4	930.5	946.1

Intersection: 1: Alder Ave & SR-210 WB Ramp

Movement	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	T	TR
Maximum Queue (ft)	360	343	140	634	604	589	585
Average Queue (ft)	329	293	139	515	210	559	558
95th Queue (ft)	345	423	140	727	520	573	571
Link Distance (ft)	312	312		612	612	540	540
Upstream Blk Time (%)	87	33		13	0	71	92
Queuing Penalty (veh)	0	0		108	1	0	0
Storage Bay Dist (ft)			115				
Storage Blk Time (%)			61	0			
Queuing Penalty (veh)			203	2			

Intersection: 2: Alder Ave & SR-210 EB Ramps

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	536	529	375	382	616	394	168
Average Queue (ft)	456	508	184	170	490	159	107
95th Queue (ft)	691	529	311	303	709	390	166
Link Distance (ft)	494	494	404	404	612	612	612
Upstream Blk Time (%)	58	96	0	0	10	0	
Queuing Penalty (veh)	0	0	0	2	44	0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: Alder Ave & Renaissance Pkwy

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	325	853	845	325	735	724	140	2087	2090	300	426	418
Average Queue (ft)	244	825	822	324	708	578	30	2057	2060	299	415	180
95th Queue (ft)	445	841	834	326	720	958	105	2113	2113	301	422	407
Link Distance (ft)		805	805		691	691		2048	2048		404	404
Upstream Blk Time (%)		95	67		96	16		30	31		53	1
Queuing Penalty (veh)		0	0		0	0		259	272		476	5
Storage Bay Dist (ft)	300			300			115			275		
Storage Blk Time (%)	0	73		100	2			63		94	0	
Queuing Penalty (veh)	0	141		110	5			23		480	1	

Intersection: 4: Alder Ave & Walnut Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	194	261	194	30	30	220	614	629	81	229	227
Average Queue (ft)	188	221	72	3	2	88	564	562	14	102	128
95th Queue (ft)	201	289	202	17	15	261	723	727	53	185	201
Link Distance (ft)		194		557	557		577	577		2048	2048
Upstream Blk Time (%)	64	80	0				45	45			
Queuing Penalty (veh)	0	349	0				301	297			
Storage Bay Dist (ft)	195		195			195			65		
Storage Blk Time (%)	64	80	0			0	92		0	10	
Queuing Penalty (veh)	66	419	1			0	26		0	2	

Intersection: 5: Alder Ave & Baseline Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	175	231	200	3502	174	287	89	579	90
Average Queue (ft)	129	199	193	2375	77	251	86	572	37
95th Queue (ft)	218	217	229	4208	196	267	97	578	100
Link Distance (ft)		191		3637		233		565	
Upstream Blk Time (%)	0	59		2		69		40	
Queuing Penalty (veh)	0	528		23		0		526	
Storage Bay Dist (ft)	150		175		150		65		65
Storage Blk Time (%)	7	66	48	42	0	66	63	23	1
Queuing Penalty (veh)	50	114	374	128	0	49	643	127	8

Intersection: 6: Tamarind Ave & Walnut Ave

Movement	EB	NB
Directions Served	TR	LR
Maximum Queue (ft)	92	1415
Average Queue (ft)	59	834
95th Queue (ft)	96	1766
Link Distance (ft)	77	2563
Upstream Blk Time (%)	54	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Baseline Rd & Tamarind Ave

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	527	532	534	57	4	216	123
Average Queue (ft)	500	502	501	14	0	181	40
95th Queue (ft)	569	533	572	42	3	229	137
Link Distance (ft)	486	486	486		506	184	2563
Upstream Blk Time (%)	89	98	87			88	
Queuing Penalty (veh)	0	0	0			0	
Storage Bay Dist (ft)				550			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Cedar Ave/Ayala Dr & Baseline Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	L	T	TR	L	L
Maximum Queue (ft)	100	230	249	170	254	265	262	275	331	294	212	225
Average Queue (ft)	84	136	161	140	231	233	254	273	298	103	131	214
95th Queue (ft)	117	204	230	232	244	253	272	278	312	271	233	260
Link Distance (ft)		3637	3637		214	214			282	282		
Upstream Blk Time (%)					72	90	0	33	84	1		
Queuing Penalty (veh)					0	0	0	0	0	0		
Storage Bay Dist (ft)	75			145			250	250			200	200
Storage Blk Time (%)	33	30		2	86		16	96	2		1	12
Queuing Penalty (veh)	115	61		7	102		66	391	8		4	53

Intersection: 8: Cedar Ave/Ayala Dr & Baseline Rd

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	379	385
Average Queue (ft)	354	344
95th Queue (ft)	382	408
Link Distance (ft)	340	340
Upstream Blk Time (%)	41	47
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)	47	
Queuing Penalty (veh)	127	

Intersection: 12: Alder Ave

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 101: Alder Ave & Proj Access 1

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	42	379
Average Queue (ft)	11	347
95th Queue (ft)	44	366
Link Distance (ft)	198	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 102: Baseline Rd & Proj Access 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	458	39
Average Queue (ft)	449	16
95th Queue (ft)	456	41
Link Distance (ft)	444	127
Upstream Blk Time (%)	50	
Queuing Penalty (veh)	448	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 103: Baseline Rd

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	523	66
Average Queue (ft)	512	29
95th Queue (ft)	520	54
Link Distance (ft)	506	109
Upstream Blk Time (%)	43	0
Queuing Penalty (veh)	378	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 201: Project Access 1 & Walnut Ave

Movement	EB
Directions Served	TR
Maximum Queue (ft)	720
Average Queue (ft)	596
95th Queue (ft)	993
Link Distance (ft)	705
Upstream Blk Time (%)	58
Queuing Penalty (veh)	255
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 202: Project Access 2

Movement	EB
Directions Served	TR
Maximum Queue (ft)	233
Average Queue (ft)	213
95th Queue (ft)	290
Link Distance (ft)	215
Upstream Blk Time (%)	73
Queuing Penalty (veh)	320
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 203: Project Access 3 & Alder Ave

Movement	NB	NB	SB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	343	338	125	121
Average Queue (ft)	279	274	35	33
95th Queue (ft)	422	423	102	101
Link Distance (ft)			577	577
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

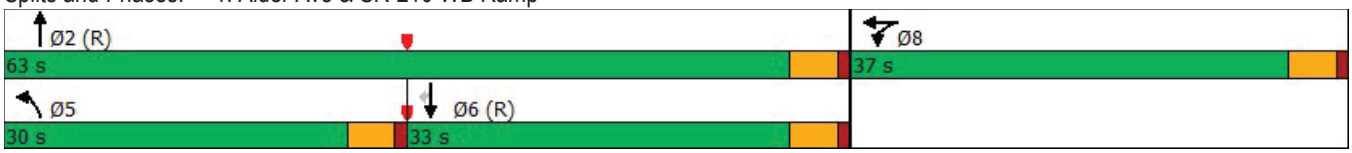
Network wide Queuing Penalty: 8498

- Mitigation – Cumulative 2020 plus Project Conditions

Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	776	2	668	964	428	533
Future Volume (vph)	776	2	668	964	428	533
Turn Type	Split	NA	Prot	NA	NA	Perm
Protected Phases	8	8	5	2	6	
Permitted Phases						6
Detector Phase	8	8	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	37.0	37.0	30.0	63.0	33.0	33.0
Total Split (%)	37.0%	37.0%	30.0%	63.0%	33.0%	33.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	30.2	30.2	23.3	60.8	33.0	33.0
Actuated g/C Ratio	0.30	0.30	0.23	0.61	0.33	0.33
v/c Ratio	0.75	0.80	0.84	0.45	0.37	0.61
Control Delay	36.4	34.6	41.2	18.1	27.9	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	34.6	41.2	18.1	27.9	5.9
LOS	D	C	D	B	C	A
Approach Delay		35.7		27.6	15.7	
Approach LOS		D		C	B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 27.2	Intersection LOS: C
Intersection Capacity Utilization 91.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	776	2	450	668	964	0	0	428	533
Future Volume (veh/h)	0	0	0	776	2	450	668	964	0	0	428	533
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1863
Adj Flow Rate, veh/h				776	2	450	668	964	0	0	428	533
Adj No. of Lanes				2	1	0	2	2	0	0	2	1
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1076	2	493	757	2114	0	0	1177	526
Arrive On Green				0.31	0.31	0.31	0.44	1.00	0.00	0.00	0.33	0.33
Sat Flow, veh/h				3442	7	1577	3442	3632	0	0	3632	1583
Grp Volume(v), veh/h				776	0	452	668	964	0	0	428	533
Grp Sat Flow(s),veh/h/ln				1721	0	1584	1721	1770	0	0	1770	1583
Q Serve(g_s), s				20.0	0.0	27.4	17.8	0.0	0.0	0.0	9.2	33.2
Cycle Q Clear(g_c), s				20.0	0.0	27.4	17.8	0.0	0.0	0.0	9.2	33.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1076	0	495	757	2114	0	0	1177	526
V/C Ratio(X)				0.72	0.00	0.91	0.88	0.46	0.00	0.00	0.36	1.01
Avail Cap(c_a), veh/h				1119	0	515	878	2114	0	0	1177	526
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.39	0.39	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.5	0.0	33.1	26.8	0.0	0.0	0.0	25.3	33.4
Incr Delay (d2), s/veh				2.2	0.0	20.2	4.0	0.3	0.0	0.0	0.9	42.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.8	0.0	14.7	8.8	0.1	0.0	0.0	4.6	20.7
LnGrp Delay(d),s/veh				32.7	0.0	53.3	30.9	0.3	0.0	0.0	26.2	75.8
LnGrp LOS				C		D	C	A			C	F
Approach Vol, veh/h					1228			1632			961	
Approach Delay, s/veh					40.3			12.8			53.7	
Approach LOS					D			B			D	

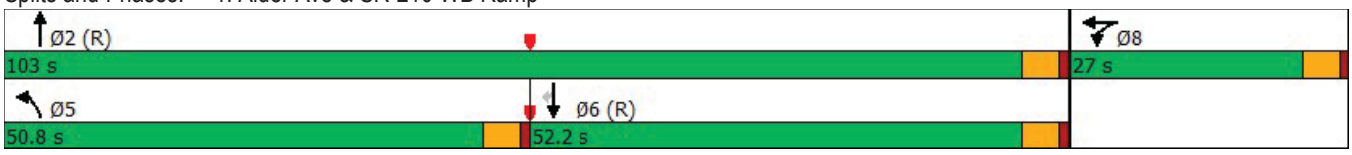
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		64.2			26.5	37.7		35.8
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		58.5			25.5	28.5		32.5
Max Q Clear Time (g_c+I1), s		3.0			20.8	36.2		29.4
Green Ext Time (p_c), s		9.0			1.2	0.0		1.8

Intersection Summary		
HCM 2010 Ctrl Delay		31.9
HCM 2010 LOS		C

Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	493	5	1089	663	892	681
Future Volume (vph)	493	5	1089	663	892	681
Turn Type	Split	NA	Prot	NA	NA	Perm
Protected Phases	8	8	5	2	6	
Permitted Phases						6
Detector Phase	8	8	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	27.0	27.0	50.8	103.0	52.2	52.2
Total Split (%)	20.8%	20.8%	39.1%	79.2%	40.2%	40.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	21.9	21.9	44.7	99.1	49.9	49.9
Actuated g/C Ratio	0.17	0.17	0.34	0.76	0.38	0.38
v/c Ratio	0.85	0.50	0.92	0.25	0.66	0.83
Control Delay	67.3	10.6	57.0	7.9	36.4	26.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	10.6	57.0	7.9	36.4	26.8
LOS	E	B	E	A	D	C
Approach Delay		49.3		38.4	32.3	
Approach LOS		D		D	C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 106.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 1: Alder Ave & SR-210 WB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	493	5	224	1089	663	0	0	892	681
Future Volume (veh/h)	0	0	0	493	5	224	1089	663	0	0	892	681
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1863
Adj Flow Rate, veh/h				493	5	224	1089	663	0	0	892	681
Adj No. of Lanes				2	1	0	2	2	0	0	2	1
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				573	6	259	1153	2705	0	0	1396	625
Arrive On Green				0.17	0.17	0.17	0.56	1.00	0.00	0.00	0.39	0.39
Sat Flow, veh/h				3442	35	1554	3442	3632	0	0	3632	1583
Grp Volume(v), veh/h				493	0	229	1089	663	0	0	892	681
Grp Sat Flow(s),veh/h/ln				1721	0	1589	1721	1770	0	0	1770	1583
Q Serve(g_s), s				18.1	0.0	18.3	38.4	0.0	0.0	0.0	26.5	51.3
Cycle Q Clear(g_c), s				18.1	0.0	18.3	38.4	0.0	0.0	0.0	26.5	51.3
Prop In Lane				1.00		0.98	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				573	0	265	1153	2705	0	0	1396	625
V/C Ratio(X)				0.86	0.00	0.87	0.94	0.25	0.00	0.00	0.64	1.09
Avail Cap(c_a), veh/h				596	0	275	1226	2705	0	0	1396	625
HCM Platoon Ratio				1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.25	0.25	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				52.7	0.0	52.8	27.5	0.0	0.0	0.0	31.9	39.4
Incr Delay (d2), s/veh				11.9	0.0	23.3	4.5	0.1	0.0	0.0	2.2	63.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.6	0.0	9.7	18.6	0.0	0.0	0.0	13.4	33.3
LnGrp Delay(d),s/veh				64.6	0.0	76.1	32.0	0.1	0.0	0.0	34.1	102.3
LnGrp LOS				E		E	C	A			C	F
Approach Vol, veh/h					722			1752			1573	
Approach Delay, s/veh					68.2			19.9			63.6	
Approach LOS					E			B			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		103.8			48.1	55.8		26.2
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		98.5			46.3	47.7		22.5
Max Q Clear Time (g_c+I1), s		3.0			41.4	54.3		21.1
Green Ext Time (p_c), s		5.5			2.1	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	45.5
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	562	1	1209	1060	512	211	981
Future Volume (vph)	562	1	1209	1060	512	211	981
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	45.4	45.4	45.4	37.0	37.0	17.6	54.6
Total Split (%)	45.4%	45.4%	45.4%	37.0%	37.0%	17.6%	54.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	40.9	40.9	40.9	32.5	32.5	13.1	50.1
Actuated g/C Ratio	0.41	0.41	0.41	0.32	0.32	0.13	0.50
v/c Ratio	0.74	0.99	0.95	0.92	0.60	0.91	0.55
Control Delay	32.7	60.4	50.7	37.0	4.3	79.5	23.9
Queue Delay	0.0	5.9	3.2	0.0	0.2	0.0	2.4
Total Delay	32.7	66.4	53.9	37.0	4.6	79.5	26.3
LOS	C	E	D	D	A	E	C
Approach Delay		52.3		26.4			35.7
Approach LOS		D		C			D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 39.0	Intersection LOS: D
Intersection Capacity Utilization 91.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Alder Ave & SR-210 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	562	1	1209	0	0	0	0	1060	512	211	981	0
Future Volume (vph)	562	1	1209	0	0	0	0	1060	512	211	981	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5	4.5	4.5	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	1.00	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1457	1504					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1457	1504					3539	1583	1770	3539	
Peak-hour factor, PHF	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. Flow (vph)	562	1	1209	0	0	0	0	1060	512	211	981	0
RTOR Reduction (vph)	0	48	48	0	0	0	0	0	346	0	0	0
Lane Group Flow (vph)	506	589	581	0	0	0	0	1060	166	211	981	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	40.9	40.9	40.9					32.5	32.5	13.1	50.1	
Effective Green, g (s)	40.9	40.9	40.9					32.5	32.5	13.1	50.1	
Actuated g/C Ratio	0.41	0.41	0.41					0.32	0.32	0.13	0.50	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	687	595	615					1150	514	231	1773	
v/s Ratio Prot	0.30	c0.40						c0.30		c0.12	0.28	
v/s Ratio Perm			0.39						0.11			
v/c Ratio	0.74	0.99	0.94					0.92	0.32	0.91	0.55	
Uniform Delay, d1	25.0	29.3	28.5					32.5	25.5	42.9	17.2	
Progression Factor	1.00	1.00	1.00					0.82	0.96	0.99	1.31	
Incremental Delay, d2	4.1	34.3	23.4					9.3	1.1	31.8	1.0	
Delay (s)	29.1	63.6	51.8					36.0	25.4	74.2	23.6	
Level of Service	C	E	D					D	C	E	C	
Approach Delay (s)		49.6			0.0			32.6			32.5	
Approach LOS		D			A			C			C	

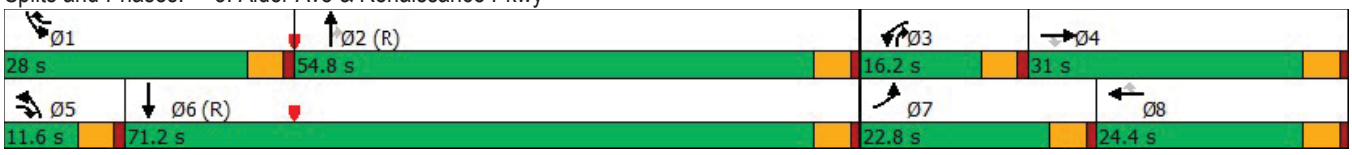
Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	193	773	109	310	222	526	36	1432	381	654	1016
Future Volume (vph)	193	773	109	310	222	526	36	1432	381	654	1016
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	5	3	8	1	5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	5	3	8	1	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5
Total Split (s)	22.8	31.0	11.6	16.2	24.4	28.0	11.6	54.8	16.2	28.0	71.2
Total Split (%)	17.5%	23.8%	8.9%	12.5%	18.8%	21.5%	8.9%	42.2%	12.5%	21.5%	54.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	17.1	26.5	37.7	11.7	21.1	49.1	6.7	50.3	66.5	23.5	67.1
Actuated g/C Ratio	0.13	0.20	0.29	0.09	0.16	0.38	0.05	0.39	0.51	0.18	0.52
v/c Ratio	0.83	1.07	0.21	1.01	0.39	0.81	0.40	1.05	0.44	1.05	0.64
Control Delay	82.7	103.2	11.0	111.3	51.4	41.2	72.4	76.2	14.6	90.5	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	22.0	0.0	0.0	1.3
Total Delay	82.7	103.2	11.0	111.3	51.4	41.3	72.4	98.2	14.6	90.5	29.1
LOS	F	F	B	F	D	D	E	F	B	F	C
Approach Delay		90.2			64.0			80.5			51.4
Approach LOS		F			E			F			D

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 70.2	Intersection LOS: E
Intersection Capacity Utilization 103.5%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	773	109	310	222	526	36	1432	381	654	1016	133
Future Volume (veh/h)	193	773	109	310	222	526	36	1432	381	654	1016	133
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	193	773	109	310	222	526	36	1432	381	654	1016	133
Adj No. of Lanes	1	2	1	2	2	1	1	2	1	2	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	721	367	310	604	556	50	1369	755	622	1699	222
Arrive On Green	0.12	0.20	0.20	0.09	0.17	0.17	0.03	0.39	0.39	0.36	1.00	1.00
Sat Flow, veh/h	1774	3539	1583	3442	3539	1583	1774	3539	1583	3442	3148	412
Grp Volume(v), veh/h	193	773	109	310	222	526	36	1432	381	654	571	578
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1583	1774	1770	1583	1721	1770	1790
Q Serve(g_s), s	13.9	26.5	7.4	11.7	7.2	22.2	2.6	50.3	21.5	23.5	0.0	0.0
Cycle Q Clear(g_c), s	13.9	26.5	7.4	11.7	7.2	22.2	2.6	50.3	21.5	23.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	219	721	367	310	604	556	50	1369	755	622	955	966
V/C Ratio(X)	0.88	1.07	0.30	1.00	0.37	0.95	0.73	1.05	0.50	1.05	0.60	0.60
Avail Cap(c_a), veh/h	250	721	367	310	604	556	97	1369	755	622	955	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.61	0.61	0.61	0.81	0.81	0.81
Uniform Delay (d), s/veh	56.1	51.8	41.2	59.2	47.7	40.9	62.7	39.8	23.4	41.5	0.0	0.0
Incr Delay (d2), s/veh	26.6	54.3	0.4	51.3	0.4	25.3	11.5	32.3	1.5	46.8	2.2	2.2
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	8.4	18.4	3.3	7.8	3.6	22.2	1.4	30.7	9.7	15.1	0.6	0.6
LnGrp Delay(d),s/veh	82.6	106.1	41.6	110.5	48.1	66.2	74.2	72.1	24.9	88.3	2.2	2.2
LnGrp LOS	F	F	D	F	D	E	E	F	C	F	A	A
Approach Vol, veh/h		1075			1058			1849			1803	
Approach Delay, s/veh		95.3			75.4			62.4			33.5	
Approach LOS		F			E			E			C	

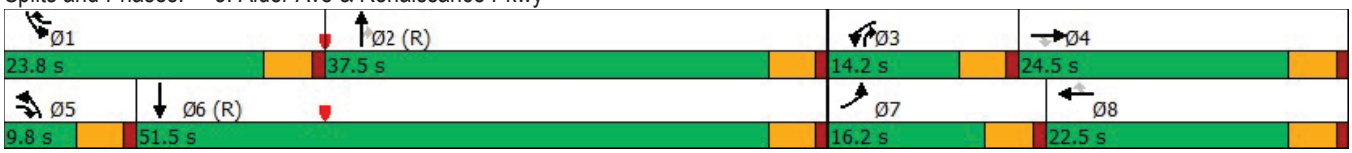
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.0	54.8	16.2	31.0	8.1	74.7	20.5	26.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	23.5	50.3	11.7	26.5	7.1	66.7	18.3	19.9
Max Q Clear Time (g_c+I1), s	25.5	52.3	13.7	28.5	4.6	2.0	15.9	24.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	10.7	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.9
HCM 2010 LOS	E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	187	250	63	240	254	467	60	971	269	546	1558
Future Volume (vph)	187	250	63	240	254	467	60	971	269	546	1558
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	5	3	8	1	5	2	3	1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	5	3	8	1	5	2	3	1	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5
Total Split (s)	16.2	24.5	9.8	14.2	22.5	23.8	9.8	37.5	14.2	23.8	51.5
Total Split (%)	16.2%	24.5%	9.8%	14.2%	22.5%	23.8%	9.8%	37.5%	14.2%	23.8%	51.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	11.7	14.6	27.0	9.6	12.4	37.8	7.9	37.0	51.1	20.9	52.0
Actuated g/C Ratio	0.12	0.15	0.27	0.10	0.12	0.38	0.08	0.37	0.51	0.21	0.52
v/c Ratio	0.90	0.49	0.12	0.73	0.58	0.73	0.43	0.74	0.31	0.76	0.88
Control Delay	86.9	42.2	1.2	57.8	46.4	29.7	43.1	38.8	12.3	42.9	26.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	2.8
Total Delay	86.9	42.2	1.2	57.8	46.4	29.8	43.1	39.1	12.3	42.9	29.6
LOS	F	D	A	E	D	C	D	D	B	D	C
Approach Delay		53.7			41.2			33.8			33.0
Approach LOS		D			D			C			C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 36.9	Intersection LOS: D
Intersection Capacity Utilization 81.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Alder Ave & Renaissance Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	250	63	240	254	467	60	971	269	546	1558	61
Future Volume (veh/h)	187	250	63	240	254	467	60	971	269	546	1558	61
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	187	250	63	240	254	467	60	971	269	546	1558	61
Adj No. of Lanes	1	2	1	2	2	1	1	2	1	2	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	736	398	306	637	570	77	1213	684	620	1665	65
Arrive On Green	0.12	0.21	0.21	0.09	0.18	0.18	0.01	0.11	0.11	0.12	0.32	0.32
Sat Flow, veh/h	1774	3539	1583	3442	3539	1583	1774	3539	1583	3442	3473	136
Grp Volume(v), veh/h	187	250	63	240	254	467	60	971	269	546	792	827
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1583	1774	1770	1583	1721	1770	1839
Q Serve(g_s), s	10.4	6.0	3.1	6.8	6.3	18.0	3.4	26.8	13.8	15.6	43.4	43.7
Cycle Q Clear(g_c), s	10.4	6.0	3.1	6.8	6.3	18.0	3.4	26.8	13.8	15.6	43.4	43.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	208	736	398	306	637	570	77	1213	684	620	848	882
V/C Ratio(X)	0.90	0.34	0.16	0.78	0.40	0.82	0.78	0.80	0.39	0.88	0.93	0.94
Avail Cap(c_a), veh/h	208	736	398	334	637	570	94	1213	684	664	848	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85	0.64	0.64	0.64
Uniform Delay (d), s/veh	43.6	33.7	29.2	44.6	36.2	29.0	48.8	41.0	27.1	42.9	32.4	32.5
Incr Delay (d2), s/veh	36.6	0.3	0.2	10.8	0.4	9.2	24.0	4.8	1.4	8.5	13.2	13.4
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	7.2	3.0	1.4	3.7	3.1	13.1	2.2	14.0	6.3	8.2	24.4	25.5
LnGrp Delay(d),s/veh	80.2	34.0	29.3	55.4	36.6	38.2	72.8	45.8	28.5	51.4	45.6	45.9
LnGrp LOS	F	C	C	E	D	D	E	D	C	D	D	D
Approach Vol, veh/h		500			961			1300			2165	
Approach Delay, s/veh		50.7			42.1			43.5			47.2	
Approach LOS		D			D			D			D	

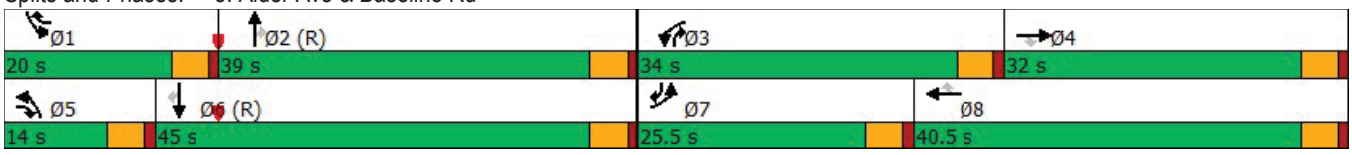
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.5	38.8	13.4	25.3	8.9	52.4	16.2	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.3	33.0	9.7	20.0	5.3	47.0	11.7	18.0
Max Q Clear Time (g_c+I1), s	17.6	28.8	8.8	8.0	5.4	45.7	12.4	20.0
Green Ext Time (p_c), s	0.4	2.7	0.1	1.3	0.0	1.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	45.6
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	636	89	303	442	343	74	673	282	307	777	242
Future Volume (vph)	172	636	89	303	442	343	74	673	282	307	777	242
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	25.5	32.0	14.0	34.0	40.5	20.0	14.0	39.0	34.0	20.0	45.0	25.5
Total Split (%)	20.4%	25.6%	11.2%	27.2%	32.4%	16.0%	11.2%	31.2%	27.2%	16.0%	36.0%	20.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.8	26.4	39.9	25.4	35.0	54.3	9.0	40.3	70.2	14.8	46.2	67.5
Actuated g/C Ratio	0.13	0.21	0.32	0.20	0.28	0.43	0.07	0.32	0.56	0.12	0.37	0.54
v/c Ratio	0.72	0.85	0.15	0.84	0.45	0.45	0.58	0.59	0.30	0.75	0.59	0.26
Control Delay	81.3	54.5	1.8	55.7	22.9	14.4	74.4	39.5	10.8	65.6	35.6	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.3	54.5	1.8	55.7	22.9	14.4	74.4	39.5	10.8	65.6	35.6	8.1
LOS	F	D	A	E	C	B	E	D	B	E	D	A
Approach Delay		54.4			29.4			34.2			37.5	
Approach LOS		D			C			C			D	

Intersection Summary	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 38.2	Intersection LOS: D
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	636	89	303	442	343	74	673	282	307	777	242
Future Volume (veh/h)	172	636	89	303	442	343	74	673	282	307	777	242
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	172	636	89	303	442	343	74	673	282	307	777	242
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	705	400	333	975	604	94	1286	872	364	1473	835
Arrive On Green	0.22	0.40	0.40	0.19	0.28	0.28	0.05	0.36	0.36	0.11	0.42	0.42
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	172	636	89	303	442	343	74	673	282	307	777	242
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	11.7	21.1	4.4	20.9	12.9	21.4	5.2	18.7	12.2	10.9	20.5	10.7
Cycle Q Clear(g_c), s	11.7	21.1	4.4	20.9	12.9	21.4	5.2	18.7	12.2	10.9	20.5	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	197	705	400	333	975	604	94	1286	872	364	1473	835
V/C Ratio(X)	0.87	0.90	0.22	0.91	0.45	0.57	0.79	0.52	0.32	0.84	0.53	0.29
Avail Cap(c_a), veh/h	298	779	432	419	1019	624	135	1286	872	427	1473	835
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.39	0.39	0.39	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	36.4	27.5	49.8	37.5	30.5	58.5	31.3	15.3	54.9	27.3	16.5
Incr Delay (d2), s/veh	16.3	12.9	0.3	9.9	0.1	0.5	17.5	1.5	1.0	12.6	1.4	0.9
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	6.6	11.4	2.0	11.2	6.3	9.4	3.0	9.4	5.5	5.8	10.3	4.8
LnGrp Delay(d),s/veh	64.0	49.3	27.8	59.7	37.6	31.0	75.9	32.8	16.3	67.5	28.6	17.4
LnGrp LOS	E	D	C	E	D	C	E	C	B	E	C	B
Approach Vol, veh/h		897			1088			1029			1326	
Approach Delay, s/veh		50.0			41.7			31.4			35.6	
Approach LOS		D			D			C			D	

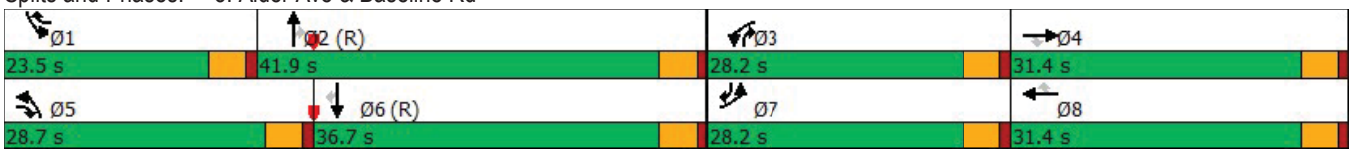
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	49.9	27.9	29.4	11.1	56.5	18.4	38.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	34.5	29.5	27.5	9.5	40.5	21.0	36.0
Max Q Clear Time (g_c+I1), s	12.9	20.7	22.9	23.1	7.2	22.5	13.7	23.4
Green Ext Time (p_c), s	0.3	4.8	0.5	1.8	0.0	6.1	0.3	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	39.1
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	542	71	205	528	200	208	763	377	348	568	187
Future Volume (vph)	206	542	71	205	528	200	208	763	377	348	568	187
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	28.2	31.4	28.7	28.2	31.4	23.5	28.7	41.9	28.2	23.5	36.7	28.2
Total Split (%)	22.6%	25.1%	23.0%	22.6%	25.1%	18.8%	23.0%	33.5%	22.6%	18.8%	29.4%	22.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	19.1	24.1	48.0	19.1	24.1	45.8	19.4	46.6	70.2	17.2	44.4	68.0
Actuated g/C Ratio	0.15	0.19	0.38	0.15	0.19	0.37	0.16	0.37	0.56	0.14	0.36	0.54
v/c Ratio	0.76	0.79	0.11	0.76	0.77	0.30	0.76	0.58	0.41	0.74	0.45	0.20
Control Delay	75.9	76.0	5.0	56.8	32.8	11.4	67.9	35.4	15.8	61.6	34.9	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.9	76.0	5.0	56.8	32.8	11.4	67.9	35.4	15.8	61.6	34.9	6.7
LOS	E	E	A	E	C	B	E	D	B	E	C	A
Approach Delay		69.8			33.5			35.0			38.5	
Approach LOS		E			C			C			D	

Intersection Summary	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 42.4	Intersection LOS: D
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	542	71	205	528	200	208	763	377	348	568	187
Future Volume (veh/h)	206	542	71	205	528	200	208	763	377	348	568	187
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	206	542	71	205	528	200	208	763	377	348	568	187
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	629	493	234	634	473	237	1511	885	411	1461	860
Arrive On Green	0.26	0.36	0.36	0.13	0.18	0.18	0.13	0.43	0.43	0.12	0.41	0.41
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	206	542	71	205	528	200	208	763	377	348	568	187
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	14.0	17.8	3.3	14.2	18.0	12.7	14.4	19.7	17.2	12.4	14.0	7.6
Cycle Q Clear(g_c), s	14.0	17.8	3.3	14.2	18.0	12.7	14.4	19.7	17.2	12.4	14.0	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	231	629	493	234	634	473	237	1511	885	411	1461	860
V/C Ratio(X)	0.89	0.86	0.14	0.88	0.83	0.42	0.88	0.50	0.43	0.85	0.39	0.22
Avail Cap(c_a), veh/h	336	762	552	336	762	530	343	1511	885	523	1461	860
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.36	0.36	0.36	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.3	38.9	24.1	53.2	49.5	35.2	53.1	26.2	16.0	53.9	25.7	14.8
Incr Delay (d2), s/veh	18.1	8.6	0.1	6.8	2.6	0.2	16.0	1.2	1.5	10.0	0.8	0.6
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	8.0	9.4	1.5	7.4	9.0	5.6	8.1	9.9	7.8	6.5	7.0	3.5
LnGrp Delay(d),s/veh	63.5	47.5	24.3	60.1	52.1	35.4	69.1	27.4	17.5	64.0	26.5	15.4
LnGrp LOS	E	D	C	E	D	D	E	C	B	E	C	B
Approach Vol, veh/h		819			933			1348			1103	
Approach Delay, s/veh		49.5			50.3			31.0			36.4	
Approach LOS		D			D			C			D	

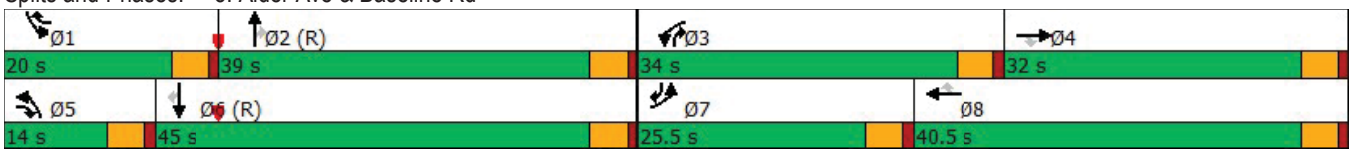
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	57.9	21.0	26.7	21.2	56.1	20.8	26.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.0	37.4	23.7	26.9	24.2	32.2	23.7	26.9
Max Q Clear Time (g_c+I1), s	14.4	21.7	16.2	19.8	16.4	16.0	16.0	20.0
Green Ext Time (p_c), s	0.5	6.1	0.3	2.2	0.3	4.1	0.3	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	636	89	303	442	343	74	673	282	307	777	242
Future Volume (vph)	172	636	89	303	442	343	74	673	282	307	777	242
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	25.5	32.0	14.0	34.0	40.5	20.0	14.0	39.0	34.0	20.0	45.0	25.5
Total Split (%)	20.4%	25.6%	11.2%	27.2%	32.4%	16.0%	11.2%	31.2%	27.2%	16.0%	36.0%	20.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.8	26.4	39.9	25.4	35.0	54.3	9.0	40.3	70.2	14.8	46.2	67.5
Actuated g/C Ratio	0.13	0.21	0.32	0.20	0.28	0.43	0.07	0.32	0.56	0.12	0.37	0.54
v/c Ratio	0.72	0.85	0.15	0.84	0.45	0.45	0.58	0.59	0.30	0.75	0.59	0.26
Control Delay	81.3	54.5	1.8	55.7	22.9	14.4	74.4	39.5	10.8	65.6	35.6	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.3	54.5	1.8	55.7	22.9	14.4	74.4	39.5	10.8	65.6	35.6	8.1
LOS	F	D	A	E	C	B	E	D	B	E	D	A
Approach Delay		54.4			29.4			34.2			37.5	
Approach LOS		D			C			C			D	

Intersection Summary	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 38.2	Intersection LOS: D
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Alder Ave & Baseline Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	636	89	303	442	343	74	673	282	307	777	242
Future Volume (veh/h)	172	636	89	303	442	343	74	673	282	307	777	242
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	172	636	89	303	442	343	74	673	282	307	777	242
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	705	400	333	975	604	94	1286	872	364	1473	835
Arrive On Green	0.22	0.40	0.40	0.19	0.28	0.28	0.05	0.36	0.36	0.11	0.42	0.42
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	172	636	89	303	442	343	74	673	282	307	777	242
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1770	1583	1721	1770	1583
Q Serve(g_s), s	11.7	21.1	4.4	20.9	12.9	21.4	5.2	18.7	12.2	10.9	20.5	10.7
Cycle Q Clear(g_c), s	11.7	21.1	4.4	20.9	12.9	21.4	5.2	18.7	12.2	10.9	20.5	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	197	705	400	333	975	604	94	1286	872	364	1473	835
V/C Ratio(X)	0.87	0.90	0.22	0.91	0.45	0.57	0.79	0.52	0.32	0.84	0.53	0.29
Avail Cap(c_a), veh/h	298	779	432	419	1019	624	135	1286	872	427	1473	835
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.39	0.39	0.39	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	36.4	27.5	49.8	37.5	30.5	58.5	31.3	15.3	54.9	27.3	16.5
Incr Delay (d2), s/veh	16.3	12.9	0.3	9.9	0.1	0.5	17.5	1.5	1.0	12.6	1.4	0.9
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	6.6	11.4	2.0	11.2	6.3	9.4	3.0	9.4	5.5	5.8	10.3	4.8
LnGrp Delay(d),s/veh	64.0	49.3	27.8	59.7	37.6	31.0	75.9	32.8	16.3	67.5	28.6	17.4
LnGrp LOS	E	D	C	E	D	C	E	C	B	E	C	B
Approach Vol, veh/h		897			1088			1029			1326	
Approach Delay, s/veh		50.0			41.7			31.4			35.6	
Approach LOS		D			D			C			D	

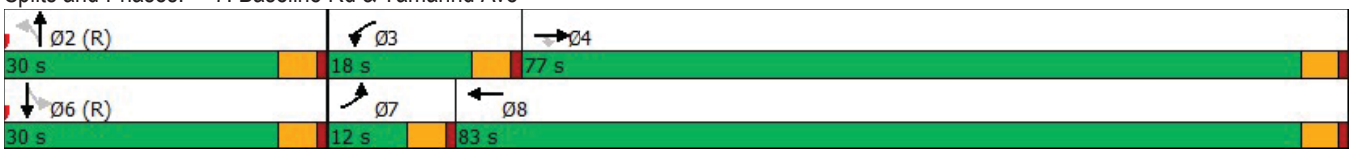
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	49.9	27.9	29.4	11.1	56.5	18.4	38.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	34.5	29.5	27.5	9.5	40.5	21.0	36.0
Max Q Clear Time (g_c+I1), s	12.9	20.7	22.9	23.1	7.2	22.5	13.7	23.4
Green Ext Time (p_c), s	0.3	4.8	0.5	1.8	0.0	6.1	0.3	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	39.1
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	38	759	151	86	724	86	5	1	3
Future Volume (vph)	38	759	151	86	724	86	5	1	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	12.0	77.0	77.0	18.0	83.0	30.0	30.0	30.0	30.0
Total Split (%)	9.6%	61.6%	61.6%	14.4%	66.4%	24.0%	24.0%	24.0%	24.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	7.0	63.0	63.0	10.9	68.9		37.6		37.6
Actuated g/C Ratio	0.06	0.50	0.50	0.09	0.55		0.30		0.30
v/c Ratio	0.39	0.81	0.17	0.56	0.43		0.33		0.03
Control Delay	68.2	32.8	2.4	60.0	16.5		34.5		23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	68.2	32.8	2.4	60.0	16.5		34.5		23.2
LOS	E	C	A	E	B		C		C
Approach Delay		29.4			20.6		34.5		23.2
Approach LOS		C			C		C		C

Intersection Summary	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 25.8	Intersection LOS: C
Intersection Capacity Utilization 71.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Baseline Rd & Tamarind Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	759	151	86	724	103	86	5	61	1	3	10
Future Volume (veh/h)	38	759	151	86	724	103	86	5	61	1	3	10
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	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	38	759	151	86	724	103	86	5	61	1	3	10
Adj No. of Lanes	1	1	1	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	833	708	107	1489	212	356	31	229	55	155	448
Arrive On Green	0.03	0.45	0.45	0.12	0.96	0.96	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1774	1863	1583	1774	3112	442	809	80	596	63	403	1165
Grp Volume(v), veh/h	38	759	151	86	412	415	152	0	0	14	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1785	1486	0	0	1632	0	0
Q Serve(g_s), s	2.7	47.5	7.3	5.9	2.3	2.3	7.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.7	47.5	7.3	5.9	2.3	2.3	8.5	0.0	0.0	0.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.25	0.57		0.40	0.07		0.71
Lane Grp Cap(c), veh/h	52	833	708	107	847	854	616	0	0	658	0	0
V/C Ratio(X)	0.73	0.91	0.21	0.80	0.49	0.49	0.25	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	106	1080	918	192	1111	1121	616	0	0	658	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	60.2	32.2	21.1	54.2	1.5	1.5	26.3	0.0	0.0	23.9	0.0	0.0
Incr Delay (d2), s/veh	17.7	9.5	0.1	12.7	0.4	0.4	1.0	0.0	0.0	0.1	0.0	0.0
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	1.6	26.5	3.2	3.3	0.9	0.9	3.8	0.0	0.0	0.3	0.0	0.0
LnGrp Delay(d),s/veh	77.9	41.8	21.3	66.9	1.9	1.9	27.2	0.0	0.0	24.0	0.0	0.0
LnGrp LOS	E	D	C	E	A	A	C			C		
Approach Vol, veh/h		948			913			152			14	
Approach Delay, s/veh		39.9			8.0			27.2			24.0	
Approach LOS		D			A			C			C	

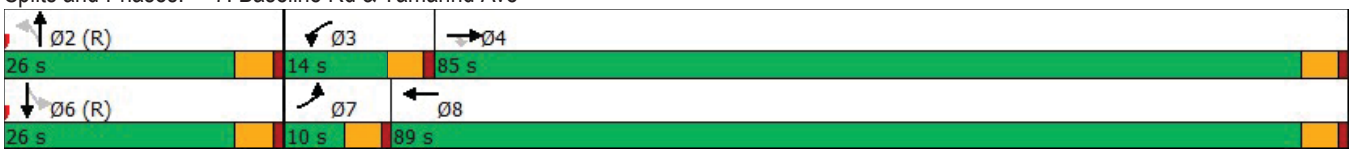
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		52.5	12.1	60.4		52.5	8.2	64.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		25.5	13.5	72.5		25.5	7.5	78.5
Max Q Clear Time (g_c+I1), s		10.5	7.9	49.5		2.7	4.7	4.3
Green Ext Time (p_c), s		0.7	0.1	6.4		0.0	0.0	6.5

Intersection Summary	
HCM 2010 Ctrl Delay	24.5
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	16	845	76	52	690	60	7	7	6
Future Volume (vph)	16	845	76	52	690	60	7	7	6
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	85.0	85.0	14.0	89.0	26.0	26.0	26.0	26.0
Total Split (%)	8.0%	68.0%	68.0%	11.2%	71.2%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	5.5	72.4	72.4	8.3	79.2		32.8		32.8
Actuated g/C Ratio	0.04	0.58	0.58	0.07	0.63		0.26		0.26
v/c Ratio	0.21	0.78	0.08	0.44	0.36		0.26		0.11
Control Delay	64.2	25.4	2.0	59.2	12.2		36.8		19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	64.2	25.4	2.0	59.2	12.2		36.8		19.5
LOS	E	C	A	E	B		D		B
Approach Delay		24.2			15.1		36.8		19.5
Approach LOS		C			B		D		B

Intersection Summary	
Cycle Length: 125	
Actuated Cycle Length: 125	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 64.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Baseline Rd & Tamarind Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	845	76	52	690	109	60	7	36	7	6	36
Future Volume (veh/h)	16	845	76	52	690	109	60	7	36	7	6	36
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	1863	1863	1863	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	16	845	76	52	690	109	60	7	36	7	6	36
Adj No. of Lanes	1	1	1	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	30	922	784	67	1580	249	343	48	185	93	92	421
Arrive On Green	0.02	0.49	0.49	0.05	0.69	0.69	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1774	1863	1583	1774	3063	484	827	133	516	167	256	1171
Grp Volume(v), veh/h	16	845	76	52	398	401	103	0	0	49	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1770	1777	1476	0	0	1594	0	0
Q Serve(g_s), s	1.1	52.4	3.2	3.6	12.6	12.6	3.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	52.4	3.2	3.6	12.6	12.6	5.5	0.0	0.0	2.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.27	0.58		0.35	0.14		0.73
Lane Grp Cap(c), veh/h	30	922	784	67	913	917	576	0	0	606	0	0
V/C Ratio(X)	0.53	0.92	0.10	0.78	0.44	0.44	0.18	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	78	1200	1020	135	1196	1202	576	0	0	606	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	60.9	29.2	16.7	58.8	11.5	11.5	27.3	0.0	0.0	26.4	0.0	0.0
Incr Delay (d2), s/veh	13.6	9.2	0.1	17.2	0.3	0.3	0.7	0.0	0.0	0.3	0.0	0.0
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	0.7	29.1	1.4	2.1	6.1	6.1	2.5	0.0	0.0	1.2	0.0	0.0
LnGrp Delay(d),s/veh	74.5	38.4	16.8	76.1	11.8	11.8	28.0	0.0	0.0	26.7	0.0	0.0
LnGrp LOS	E	D	B	E	B	B	C			C		
Approach Vol, veh/h		937			851			103			49	
Approach Delay, s/veh		37.3			15.7			28.0			26.7	
Approach LOS		D			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		49.4	9.2	66.4		49.4	6.6	69.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		21.5	9.5	80.5		21.5	5.5	84.5
Max Q Clear Time (g_c+I1), s		7.5	5.6	54.4		4.5	3.1	14.6
Green Ext Time (p_c), s		0.4	0.0	7.5		0.2	0.0	6.2

Intersection Summary	
HCM 2010 Ctrl Delay	27.1
HCM 2010 LOS	C

APPENDIX D

Cumulative Projects Traffix Worksheets

TRAFFIX ZONES AND TRIPS - RIALTO

			AM Peak Hour			PM Peak Hour		
Land Use	Units	Daily	In	Out	Total	In	Out	Total
3	WALNUT-ALDER WAREHOUSE WORKERS							
			27	7	34	9	27	36
4	WALNUT-ALDER WAREHOUSE TRUCKS							
			46	11	57	16	51	67
5								
	1, 3, 8, 9, 11, 23, 28 (II	14529	910	353	1263	379	882	1260
6								
	6, 7 (RES), 29	7793	195	491	686	522	326	848
7								
	10 (WALMART)	14189	338	290	628	601	593	1194
8								
	16, 17, 18, 20, 26 (INC	28405	1551	1235	2786	1683	1436	3149
9								
	21 (AYRES HOTEL)	1204	52	38	90	47	48	95
10								
	13 (Ren. Marketplace)	17781	302	166	468	662	820	1482
11								
	19 (Ren. East)	5822	245	225	470	218	193	461
12								
	27 (gas stn)	1377	42	41	83	56	57	113
13								
	2, 5 (INDUST)	5480	365	95	462	122	369	491
14								
	14, 15, 24 (INDUST)	5692	322	85	407	109	325	434
15								
	4 (STATER BROS)	4810	205	183	388	185	169	354
16								
	12, 22, 25	3954	260	67	327	87	268	355

TRAFFIX ZONES - FONTANA

			AM Peak Hour			PM Peak Hour		
Land Use	Units	Daily	In	Out	Total	In	Out	Total
17								
	31,32	6657	157	133	290	213	225	447
18								
	33 (RESI)	286	6	17	23	19	11	30

Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Scenario Report

Scenario:	OP YR 2020 AM
Command:	OP YR 2020 AM
Volume:	EX AM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	CUMUL AM
Trip Distribution:	DISTRIBUTION
Paths:	Default Path
Routes:	Default Route
Configuration:	Opening Year 2020

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Trip Generation Report

Forecast for CUMUL AM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
3	RIALTO WALNU	1.00	RIALTO WALNUT	27.00	7.00	27	7	34	0.4
	Zone 3 Subtotal					27	7	34	0.4
4	RIALTO WALNU	1.00	RIALTO WALNUT	46.00	11.00	46	11	57	0.7
	Zone 4 Subtotal					46	11	57	0.7
5	INDUSTRIAL P	1.00	INDUSTRIAL PRO	910.00	353.00	910	353	1263	14.9
	Zone 5 Subtotal					910	353	1263	14.9
6	RES PROJS N	1.00	RES PROJS N OF	195.00	491.00	195	491	686	8.1
	Zone 6 Subtotal					195	491	686	8.1
7	WALMART S of	1.00	WALMART S of B	338.00	290.00	338	290	628	7.4
	Zone 7 Subtotal					338	290	628	7.4
8	INDUST Near	1.00	INDUST Near Ai	1551.00	1235.00	1551	1235	2786	32
	Zone 8 Subtotal					1551	1235	2786	32.9
9	AYRES HOTEL	1.00	AYRES HOTEL	52.00	38.00	52	38	90	1.1
	Zone 9 Subtotal					52	38	90	1.1
10	Ren. Marketp	1.00	Ren. Marketpla	302.00	166.00	302	166	468	5.5
	Zone 10 Subtotal					302	166	468	5.5
11	Ren. East Pl	1.00	Ren. East Plan	245.00	225.00	245	225	470	5.6
	Zone 11 Subtotal					245	225	470	5.6
12	Gas Station	1.00	Gas Station	42.00	41.00	42	41	83	1.0
	Zone 12 Subtotal					42	41	83	1.0
13	INDUST E of	1.00	INDUST E of Al	365.00	95.00	365	95	460	5.4
	Zone 13 Subtotal					365	95	460	5.4
14	INDUST N of	1.00	INDUST N of Wa	322.00	85.00	322	85	407	4.8
	Zone 14 Subtotal					322	85	407	4.8
15	Stater Bros	1.00	Stater Bros De	205.00	183.00	205	183	388	4.6
	Zone 15 Subtotal					205	183	388	4.6
16	INDUST W of	1.00	INDUST W of Ta	260.00	67.00	260	67	327	3.9
	Zone 16 Subtotal					260	67	327	3.9
17	Highland Ave	1.00	Mixed use	157.00	133.00	157	133	290	3.4

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
	Zone 17 Subtotal					157	133	290	3.4
18	Residential	1.00	Residential-Fo	6.00	17.00	6	17	23	0.3
	Zone 18 Subtotal					6	17	23	0.3
TOTAL						5023	3437	8460	100.0

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Trip Distribution Report

Percent Of Trips DISTRIBUTION

	To Gates										
Zone	1	2	3	4	5	6	7	8	9	10	11
3	0.0	20.0	5.0	5.0	5.0	30.0	0.0	10.0	0.0	25.0	0.0
4	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0
5	10.0	30.0	0.0	5.0	0.0	20.0	0.0	5.0	0.0	30.0	0.0
6	0.0	0.0	0.0	0.0	10.0	0.0	0.0	5.0	0.0	0.0	85.0
7	0.0	0.0	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	10.0
8	0.0	5.0	0.0	10.0	15.0	20.0	0.0	5.0	5.0	15.0	25.0
9	0.0	0.0	0.0	0.0	5.0	5.0	0.0	0.0	0.0	45.0	45.0
10	0.0	0.0	0.0	15.0	20.0	10.0	0.0	10.0	10.0	5.0	30.0
11	0.0	0.0	0.0	15.0	20.0	10.0	0.0	15.0	10.0	10.0	20.0
12	0.0	0.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	85.0
13	0.0	30.0	0.0	5.0	5.0	20.0	0.0	5.0	5.0	30.0	0.0
14	0.0	30.0	5.0	5.0	5.0	15.0	0.0	5.0	0.0	35.0	0.0
15	10.0	20.0	10.0	5.0	10.0	10.0	0.0	5.0	10.0	20.0	0.0
16	0.0	30.0	5.0	5.0	5.0	15.0	0.0	5.0	0.0	35.0	0.0
17	0.0	0.0	5.0	5.0	0.0	0.0	0.0	0.0	90.0	0.0	0.0
18	0.0	0.0	5.0	5.0	0.0	5.0	5.0	40.0	40.0	0.0	0.0

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Turning Movement By Zone Report
CUMUL AM

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 1. Alder Ave/SR-210 WB Ramps													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=C,Del=21.5,V/C=0.516)][+21.516 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	546	0	0	212	106	0	0	0	0	0	273	1137
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	185	0	0	0	0	0	0	0	0	78	0	0	263
Zn 9	17	0	0	0	0	0	0	0	0	0	0	0	17
Zn 10	8	0	0	0	0	0	0	0	0	0	0	0	8
Zn 11	23	0	0	0	0	0	0	0	0	0	0	0	23
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	29	0	0	0	0	0	0	0	0	110	0	0	139
Zn 14	30	0	0	0	0	0	0	0	0	97	0	0	127
Zn 15	37	18	0	0	21	0	0	0	0	41	0	0	117
Zn 16	23	0	0	0	0	0	0	0	0	78	0	0	101
Zn 17	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 18	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	351	564	0	0	232	106	0	0	0	403	0	273	1929
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	351	564	0	0	232	106	0	0	0	403	0	273	1929
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	351	564	0	0	232	106	0	0	0	403	0	273	1929

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#2 2. Alder Ave/SR-210 EB Ramps													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=C,Del=23.4,V/C=0.694)][+23.383 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	273	0	106	106	0	273	0	0	0	0	0	758
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	185	62	0	78	0	0	0	233	0	0	0	558
Zn 9	0	17	0	0	0	0	0	0	23	0	0	0	40
Zn 10	0	8	0	0	0	0	0	0	15	0	0	0	23
Zn 11	0	23	0	0	0	0	0	0	25	0	0	0	48
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	0	29	29	0	110	0	0	0	110	0	0	0	278
Zn 14	0	30	26	0	97	0	0	0	113	0	0	0	266
Zn 15	0	55	37	0	62	0	0	0	41	0	0	0	195
Zn 16	0	23	20	0	78	0	0	0	91	0	0	0	212
Zn 17	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 18	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	643	172	106	529	0	273	0	650	0	0	0	2373
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	0	643	172	106	529	0	273	0	650	0	0	0	2373
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	0	643	172	106	529	0	273	0	650	0	0	0	2373

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#3 3. Alder Ave/Renaissance Pkwy													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=C,Del=28.8,V/C=0.698)][+28.849 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	273	0	0	106	0	0	0	0	0	0	0	379
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	0	194	310	0	0	0	78	0	154	62	247	1045
Zn 9	0	0	1	23	0	0	0	0	0	1	0	17	42
Zn 10	0	0	30	15	0	0	0	30	0	17	17	8	117
Zn 11	0	0	31	25	0	0	0	25	0	28	23	23	155
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	5	57	0	0	219	0	0	0	18	0	0	0	299
Zn 14	0	55	4	0	209	0	0	0	0	16	0	0	284
Zn 15	0	46	0	32	41	21	92	0	0	0	0	36	268
Zn 16	0	44	3	0	169	0	0	0	0	13	0	0	229
Zn 17	0	0	0	0	0	0	0	7	0	0	8	0	15
Zn 18	0	0	0	0	0	0	0	1	0	0	0	0	1
Added	5	475	264	405	744	21	92	140	18	229	109	331	2833
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	5	475	264	405	744	21	92	140	18	229	109	331	2833
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	5	475	264	405	744	21	92	140	18	229	109	331	2833

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#4 4. Alder Ave/Walnut Ave													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=A,Del=2.4,V/C=0.253)][+2.367 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	273	0	0	106	0	0	0	0	0	0	0	379
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	194	0	0	154	0	0	0	0	0	0	0	348
Zn 9	0	1	0	0	1	0	0	0	0	0	0	0	2
Zn 10	0	30	0	0	17	0	0	0	0	0	0	0	47
Zn 11	0	31	0	0	28	0	0	0	0	0	0	0	59
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	0	62	0	0	237	0	0	0	0	0	0	0	299
Zn 14	0	97	0	0	26	0	0	0	0	0	0	0	123
Zn 15	0	46	0	0	41	0	0	0	0	0	0	0	87
Zn 16	0	0	0	0	0	182	47	0	17	0	0	0	246
Zn 17	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 18	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	733	0	0	610	182	47	0	17	0	0	0	1589
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	0	733	0	0	610	182	47	0	17	0	0	0	1589
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	0	733	0	0	610	182	47	0	17	0	0	0	1589

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#5 5. Alder Ave/Baseline Rd													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=C,Del=33.9,V/C=0.782)][+33.881 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	182	0	18	71	18	46	0	0	0	0	46	381
Zn 6	0	0	0	0	0	0	0	10	0	0	25	0	35
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	155	155	0	124	31	39	39	0	124	31	0	698
Zn 9	0	1	1	0	1	0	0	0	0	1	0	0	4
Zn 10	0	15	15	0	8	8	15	15	0	8	8	0	92
Zn 11	0	12	12	0	11	17	18	18	0	11	17	0	116
Zn 12	0	0	0	0	0	0	0	2	0	0	2	0	4
Zn 13	0	0	73	237	0	0	0	18	0	19	5	62	414
Zn 14	0	48	0	9	13	4	16	0	0	0	0	32	122
Zn 15	0	21	0	14	18	9	10	0	0	0	0	15	87
Zn 16	39	0	0	7	10	0	0	0	0	0	26	0	82
Zn 17	0	0	0	0	0	0	0	7	0	0	8	0	15
Zn 18	0	0	0	0	0	0	0	1	1	0	0	0	2
Added	39	435	257	284	256	87	144	110	1	163	122	155	2053
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	39	435	257	284	256	87	144	110	1	163	122	155	2053
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	39	435	257	284	256	87	144	110	1	163	122	155	2053

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#6 6. Tamarind Ave/Walnut Ave [Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=A,Del=7.7,V/C=0.111)][+0.111 V/C]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 9	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 10	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 11	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 14	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 15	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 16	0	0	64	0	0	0	0	0	0	182	0	0	246
Zn 17	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 18	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	64	0	0	0	0	0	0	182	0	0	246
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	0	0	64	0	0	0	0	0	0	182	0	0	246
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	0	0	64	0	0	0	0	0	0	182	0	0	246

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#7 7. Tamarind Ave/Baseline Rd													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=A,Del=0.2,V/C=0.010)][+0.010 V/C]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	0	0	0	0	0	0	46	0	0	18	0	64
Zn 6	0	0	0	0	0	0	0	10	0	0	25	0	35
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	0	0	0	0	0	0	78	0	0	62	0	140
Zn 9	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 10	0	0	0	0	0	0	0	30	0	0	17	0	47
Zn 11	0	0	0	0	0	0	0	37	0	0	34	0	71
Zn 12	0	0	0	0	0	0	0	2	0	0	2	0	4
Zn 13	0	0	0	0	0	0	0	18	0	0	5	0	23
Zn 14	0	0	0	0	0	0	0	16	0	0	4	0	20
Zn 15	0	0	0	0	0	0	0	10	0	0	9	0	19
Zn 16	0	0	0	0	0	3	13	0	0	0	0	65	81
Zn 17	0	0	0	0	0	0	0	7	0	0	8	0	15
Zn 18	0	0	0	0	0	0	0	2	1	0	1	0	4
Added	0	0	0	0	0	3	13	255	1	0	183	65	520
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	0	0	0	0	0	3	13	255	1	0	183	65	520
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	0	0	0	0	0	3	13	255	1	0	183	65	520

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
AM - Distribution and Assignment

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#8 8. Cedar Ave-Ayala Dr/Baseline Rd													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=C,Del=25.7,V/C=0.352)][+25.738 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	0	0	0	0	0	0	18	0	0	46	0	64
Zn 6	0	20	0	0	49	25	10	0	0	0	0	0	104
Zn 7	0	29	0	0	34	0	0	0	0	0	0	0	63
Zn 8	233	0	0	0	0	0	0	124	185	0	155	0	697
Zn 9	0	3	0	0	1	0	0	0	1	0	0	0	5
Zn 10	0	60	0	25	33	0	0	0	0	0	0	45	163
Zn 11	0	49	0	34	45	28	31	0	0	0	0	37	224
Zn 12	0	2	0	6	0	0	2	0	0	2	2	3	17
Zn 13	18	0	0	0	0	0	0	5	5	0	18	0	46
Zn 14	16	0	0	0	0	0	0	4	4	0	16	0	40
Zn 15	10	10	0	5	9	0	0	5	9	0	5	5	58
Zn 16	13	0	0	0	0	0	0	3	3	0	13	0	32
Zn 17	0	0	0	0	0	0	0	7	0	0	8	0	15
Zn 18	0	0	0	0	0	0	0	1	0	0	0	0	1
Added	290	173	0	69	171	53	42	166	208	2	263	91	1528
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	290	173	0	69	171	53	42	166	208	2	263	91	1528
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	290	173	0	69	171	53	42	166	208	2	263	91	1528

Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

Scenario Report

Scenario:	OP YR 2020 PM
Command:	OP YR 2020 PM
Volume:	EX PM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	CUMUL PM
Trip Distribution:	DISTRIBUTION
Paths:	Default Path
Routes:	Default Route
Configuration:	Opening Year 2020

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

Trip Generation Report

Forecast for CUMUL PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
3	RIALTO WALNU	1.00	RIALTO WALNUT	9.00	27.00	9	27	36	0.3
	Zone 3 Subtotal					9	27	36	0.3
4	RIALTO WALNU	1.00	RIALTO WALNUT	16.00	51.00	16	51	67	0.6
	Zone 4 Subtotal					16	51	67	0.6
5	INDUSTRIAL P	1.00	INDUSTRIAL PRO	379.00	882.00	379	882	1261	11.8
	Zone 5 Subtotal					379	882	1261	11.8
6	RES PROJS N	1.00	RES PROJS N OF	522.00	326.00	522	326	848	7.9
	Zone 6 Subtotal					522	326	848	7.9
7	WALMART S of	1.00	WALMART S of B	601.00	593.00	601	593	1194	11.1
	Zone 7 Subtotal					601	593	1194	11.1
8	INDUST Near	1.00	INDUST Near Ai	1683.00	1436.00	1683	1436	3119	29
	Zone 8 Subtotal					1683	1436	3119	29.1
9	AYRES HOTEL	1.00	AYRES HOTEL	47.00	48.00	47	48	95	0.9
	Zone 9 Subtotal					47	48	95	0.9
10	Ren. Marketp	1.00	Ren. Marketpla	662.00	820.00	662	820	1482	13.8
	Zone 10 Subtotal					662	820	1482	13.8
11	Ren. East Pl	1.00	Ren. East Plan	218.00	193.00	218	193	411	3.8
	Zone 11 Subtotal					218	193	411	3.8
12	Gas Station	1.00	Gas Station	56.00	57.00	56	57	113	1.1
	Zone 12 Subtotal					56	57	113	1.1
13	INDUST E of	1.00	INDUST E of Al	122.00	369.00	122	369	491	4.6
	Zone 13 Subtotal					122	369	491	4.6
14	INDUST N of	1.00	INDUST N of Wa	109.00	325.00	109	325	434	4.0
	Zone 14 Subtotal					109	325	434	4.0
15	Stater Bros	1.00	Stater Bros De	185.00	169.00	185	169	354	3.3
	Zone 15 Subtotal					185	169	354	3.3
16	INDUST W of	1.00	INDUST W of Ta	87.00	268.00	87	268	355	3.3
	Zone 16 Subtotal					87	268	355	3.3
17	Highland Ave	1.00	Mixed use	213.00	225.00	213	225	438	4.1

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
	Zone 17 Subtotal					213	225	438	4.1
18	Residential	1.00	Residential-Fo	19.00	11.00	19	11	30	0.3
	Zone 18 Subtotal					19	11	30	0.3
TOTAL						4928	5800	10728	100.0

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

Trip Distribution Report

Percent Of Trips DISTRIBUTION

	To Gates										
Zone	1	2	3	4	5	6	7	8	9	10	11
3	0.0	20.0	5.0	5.0	5.0	30.0	0.0	10.0	0.0	25.0	0.0
4	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0
5	10.0	30.0	0.0	5.0	0.0	20.0	0.0	5.0	0.0	30.0	0.0
6	0.0	0.0	0.0	0.0	10.0	0.0	0.0	5.0	0.0	0.0	85.0
7	0.0	0.0	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	10.0
8	0.0	5.0	0.0	10.0	15.0	20.0	0.0	5.0	5.0	15.0	25.0
9	0.0	0.0	0.0	0.0	5.0	5.0	0.0	0.0	0.0	45.0	45.0
10	0.0	0.0	0.0	15.0	20.0	10.0	0.0	10.0	10.0	5.0	30.0
11	0.0	0.0	0.0	15.0	20.0	10.0	0.0	15.0	10.0	10.0	20.0
12	0.0	0.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	85.0
13	0.0	30.0	0.0	5.0	5.0	20.0	0.0	5.0	5.0	30.0	0.0
14	0.0	30.0	5.0	5.0	5.0	15.0	0.0	5.0	0.0	35.0	0.0
15	10.0	20.0	10.0	5.0	10.0	10.0	0.0	5.0	10.0	20.0	0.0
16	0.0	30.0	5.0	5.0	5.0	15.0	0.0	5.0	0.0	35.0	0.0
17	0.0	0.0	5.0	5.0	0.0	0.0	0.0	0.0	90.0	0.0	0.0
18	0.0	0.0	5.0	5.0	0.0	5.0	5.0	40.0	40.0	0.0	0.0

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

Turning Movement By Zone Report
CUMUL PM

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 1. Alder Ave/SR-210 WB Ramps													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=C,Del=27.0,V/C=0.717)][+27.034 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	227	0	0	529	265	0	0	0	0	0	114	1135
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	215	0	0	0	0	0	0	0	0	84	0	0	299
Zn 9	22	0	0	0	0	0	0	0	0	0	0	0	22
Zn 10	41	0	0	0	0	0	0	0	0	0	0	0	41
Zn 11	19	0	0	0	0	0	0	0	0	0	0	0	19
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	111	0	0	0	0	0	0	0	0	37	0	0	148
Zn 14	114	0	0	0	0	0	0	0	0	33	0	0	147
Zn 15	34	17	0	0	19	0	0	0	0	37	0	0	107
Zn 16	94	0	0	0	0	0	0	0	0	26	0	0	120
Zn 17	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 18	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	649	244	0	0	548	265	0	0	0	217	0	114	2037
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	649	244	0	0	548	265	0	0	0	217	0	114	2037
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	649	244	0	0	548	265	0	0	0	217	0	114	2037

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

#2 2. Alder Ave/SR-210 EB Ramps
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=C,Del=26.6,V/C=0.781)][+26.583 D/V]

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	114	0	265	265	0	114	0	0	0	0	0	758
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	215	72	0	84	0	0	0	252	0	0	0	623
Zn 9	0	22	0	0	0	0	0	0	21	0	0	0	43
Zn 10	0	41	0	0	0	0	0	0	33	0	0	0	74
Zn 11	0	19	0	0	0	0	0	0	22	0	0	0	41
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	0	111	111	0	37	0	0	0	37	0	0	0	296
Zn 14	0	114	98	0	33	0	0	0	38	0	0	0	283
Zn 15	0	51	34	0	56	0	0	0	37	0	0	0	178
Zn 16	0	94	80	0	26	0	0	0	30	0	0	0	230
Zn 17	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 18	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	780	394	265	500	0	114	0	471	0	0	0	2524
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	0	780	394	265	500	0	114	0	471	0	0	0	2524
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	0	780	394	265	500	0	114	0	471	0	0	0	2524

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#3 3. Alder Ave/Renaissance Pkwy													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=D,Del=35.9,V/C=0.858)][+35.883 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	114	0	0	265	0	0	0	0	0	0	0	379
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	0	210	337	0	0	0	84	0	180	72	287	1170
Zn 9	0	0	1	21	0	0	0	0	0	1	0	22	45
Zn 10	0	0	66	33	0	0	0	66	0	82	82	41	370
Zn 11	0	0	27	22	0	0	0	22	0	24	19	19	133
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	18	221	0	0	73	0	0	0	6	0	0	0	318
Zn 14	0	211	16	0	71	0	0	0	0	5	0	0	303
Zn 15	0	42	0	30	38	19	85	0	0	0	0	32	246
Zn 16	0	174	13	0	57	0	0	0	0	4	0	0	248
Zn 17	0	0	0	0	0	0	0	11	0	0	11	0	22
Zn 18	0	0	0	0	0	0	0	1	0	0	1	0	2
Added	18	762	335	442	503	19	85	184	6	297	185	401	3237
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	18	762	335	442	503	19	85	184	6	297	185	401	3237
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	18	762	335	442	503	19	85	184	6	297	185	401	3237

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#4 4. Alder Ave/Walnut Ave [Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=A,Del=9.1,V/C=0.336)][+9.063 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	114	0	0	265	0	0	0	0	0	0	0	379
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	210	0	0	180	0	0	0	0	0	0	0	390
Zn 9	0	1	0	0	1	0	0	0	0	0	0	0	2
Zn 10	0	66	0	0	82	0	0	0	0	0	0	0	148
Zn 11	0	27	0	0	24	0	0	0	0	0	0	0	51
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	0	240	0	0	79	0	0	0	0	0	0	0	319
Zn 14	0	33	0	0	98	0	0	0	0	0	0	0	131
Zn 15	0	42	0	0	38	0	0	0	0	0	0	0	80
Zn 16	0	0	0	0	0	61	188	0	67	0	0	0	316
Zn 17	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 18	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	733	0	0	766	61	188	0	67	0	0	0	1815
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	0	733	0	0	766	61	188	0	67	0	0	0	1815
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	0	733	0	0	766	61	188	0	67	0	0	0	1815

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#5 5. Alder Ave/Baseline Rd													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=C,Del=30.2,V/C=0.746)][+30.242 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	76	0	44	176	44	19	0	0	0	0	19	378
Zn 6	0	0	0	0	0	0	0	26	0	0	16	0	42
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	168	168	0	144	36	42	42	0	144	36	0	780
Zn 9	0	1	1	0	1	0	0	0	0	1	0	0	4
Zn 10	0	33	33	0	41	41	33	33	0	41	41	0	296
Zn 11	0	11	11	0	10	14	16	16	0	10	14	0	102
Zn 12	0	0	0	0	0	0	0	3	0	0	3	0	6
Zn 13	0	0	24	79	0	0	0	6	0	74	18	240	441
Zn 14	0	16	0	33	49	16	5	0	0	0	0	11	130
Zn 15	0	19	0	13	17	8	9	0	0	0	0	14	80
Zn 16	13	0	0	27	40	0	0	0	0	0	9	0	89
Zn 17	0	0	0	0	0	0	0	11	0	0	11	0	22
Zn 18	1	0	0	0	0	0	0	1	1	0	1	0	4
Added	14	324	238	195	478	160	125	138	1	269	149	284	2375
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	14	324	238	195	478	160	125	138	1	269	149	284	2375
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	14	324	238	195	478	160	125	138	1	269	149	284	2375

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

#6 6. Tamarind Ave/Walnut Ave
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=A,Del=8.9,V/C=0.234)][+0.234 V/C]

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 6	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 9	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 10	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 11	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 12	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 13	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 14	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 15	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 16	0	0	255	0	0	0	0	0	0	61	0	0	316
Zn 17	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 18	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	255	0	0	0	0	0	0	61	0	0	316
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	0	0	255	0	0	0	0	0	0	61	0	0	316
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	0	0	255	0	0	0	0	0	0	61	0	0	316

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

#7 7. Tamarind Ave/Baseline Rd
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=B,Del=0.3,V/C=0.014)][+0.014 V/C]

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	0	0	0	0	0	0	19	0	0	44	0	63
Zn 6	0	0	0	0	0	0	0	26	0	0	16	0	42
Zn 7	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 8	0	0	0	0	0	0	0	84	0	0	72	0	156
Zn 9	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 10	0	0	0	0	0	0	0	66	0	0	82	0	148
Zn 11	0	0	0	0	0	0	0	33	0	0	29	0	62
Zn 12	0	0	0	0	0	0	0	3	0	0	3	0	6
Zn 13	0	0	0	0	0	0	0	6	0	0	18	0	24
Zn 14	0	0	0	0	0	0	0	5	0	0	16	0	21
Zn 15	0	0	0	0	0	0	0	9	0	0	8	0	17
Zn 16	0	0	0	0	0	13	4	0	0	0	0	22	39
Zn 17	0	0	0	0	0	0	0	11	0	0	11	0	22
Zn 18	1	0	0	0	0	0	0	1	1	0	2	0	5
Added	1	0	0	0	0	13	4	264	1	0	302	22	607
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	1	0	0	0	0	13	4	264	1	0	302	22	607
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	1	0	0	0	0	13	4	264	1	0	302	22	607

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Baseline Alder Warehouse - Rialto
Cumulative Project Summary
PM - Distribution and Assignment

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#8 8. Cedar Ave-Ayala Dr/Baseline Rd													
[Base(LOS= ,Del=0.0,V/C=0.000)][Future(LOS=C,Del=26.8,V/C=0.417)][+26.850 D/V]													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
InitBs	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 4	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn 5	0	0	0	0	0	0	0	44	0	0	19	0	63
Zn 6	0	52	0	0	33	16	26	0	0	0	0	0	127
Zn 7	0	59	0	0	60	0	0	0	0	0	0	0	119
Zn 8	252	0	0	0	0	0	0	144	215	0	168	0	779
Zn 9	0	2	0	0	1	0	0	0	1	0	0	0	4
Zn 10	0	132	0	123	164	0	0	0	0	0	0	99	518
Zn 11	0	44	0	29	39	24	27	0	0	0	0	33	196
Zn 12	0	3	0	8	0	0	3	0	0	3	3	5	25
Zn 13	6	0	0	0	0	0	0	18	18	0	6	0	48
Zn 14	5	0	0	0	0	0	0	16	16	0	5	0	42
Zn 15	9	9	0	4	8	0	0	4	8	0	5	5	52
Zn 16	4	0	0	0	0	0	0	13	13	0	4	0	34
Zn 17	0	0	0	0	0	0	0	11	0	0	11	0	22
Zn 18	0	0	0	0	0	0	0	1	0	0	1	0	2
Added	278	302	0	164	305	40	56	252	273	3	222	141	2036
PassBy	0	0	0	0	0	0	0	0	0	0	0	0	0
Future	278	302	0	164	305	40	56	252	273	3	222	141	2036
UseAdj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	278	302	0	164	305	40	56	252	273	3	222	141	2036

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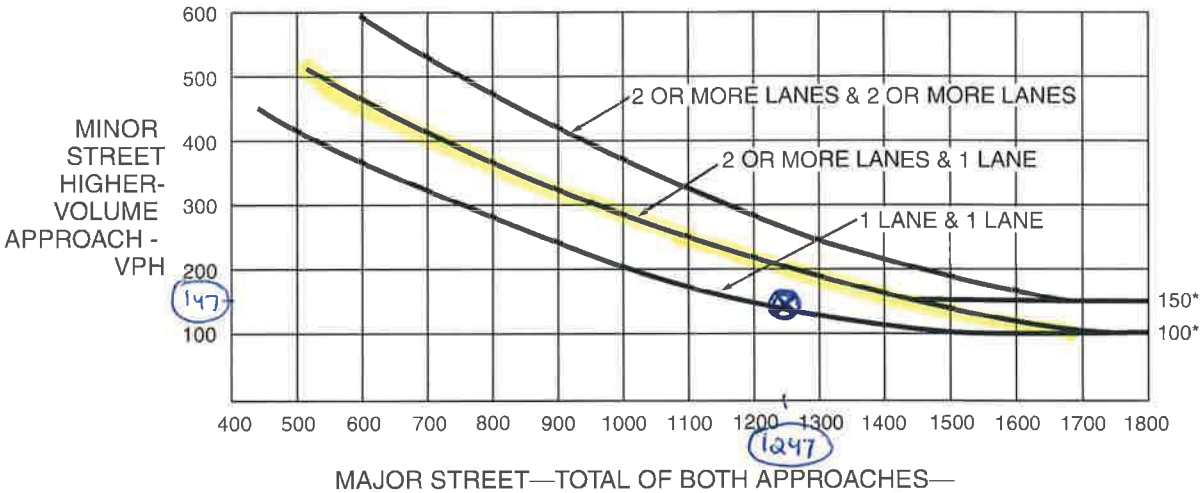
APPENDIX E

Traffic Signal Warrant Analysis

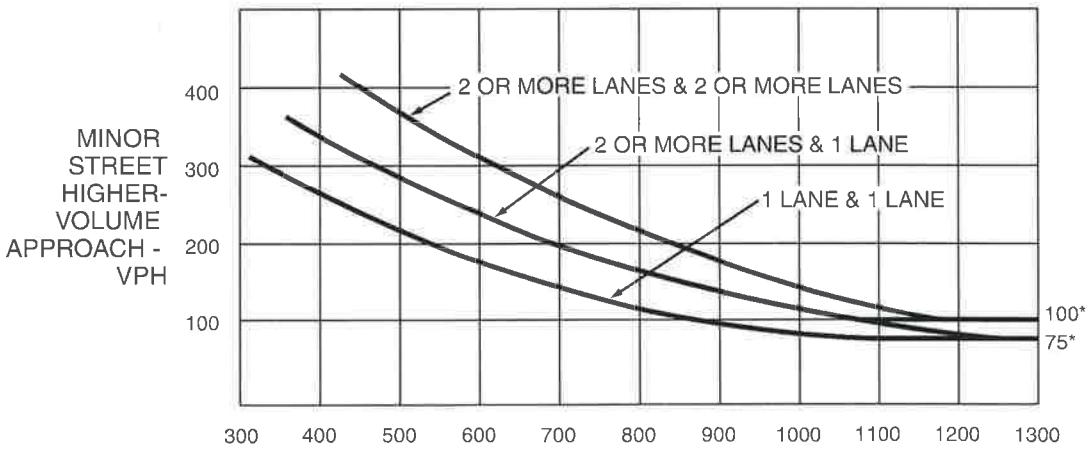
Existing Conditions - Tamarind Avenue / Baseline Rd.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

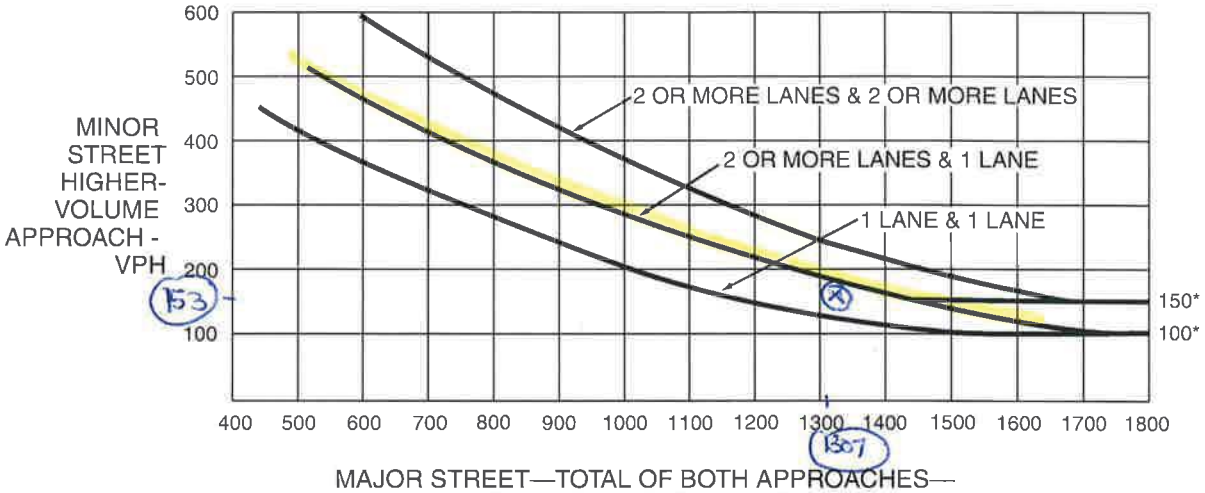
Figure 4C-4. Warrant 3, Peak Hour (70% Factor)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

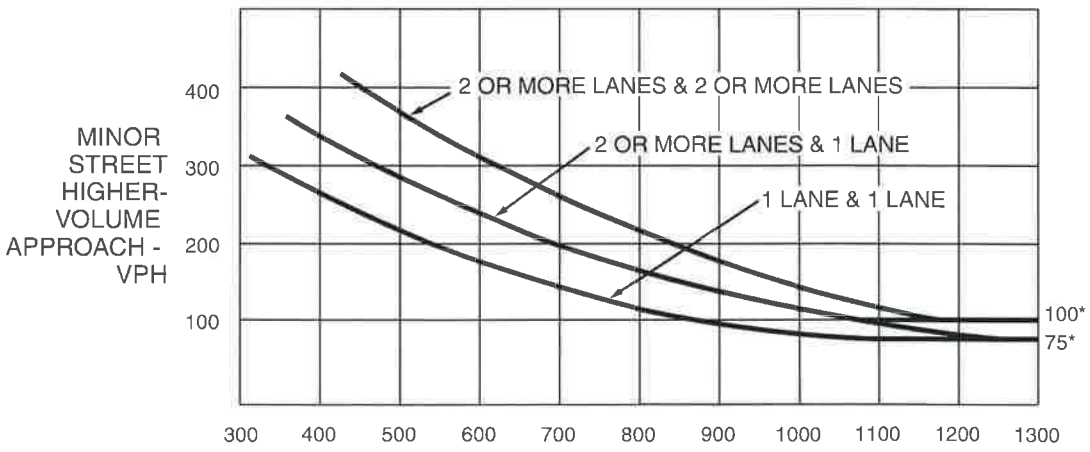
Project completion 2020 Baseline - Tamarind Avenue/ Baseline Rd.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

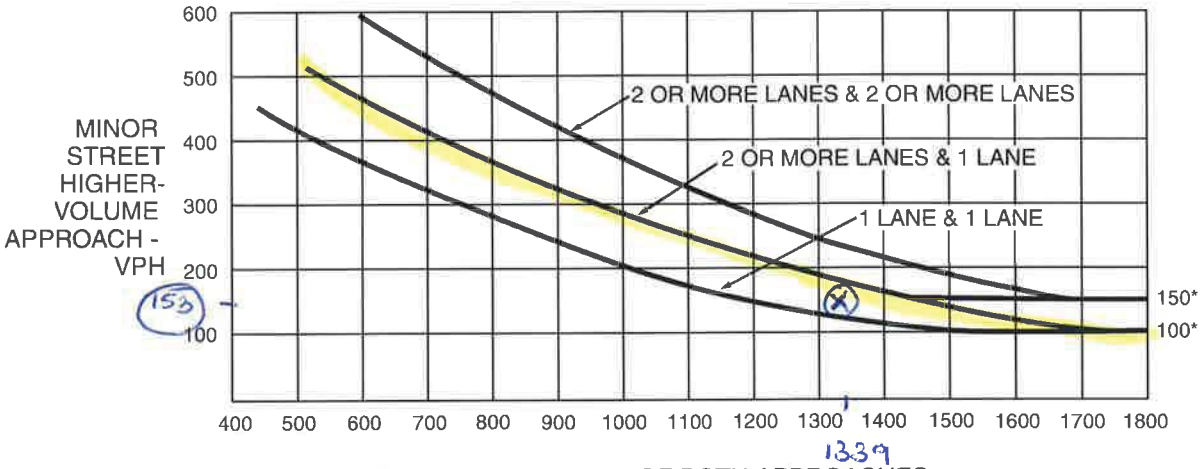


*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Project completion Plus Project - Tamarind Avenue / Baseline Rd.

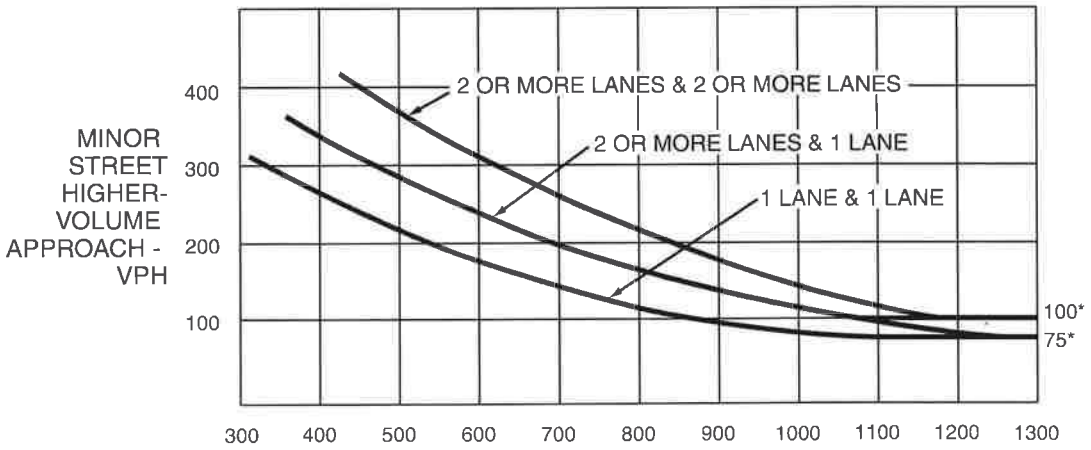
(Baseline - Alder WH)

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

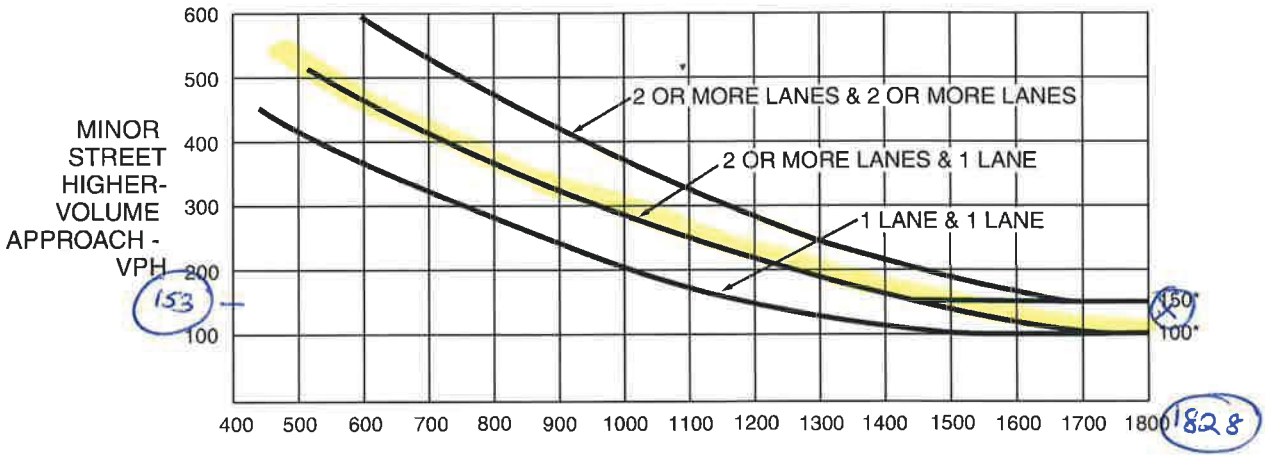
Figure 4C-4. Warrant 3, Peak Hour (70% Factor)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

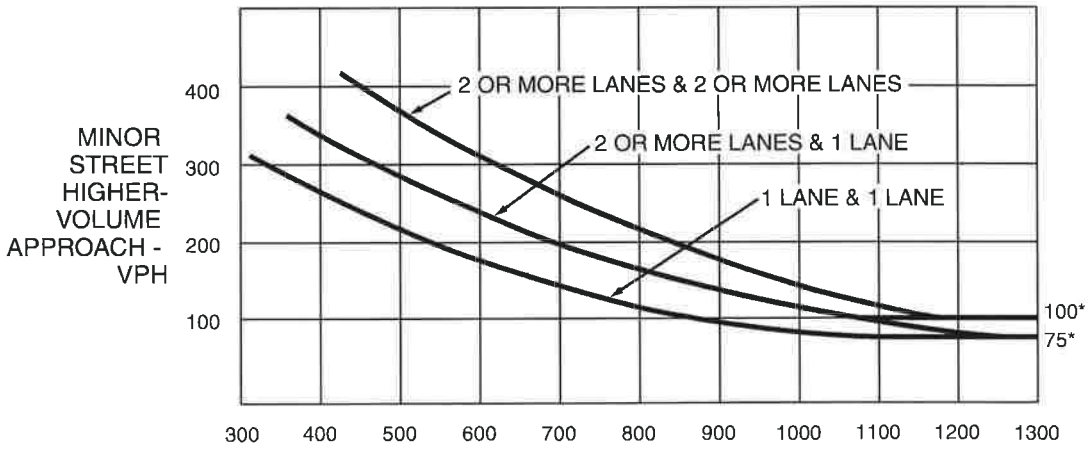
Cumulative 2020 Baseline - Tamarind Avenue / Baseline Rd. (Baseline - Alder WH)

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

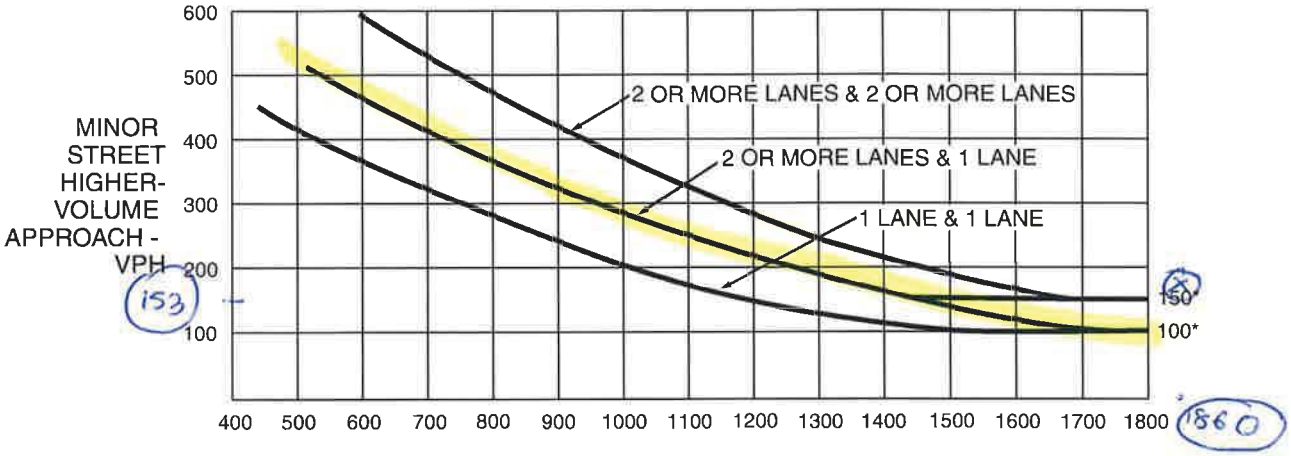


*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Cumulative 2020 + Project - Tamarind Avenue / Baseline Rd.

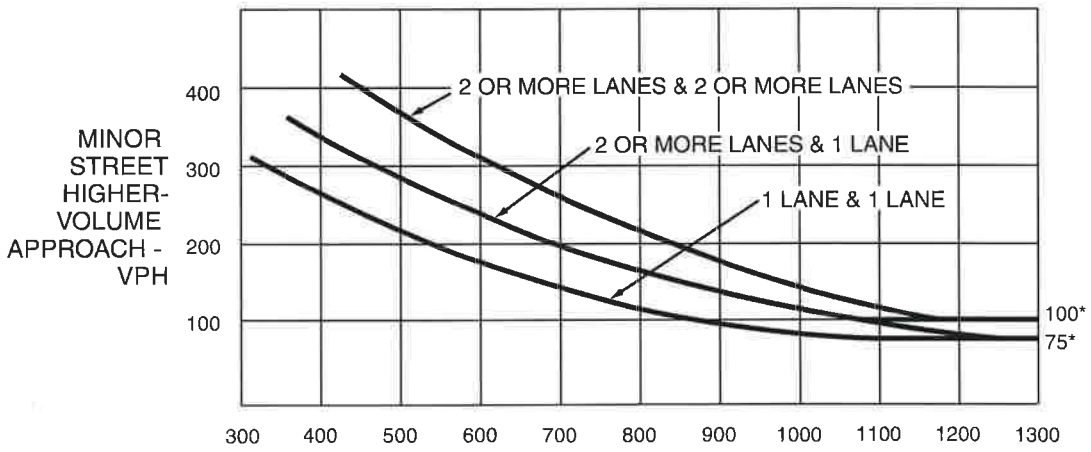
(Baseline - Alder WH)

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.