INITIAL STUDY
MITIGATED NEGATIVE DECLARATION 17-03

Oxnard Costco Fuel Facility Relocation and Expansion
PZ 17-620-04 (General Plan Amendment), PZ 16-630-01 (Specific Plan Amendment),
PZ 17-500-15 (Special Use Permit), and PZ 17-310-06 (Lot Line Adjustment)

Auto Center Drive/Los Olivos & 2001 Ventura Blvd.
November 2, 2017

Introduction

This Initial Study has been prepared in accordance with relevant provisions of the California Environmental Quality Act (CEQA) of 1970, as amended, and the CEQA Guidelines as revised. Section 15063(c) of the CEQA Guidelines indicates that the purposes of an Initial Study are to:

1. Provide the Lead Agency (i.e., the City of Oxnard) with information to use as the basis for deciding whether to prepare an Environmental Impact Report (EIR) or Negative Declaration;
2. Enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a Negative Declaration;
3. Assist the preparation of an EIR, if one is required, by:
   - Focusing the EIR on the effects determined to be significant;
   - Identifying the effects determined not to be significant;
   - Explaining the reasons why potentially significant effects would not be significant; and
   - Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the project’s environmental effects.
4. Facilitate environmental assessment early in the design of a project;
5. Provide documentation of the factual basis for the finding in a Negative Declaration that a project will not have a significant effect on the environment;
6. Eliminate unnecessary EIRs; and
7. Determine whether a previously prepared EIR could be used with the project.

The City of Oxnard Threshold Guidelines - Initial Study Assessment (2017) was used along with other pertinent information for preparing the Initial Study for this project. The purpose of the Threshold Guidelines is to inform the public, project applicants, consultants and City staff of the threshold criteria and standard methodology used in determining whether or not a project (individually or cumulatively) could have a significant effect on the environment. A project could have impacts below the significance threshold that do not require mitigation. The 2017 Threshold Guidelines provide instructions for completing the Initial Study and determining the type of environmental document required for individual projects.

Determining the significance of impacts is often controversial because the decision requires staff to use their judgment regarding a subject that is not clearly defined by the law. The State CEQA Guidelines define the term “significant impact on the environment” as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project. However, there is no iron-clad definition of what constitutes a substantial change because the significance of an activity may vary according to location.

When other agencies have jurisdiction over a given site, the project proponent will have to meet the design, mitigation, and monitoring requirements imposed by those agencies, as well as any additional requirements established by the City of Oxnard.
CITY OF OXNARD
INITIAL STUDY ENVIRONMENTAL CHECKLIST FORM

1. **Project Title:** Oxnard Costco Fuel Facility Relocation and Expansion

2. **Lead Agency Name and Address:** City of Oxnard, Planning Division, 214 South C Street, Oxnard, CA 93030

3. **Contact Person and Phone Number:** Kathleen Mallory, Planning Manager, (805) 385-7878.

4. **Project Location:** Costco Warehouse at 2001 Ventura Blvd. and adjacent vacant lot (no address) (APNs: 144-0-143-055 and 144-0-150-095); Auto Center Drive /Los Olivos intersection.

5. **Project Applicants:** Costco Wholesale, c/o Sean Anderson, 18215 72nd Avenue South, Kent, WA 98032

6. **General Plan Designation:** APN No. 144-0-143-055, Commercial Regional (CR), and APN No. 144-0-150-095: Industrial Limited (ILT); Rose Santa Clara Corridor Specific Plan (RSCSP)

7. **Zoning:** Rose-Santa Clara Corridor Specific Plan (RSCSP):
   APN No. 144-0-143-055: Planning Area 3: Retail Commercial
   APN No. 144-0-150-095: Planning Area 4: Commercial Manufacturing

Figure 1
Rose Santa Clara Corridor Specific Plan
8. **Project Description:** PZ 17-620-04 (General Plan Amendment), PZ 16-630-01 (Specific Plan Amendment), PZ 17-500-15 (Special Use Permit), and PZ 17-310-06 (Lot Line Adjustment): Costco Wholesale, located at 2001 Ventura Blvd., proposes a General Plan Amendment (GPA), Rose Santa Clara Corridor Specific Plan Amendment (SPA), Lot Line Adjustment (LLA), and Special Use Permit (SUP) for the removal, relocation, and expansion of an existing membership-only 16-pump fueling facility (aka “fueling facility”). The fueling facility will be relocated from its current location on the 16.6 acre property off of Ventura Blvd. to a 1.6 acre vacant lot (Assessor’s Parcel Number 144-0-150-095) which is adjacent and to the east of Costco, near Auto Center Drive opposite Los Olivos. With the relocation and expansion, a total of 24 pumps will be constructed on the new site (known as Site No. 1). The pumps which are currently located on Site No. 2, will be demolished, and the former fueling facility will be redesigned to accommodate additional parking. A traffic signal will be installed at the intersection of Auto Center Drive/Los Olivos with associated changes to the existing median and traffic lanes (known as Site No. 3).
Figure 3
Proposed General Plan land use designation change from Limited Industrial (ILT) to Regional Commercial (CR)

Figure 4
Proposed RSCCSP land use designation change in Exhibit 9 from Commercial Manufacturing (‘4’) to Retail Commercial (‘3’), assigning the 1.6 acre area to Planning Area 3
SUP (PZ 17-500-15) would permit the existing Costco members-only fueling facility to relocate to the 1.6 acre area and adjoining existing Costco parking lot circulation system at Site 1. The Site 1 replacement fueling facility includes a 7,700 square foot canopy, three 30,000 gallon gasoline underground storage tanks (UST), one 20,000 gallon diesel UST, one 3,500 split fuel additive UST, and peripheral parking. After the new 24-dispenser fueling positions facility is completed, the existing 16- fueling positions facility would be demolished, UST and related equipment removed, soil remediated as needed, and the area repaved and restriped for additional Costco parking at Site 2. Fifty-one trees would be removed and replaced in and around Sites 1 and 2 complying with Oxnard mature tree replacement requirements. At Site 3, a new traffic signal at the Auto Center Drive/Los Olivos intersection would be installed by the applicant to City specifications. The project includes application of and compliance with uniformly-applied RSCCSP development standards and compliance with applicable State and City rules and regulations.
Figure 7
Costco Proposed Site 1 Plan for Relocated Fueling Facility

Figure 8
Costco Proposed Site 3 Signalized Intersection Plan
Surrounding Land Uses and Setting:

The project sites are within RSCCSP Planning Areas 3 and 4, surrounded by commercial development to the west, industrial development and agriculture to the north and east, and Ventura Blvd. and Highway 101 (Ventura Freeway) to the south.

<table>
<thead>
<tr>
<th>Direction</th>
<th>Zoning</th>
<th>Land Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Rose-Santa Clara Corridor Specific Plan (RSCCSP) Business Park</td>
<td>Gold Coast Transit administrative and operations facility (under construction in late 2017), Los Olivos/Paseo Mercado industrial business park, and agriculture (unincorporated Ventura County)</td>
</tr>
<tr>
<td>South</td>
<td>RSCCSP Retail, public roadway and freeway right-of-way</td>
<td>Burger King restaurant, Ventura Blvd. (two lanes), Highway 101 (six lanes and shoulders)</td>
</tr>
<tr>
<td>East</td>
<td>RSCCSP Commercial/Manufacturing</td>
<td>Construction equipment storage and leasing and mini-warehouse self-storage.</td>
</tr>
<tr>
<td>West</td>
<td>RSCCSP Retail/Commercial</td>
<td>Oxnard Center regional retail and restaurant uses.</td>
</tr>
</tbody>
</table>

SITE 1: Photo of Vacant 1.6 acre parcel looking west towards Costco.
SITE 2: Photo of existing fueling facility

Site 3: Photo of Auto Center Drive/Los Olivos Intersection
Required Entitlements:
The project requires the following discretionary approvals from the City of Oxnard:
- PZ 17-620-04: General Plan Amendment
- PZ 16-630-01: Specific Plan Amendment
- PZ No. 17-500-15: Special Use Permit
- PZ 17-310-06: Lot Line Adjustment

8. Cumulative Projects:
The “2030 General Plan buildout” approach is used as the cumulative project description for this project as the project is adjacent to and functionally integrated with the Oxnard Center and in the vicinity of three specific plan developments (Riverpark Specific Plan, Sakioka Farms Business Park Specific Plan, Camino Real Business Park Specific Plan) that collectively represent the majority of the City’s planned growth in the north half of the City. There is no urban development that requires voter approval until 2050 anticipated within the unincorporated Ventura County agricultural areas north of Auto Center Drive.

9. Previous CEQA:
The following CEQA review documents have included the project area:
- Gold Coast Transit Fleet Operation Center MND 2014-01 (2014)
- City of Oxnard 2030 General Plan Program EIR 09-01 (2009)
- Wallace Business Park MND 08-04 (2008)
- RSCCSP Adoption EIR 85-03 (1986)

The certified 2030 General Plan Program Environmental Impact Report (PEIR) found that buildout of the 2030 General Plan would result in five significant unavoidable adverse impacts at citywide buildout after implementation of policies and programs for which overriding considerations were adopted: 1) air quality, 2) greenhouse gas emissions, 3) agricultural land conversion, 4) noise from trains and along certain roadway segments, and 5) a Level of Service below Level of Service (LOS) ‘C’ at five intersections. The 2030 General Plan PEIR was certified in 2011 and is incorporated by reference.

10. Other agencies whose approval is required (e.g., permits, financing approval, or participating agreement):
Ventura County Air Pollution Control District (VCAPCD): to issue appropriate permit(s) for operation of the fueling facility and related equipment.
LA Regional Water Resources Control Board: UST installations and removals.
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” or as indicated by the checklist on the following pages.

- ☒ Aesthetics and Urban Design
- ☐ Biological Resources
- ☐ Agricultural Resources
- ☒ Air Quality
- ☐ Climate Change and Greenhouse Gas Emissions
- ☐ Cultural Resources and Tribal Cultural Resources
- ☐ Geology and Soils
- ☐ Hazards and Hazardous Materials
- ☐ Hydrology and Water Quality
- ☐ Land Use and Planning
- ☐ Mineral Resources
- ☒ Noise
- ☐ Population, Education, and Housing
- ☐ Public Services and Recreation
- ☐ Transportation and Circulation
- ☐ Utilities and Energy
- ☐ Mandatory Findings of Significance

DETERMINATION: On the basis of this initial evaluation:

- ☐ I find the proposed project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the 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 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 EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature: Kathleen Mallory  Date: Planning Manager  Title: Planning Manager
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 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,” cited in support of conclusions reached in other sections 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. 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 significance.

9. Thresholds of Significance are determined by the 2017 City of Oxnard CEQA Guidelines (Guidelines), incorporated by reference. In all topic areas, the threshold is typically defined as an ‘affirmative answer’ to the questions within each topic section unless otherwise conditioned within the Guidelines.
A. AESTHETICS AND URBAN DESIGN

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

1. Would the project have a substantial adverse effect on a scenic vista such as an ocean or mountain view from an important view corridor or location as identified in the 2030 General Plan or other City planning documents? [x]

2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway, or route identified as scenic by the County of Ventura or City of Oxnard? [x]

3. Would the project substantially degrade the existing visual character or quality of the site or its surroundings such as by creating new development or other physical changes that are visually incompatible with surrounding areas or that conflict with visual resource policies contained in the 2030 General Plan or other City planning documents? [x]

4. Would the project add to or compound an existing negative visual character associated with the project site? [x]

5. Would the project create a source of substantial light or glare, which would adversely affect day or nighttime views in the area? [x]

Discussion:
1, 4) Existing development and mature trees in and around the two project sites along Ventura Blvd. and Auto Center Drive largely block ground-level views of the Topatopa Mountains to the north, which is the only scenic vista in the vicinity of the project site. As this scenic vista is already interrupted or blocked, and Auto Center Drive is not a designated scenic highway, the project impact to a scenic vista from within the project area is not considered significant. Northward scenic views of the Topatopa Mountains from Auto Center Drive near Santa Clara Avenue looking over the agricultural fields would remain unchanged by the project. The project would have No Impact on a scenic vista.

2-3) The 1.6 acre project Site 1 is vacant with intermittent weed vegetation. Previous environmental reviews and the 2030 General Plan Update Background Report (2006) stated that the site has no scenic resources or historical buildings. Proposed development would be a continuation of and consistent with the surrounding business park, auto dealerships, commercial and limited industrial development around the project site. The existing fueling area (Site 2) is fully developed with no scenic resources and would be converted to a continuation of the adjacent parking lots with Code-required landscaping. With application and compliance with uniformly applied landscaping requirements and signage regulations, the project would have No Impact on scenic resources or quality of existing visual character.

5) The project proposes under-canopy LED recessed fixtures at the fueling facility that will not project glare outside of the canopy footprint. The applicant’s lighting plan indicates that peak lighting levels will be in the mid-50 foot candle range under the canopy, which is typical for a fueling facility and is the approximate amount...
of under-canopy lighting at the existing fueling facility. The lighting is required to provide a safe light level for members fueling after dark. The under canopy lighting is also designed to cut off beyond the canopy area, and very quickly reduces to Oxnard Code-required levels. Planning Division will require review and approval of a photometric plan prepared by an electrical engineer certifying the exterior illumination intensities provided by light standards and/or any other exterior lighting devices such as wall mounted light fixtures and parking lot lighting are designed to limit lighting to within the property limits.

The 1986 RSCCSP EIR 85-3 found that nighttime lighting could have be a significant effect on surrounding land uses because of high-intensity display lighting. A mitigation was included in the RSCCSP adoption Ordinance No. 2085 that “…only high cutoff light fixtures that direct lighting downward will be allowed within the project area. The use of high cutoff lighting fixtures will eliminate or substantially reduce any nighttime light and glare impacts.” The proposed lighting will comply with this mitigation and uniformly-applied standards and have a **Less Than Significant Impact**.

**Mitigation:**
The following mitigation measures shall apply to the proposed relocated and expanded Costco Fueling Facility:

**AES-1** Only high cutoff light fixtures that direct lighting downward will be allowed within the project area. The use of high cutoff lighting fixtures will eliminate or substantially reduce any nighttime light and glare impacts. No additional mitigation measures are required (Incorporated by Reference from EIR 85-3 and in Ordinance No. 2085, page 8).

**Monitoring:** Planning staff will verify that complying lighting standards (AES-1) are included on plans and as conditions of approval on the Special Use Permit.

**Result After Mitigation:** Upon implementation of the above mitigation measures, the project will not result in any residual light and glare effects.

**Cumulative Impact:** The 2030 General Plan Program EIR evaluated the potential cumulative impact of development and infill redevelopment and found no cumulative significant unmitigated aesthetic impacts from proposed development consistent with the 2030 General Plan.

### B. AGRICULTURAL RESOURCES

<table>
<thead>
<tr>
<th></th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 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 nonagricultural use?</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>2. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>3. Would the project involve other changes in the existing environment that, due to their location or nature, could result in conversion of off-site farmland to nonagricultural use?</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
</tbody>
</table>
Discussion: 1-3) The project sites are located in an urbanized area, within City limits, and are surrounded by industrial and commercial uses. The project vacant Site 1 is not zoned for agricultural use and is not included in a Williamson Act Contract. The nearest significant agricultural property is unincorporated farmland located north of the project area by approximately 1,000 feet. Development of the project site is not expected to affect use of existing agricultural land. No Impact to agricultural uses are expected.

Mitigation: No mitigation measures are required.

Cumulative Impact: The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Agricultural impacts were analyzed by the 2030 General Plan PEIR and found to be significant for which an overriding consideration was adopted. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 5.5, Certified Final PEIR, October 2011, page 5-25.

C. AIR QUALITY

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would the project conflict with population or other growth forecasts contained in the Ventura County AQMP or otherwise obstruct implementation of the AQMP?</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>2. Would the project violate any federal or state air quality standard or contribute substantially to an existing or projected air quality violation?</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>3. Would the project result in a net increase of any criteria air pollutant in excess of quantitative thresholds recommended by the VCAPCD?</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>4. Would the project expose sensitive receptors to pollutant concentrations exceeding state or federal standards or in excess of applicable health risk criteria for toxic air contaminants?</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>5. Would the project create objectionable odors affecting a substantial number of people?</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>

Federal and state standards have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead, and particulates less than 10 microns in diameter (PM₁₀) and less than 2.5 microns in diameter (PM₂.₅). California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Local air pollution control districts are required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. The project sites are located in the City of Oxnard, which is in the South Central Coast Air Basin. The South Central Coast Air Basin comprises Ventura County, Santa Barbara County, and San Luis Obispo County. Oxnard is in the Ventura County Air Pollution Control District (VCAPCD) boundaries. Air basins in which air pollutant standards are exceeded are referred to as “non-attainment areas.” The Ventura County Air Basin is a non-
attainment area for both the federal and state standards for ozone and the state standard for PM\textsubscript{10} (VCAPCD 2017b).

The 2016 Ventura County Air Quality Management Plan (AQMP), adopted by the VCAPCD on February 14, 2017, presents Ventura County’s strategy for attaining the federal 8-hour ozone standard as required by the federal Clean Air Act Amendments of 1990 (VCAPCD 2017a).

Table 1 illustrates current federal and state air quality standards and the attainment status of the pollutants.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>Federal Primary Standards</th>
<th>Federal Attainment (Y/N)</th>
<th>California Standard</th>
<th>State Attainment (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>8-Hour</td>
<td>0.070 ppm</td>
<td>N</td>
<td>0.070 ppm</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>1-Hour</td>
<td>-</td>
<td>-</td>
<td>0.09 ppm</td>
<td>N</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>8-Hour</td>
<td>9.0 ppm</td>
<td>Y</td>
<td>9.0 ppm</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>1-Hour</td>
<td>35.0 ppm</td>
<td>Y</td>
<td>20.0 ppm</td>
<td>Y</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Annual</td>
<td>0.053 ppm</td>
<td>Y</td>
<td>0.030 ppm</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>1-Hour</td>
<td>0.100 ppm</td>
<td>Y</td>
<td>0.18 ppm</td>
<td>Y</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>Annual</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>24-Hour</td>
<td>-</td>
<td>-</td>
<td>0.04 ppm</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>1-Hour</td>
<td>0.075 ppm</td>
<td>Y</td>
<td>0.25 ppm</td>
<td>Y</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>Annual</td>
<td>-</td>
<td>-</td>
<td>20 \mu g/m\textsuperscript{3}</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>24-Hour</td>
<td>150 \mu g/m\textsuperscript{3}</td>
<td>Y</td>
<td>50 \mu g/m\textsuperscript{3}</td>
<td>N</td>
</tr>
<tr>
<td>PM\textsubscript{2.5}</td>
<td>Annual</td>
<td>12 \mu g/m\textsuperscript{3}</td>
<td>Y</td>
<td>12 \mu g/m\textsuperscript{3}</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>24-Hour</td>
<td>35 \mu g/m\textsuperscript{3}</td>
<td>Y</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lead</td>
<td>30-Day Average</td>
<td>-</td>
<td>-</td>
<td>1.5 \mu g/m\textsuperscript{3}</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>3-Month Average</td>
<td>0.15 \mu g/m\textsuperscript{3}</td>
<td>Y</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: Y = yes, N = no, ppm = parts per million, \mu g/m\textsuperscript{3} = micrograms per cubic meter
Source: CARB 2017b and VCAPCD 2017b

The El Rio air quality monitoring station, located at Rio Mesa High School (545 Central Ave., El Rio, California, 93030) is the closest station the project site. This station measures ozone, NO\textsubscript{2}, and PM\textsubscript{10}. None of the monitoring stations in Ventura County record CO measurements. Table 2 summarizes the annual air quality data over the past three years of available data for the local airshed (data from 2016 is not yet available).

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone, 8-Hour, ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of days of State exceedances (&gt; 0.09 ppm)</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Number of days of Federal exceedances (&gt; 0.07 ppm)</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Nitrogen Dioxide, ppm – Worst Hour</td>
<td></td>
<td></td>
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<tr>
<td>Number of days of State exceedances (&gt; 0.25 ppm)</td>
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</tr>
<tr>
<td>Particulate Matter, &lt; 10 microns, \mu g/m\textsuperscript{3}</td>
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<td>Number of samples of state exceedances (&gt; 50 \mu g/m\textsuperscript{3})</td>
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<td>7</td>
<td>6</td>
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<td>Number of samples of federal exceedances (&gt; 150 \mu g/m\textsuperscript{3})</td>
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</tr>
</tbody>
</table>
The pollutants of greatest concern in Ventura County are ozone and PM$_{10}$. Concentrations of PM$_{10}$ have exceeded state standards on one or more days during each of the past three calendar years. The major sources of PM$_{10}$ are road dust, construction, mobile sources, and farming operations. Locally, Santa Ana winds are responsible for entraining dust and occasionally causing elevated PM$_{10}$ levels. Ozone is a secondary pollutant that is not produced directly by a source, but rather is formed by a reaction between NO$_x$ and reactive organic gases (also described as volatile organic compounds) in the presence of sunlight. Reductions in ozone concentrations are dependent upon reducing emissions of these precursors. The major sources of ozone precursors in Ventura County are motor vehicles and other mobile equipment, solvent use, pesticide application, the petroleum industry, and electric utilities.

1, 2, 3) Consistency with the 2007 Air Quality Management Plan (AQMP). The Ventura County Air Basin is currently a non-attainment area for both the Federal and State standards for ozone, and the State standards for PM10. Exceeding the air quality standards is the result of past and ongoing urban and rural development that has caused emissions to exceed the air basin’s capacity for dispersal and removal of air pollutants. It should be noted, however, that the goal of the Ventura County Air Quality Management Plan (AQMP), which was most recently revised in 2007, is to reduce ambient ozone concentrations below the National Ambient Air Quality Standards (NAAQS) through the implementation of air pollutant emissions controls. The plan predicts attainment of the Federal 8-hour ozone standard by the year 2013. Air quality in Ventura County has improved dramatically since 1990, the 1994 AQMP base year. In 1990, the air quality exceeded the now revoked federal 1-hour ozone standard 18 times. However, in 2003 there were only two days over the federal 1-hour standard, and none in 2004 and 2005. Likewise, all areas of the county have enjoyed similar reductions in federal 8-hour ozone levels. In 1990 there were 117 violations countywide of the federal 8-hour ozone standard, but only 25 in 2009, 13 in 2010, and 8 in 2011. These improvements have occurred despite 29 percent increase in Ventura County’s population since 1990. Ventura County attained both the federal 1-hour and the 1997 8-hour ozone standards in 2003 and 2012, respectively. Consequently, on May 27, 2009 the U. S. Environmental Protection Agency issued an attainment finding officially recognizing that Ventura County had attained the federal 1-hour ozone standard, and has proposed a similar attainment finding for the 1997 federal 8-hour ozone standard. That finding was finalized on November 19, 2012. Cumulative air basin air quality impacts were analyzed by the 2030 General Plan PEIR and found to be significant for which an overriding consideration was adopted. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 5.7, Certified Final PEIR, October 2011, page 5-35.

**Short-term Construction Impacts:** Short-term impacts to air quality will likely result from grading and other construction activities associated with the project at both sites (e.g., earth-moving and heavy equipment vehicle operations). According to the Ventura County Air Pollution Control District (APCD), any combustion equipment on-site that is rated at 50 horsepower or greater must have either an APCD Permit to Operate (PTO), or be registered with the California Air Resources Board’s (CARB) Portable Equipment Registration Program (PERP). The project’s related Reactive Organic Gas (ROG) and Nitrogen Oxide (NOx) emissions for construction of the new fueling facility was evaluated using the California Emissions Estimator Model 2013.2.2 (CalEEMod) software. The report reflecting the impact of constructing the new fueling position facility is available as Attachment A. The short-term emissions include 162.6 pounds per day (ppd) of ROG and 26.63 ppd NOx emissions. The VCAPCD’s adopted threshold for ROG and NOX emissions is 25 ppd (VCAPCD, 2003). The VCAPCD’s 25-pounds-per-day thresholds for ROG and NOX do not apply to construction emissions since such emissions are temporary. Nevertheless, for construction impacts, the VCAPCD recommends minimizing fugitive
dust through uniformly-applied dust control measures that are incorporated as Special Use Permit conditions of approval. Fugitive dust control measures are required by VCAPCD Rule 55. Rule 55 includes fugitive dust reduction measures such as securing tarps over truck loads and watering to treat bulk material to minimize fugitive dust. Compliance with Rule 55 would ensure that construction emissions would not be generated in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that may endanger the comfort, repose, health, or safety of any such person or the public. Air quality impacts due to construction emissions would be less than significant.

**Long-term operational impacts:** Operational emissions would consist primarily of exhaust from passenger vehicles traveling to and from the project site as well as idling in the line to get gasoline. The project’s related Reactive Organic Gas (ROG) and Nitrogen Oxide (NOx) emissions were evaluated using the California Emissions Estimator Model 2013.2.2 (CalEEMod) software. The report reflecting the impact of only the additional 8 fueling positions is available as Attachment A as the relocation of the existing 16 fueling stations is not a new source of emissions. The long-term emissions from the 8 new pumps are 5.8 pounds per day (ppd) of ROG and 3.8 ppd NOx emissions (calculations are derived by subtracting 16 pumps emissions from 24 pumps emissions). The VCAPCD’s adopted threshold for ROG and NOx emissions is 25 ppd (VCAPCD, 2003). Long-term operational air quality impacts would be **Less Than Significant**.

As stated in the project description and the Traffic Study, Costco is an established membership retail “big box” use and no expansion of retail space is proposed. On Site 1, the addition of 8 fueling stations, a 50 percent increase over the relocated existing 16 stations, does not also increase usage by 50% according to the August 2017 Traffic Study (Attachment B). Instead, the expected increase is 9.2% based on comparative expansion of similar Costco’s on the West Coast (Appendix B, Traffic Study, pgs. 23-24). This increase is from existing Costco customers who now choose to fuel at the expanded Costco facility, now operating with less wait time, instead of fueling at another fuel service station in the area. Air quality emissions would be essentially the same. On Sites 1 and 2, the creation of approximately 53 net additional parking spaces is a 7.3 percent increase for a total of 781 spaces, or 5.3 per 1,000 gsf of commercial floor area. Instead, the additional parking will reduce peak period customer circulation within the parking lot looking for parking and/or overflowing into the neighboring retail center. In both cases, air quality impacts are somewhat reduced as the fueling and parking uses have more capacity relative to existing demand as on-site internal circulation is reduced, especially at peak periods. This amount of reduction is not estimated. The important conclusion is that there is a **Less Than Significant** impact from the small increase in trips and/or operational air quality impacts due to the project.

4) The sensitive receptors closest to the project sites that could potentially be affected by project emissions are residential developments located approximately 0.5 mile both east and west of the site. **No impact** to sensitive receptors would occur to these areas due to their distance from the project sites and the project’s below-APCD Threshold emissions.

5) The project sites are surrounded by industrial, commercial, and agricultural uses. As discussed above, the nearest sensitive receptors are located approximately 0.5 mile to the east and west of the project sites. All 16 fueling pumps will be fitted with required vapor-recovery boots to collect potentially odorous vapors from escaping while cars are being filled. With application and compliance with uniformly applied development standards and air-quality regulations, the project would have a **less than significant** odor impact.

**Mitigation:**
The following mitigation measures shall apply to the proposed relocated and expanded Costco Fueling Facility:

**AQ-1** All construction equipment shall be maintained and tuned to meet applicable California Environmental Protection Agency (Cal/EPA) and the California Air Resources Board (CARB) emissions requirements. At such time as new emission control devices or operational modifications are found to be effective, such devices or operational modifications shall be required on all construction equipment operating pursuant to City permits.
AQ-2 The following dust suppression measures shall be implemented at each project site:
a. Watering all excavated material to prevent wind erosion while it is on-site or being moved;
b. Periodic watering of construction sites or use of APCD approved dust suppression compounds that bind with the surface layers of soil and prevent soil particles from being eroded;
c. Controlling the number and activity of vehicles on site at any given time;
d. Seeding areas to be left inactive for a long enough period to secure the soil, limiting the area excavated at any given time;
e. Limiting on-site vehicle traffic to 15 miles per hour; and
f. Sweeping streets adjacent to the construction site to remove dust caused by the construction activities.

AQ-3 All clearing, grading, earth moving, or excavation activities shall cease during periods of high winds (i.e., greater than 15 miles per hour averaged over one hour) to prevent excessive amounts of fugitive dust.

AQ-4 All trucks hauling excavated or graded material off-site shall comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads.

AQ-5 Prior to issuance of a grading permit, the applicant and/or contractors shall contact the VCAPCD for more specific guidelines as applicable to the project construction activities, and provide the Planning Manager, or designee, with a memorandum as to the date, contact person, and applicable provisions of Rule 55, which may include (but are not limited to) the following provisions: 1) visible dust from an applicable source is prohibited or limited, 2) Measures must be taken to reduce or prevent track-out onto paved public roadways, 3) track-out must be removed from roadways, 4) visible dust exceeding 100 feet in length from earth-moving equipment is prohibited, 5) outbound trucks with soil must either be tarped or a 6-inch freeboard below the truck rim, or be wetted to minimize loss of material due to wind or spillage.

AQ-6 Signs displaying the VCAPCD Complaint Line Telephone number for public complaints shall be posted in a prominent location visible off-site at Site 1.

AQ-7 Prior to issuance of demolition permits for any structure on the site, Developer shall provide evidence of notifying the Air Pollution Control District of such demolition. Demolition and/or renovation activities shall be conducted in compliance with VCAPCD regularities regarding Asbestos (Rule 63.7).

Monitoring: Planning staff will verify that all dust control measures (AQ1 through AQ-7) are included on grading plans and as conditions of approval on the Special Use Permit. Development Services staff will provide on-site monitoring during grading activities. Planning staff will verify that the Rule 74.2 architectural coating notes are including building permit plan submittals.

Result After Mitigation: Upon implementation of the above mitigation measures, the project will not result in any residual significant effects on the environment related to air quality emissions.

Cumulative Impact: The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Air quality impacts were analyzed by the 2030 General Plan PEIR and found to be significant for which an overriding consideration was adopted. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 5.7, Certified Final PEIR, October 2011, page 5-35.
D. BIOLOGICAL RESOURCES

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

1. 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? □ □ □ ❌

2. 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? □ □ □ ❌

3. 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? □ □ □ ❌

4. 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? □ □ □ ❌

5. Would the project conflict with any local policies or ordinances protecting biological resources? □ □ □ ❌

6. 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? □ □ □ ❌

Discussion: 1-6) None of the three sites are located near a riparian habitat area, dune area or coastal beaches and wetlands. Site 1 is vacant and has not been actively farmed for at least 15 years. Site 2 is an existing fueling station. Site 3 is an existing public roadway. The project sites are surrounded by urban development on all sides, and by agricultural land a few hundred feet to the north. The project sites do not lie within an existing or proposed habitat or conservation plan area and does not contribute to regional wildlife movement. It is likely that field mice and other indigenous animals would migrate out of Site 1 once grading commences. These animals would likely go into the nearby agricultural fields. There are no trees or vegetation on Site 1 other than non-native grasses and weeds. There are 51 parking lot “island trees” of various species and maturity adjacent to Site 1 and near and within Site 2, collectively valued at $205,830, that would be removed (see Arborist Report, Attachment C). The project proposes 130 replacement trees of 24 and 36 inch box that are collectively valued at $207,240 in compliance with the City’s tree replacement valuation policy. Therefore, No Impact to biological resources is anticipated.
Mitigation: No mitigation measures are required.

Cumulative Impact: The cumulative project area is defined as the entire 2030 buildout which includes the proposed project site. Biology impacts were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 5.2, Certified Final PEIR, October 2011, page 5-3.

E. CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

<table>
<thead>
<tr>
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<th>Less than Significant With Mitigation</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</td>
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<tr>
<td>2. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases or otherwise conflict with state goals for reducing GHG emissions in California?</td>
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<tr>
<td>3. Would the project contribute or subject to potential secondary effects of climate change (e.g., sea level rise, increase fire hazard)?</td>
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</table>

Discussion

1-3) Neither the Ventura County Air Pollution Control District (VCAPCD) nor the City have established project-level significance thresholds for GHGs emissions for vehicle emissions or HVAC operations within commercial buildings. Emissions of GHGs are quantified, but are not by themselves used to determine project-level significance under CEQA. In the absence of an adopted GHG emission-specific threshold, the GHG-emission impact is determined to be Less Than Significant at the project level because the operational air quality impacts were found to be less than significant as discussed in Section C, Air Quality. As the Air Quality and Traffic discussions note, the project enhances the efficiency of on-site parking lot and stacking for fuel service for existing Costco customers. Therefore, in the net, GHG emissions are unchanged and possibly somewhat lower compared to the existing facility and use intensity.

Monitoring: No mitigation measures are required.

Cumulative Impact: The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. GHG impacts were analyzed by the 2030 General Plan PEIR and found to be significant for which an overriding consideration was adopted. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 5.7, Draft PEIR, February 2009, page 5-35.
F. CULTURAL RESOURCES AND TRIBAL CULTURAL RESOURCES

<table>
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<tr>
<th>Question</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>2. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>3. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>4. Would the project disturb any human remains, including those interred outside of formal cemeteries?</td>
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</tr>
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</table>

Discussion

1) The City of Oxnard has two designated historic districts: The Henry T. Oxnard National Historic District and the Leonard Ranch Historic District. The project sites are not located near either of these locations and would therefore not cause a substantial adverse change in the significance of a historical resource. The project would have No Impact.

2-4) Based on the Cultural Resources Survey (see Attachment D), the project area does not contain any evidence of historical, archaeological, or paleontological resources. Records searches indicated no known resources within 0.5 mile of the property at APN No. 144-0-150-095 (no address) and 144-0-143-055 (2001 Ventura Boulevard). As part of the Development Services standard permitting procedure and uniformly applied development conditions, Costco and/or their contractors shall contract with a Native American monitor to be present during all subsurface grading, trenching or construction activities on both project sites. The monitor shall provide a report to the Planning Division summarizing the activities during the reporting period. A copy of the contract for these services shall be submitted to the Planning Division Manager for review and approval prior to issuance of any grading permits. The monitoring report(s) shall be provided to the Planning Division prior to approval of final building permit signature. In the event that an archaeological site is identified during grading or construction, all construction activities in the vicinity of the site shall be halted and a qualified archaeologist shall be contacted at the expense of the applicant to document and evaluate the significance of the resource and shall determine when construction may resume, in consultation with the Planning Manager. Such evaluation may require site subsurface excavation and evaluation program. If remains prove to be significant, further investigations in the form of a data recovery program would be implemented to mitigate impacts to the identified resources. Therefore, with the application of uniformly applied development conditions and standards, the project would have a Less Than Significant impact on cultural resources.

Mitigation: No mitigation measures are required.

Cumulative Impact: The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Cultural resources were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 5.4, Certified Final PEIR, October 2011, page 5-19.
G. GEOLOGY AND SOILS

1. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
   a. 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 known fault? 
   | Potentially Significant Impact | Less than Significant Impact with Mitigation | Less than Significant Impact | No Impact |
   | ☐ | ☐ | ☒ | ☐ |
   b. Strong seismic ground shaking that cannot be addressed through compliance with standard Code requirements?
   | ☐ | ☐ | ☒ | ☐ |

2. 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 that cannot be addressed through compliance with standard Code requirements?

3. 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 that cannot be addressed through compliance with standard Code requirements?

4. Would the project expose people or structures to inundation by seiche or tsunami?

5. Would the project rely on dredging or other maintenance activity by another agency that is not guaranteed to continue?

1-3) The City of Oxnard is located in an area that has a high potential for seismic ground shaking (City of Oxnard, 2030 General Plan). The City of Oxnard 2030 General Plan, Background Report, lists fault systems that are located within the vicinity of the City of Oxnard. Active and potentially active faults are present in the surrounding region and may extend into the subsurface beneath the City. In addition, the City of Oxnard 2030 General Plan identifies the proposed project site as being located in an area that is marked by both high to moderate and moderate to low potential for liquefaction. As these ground failure risks are considered to be potentially significant impacts, a geotechnical engineering evaluation of the proposed project site will be required as part of the construction plans in order to avoid creating any significant impacts to soils and geologic resources.

Based on California Department of Conservation (DOC) fault activity map of California, there are no known earthquake faults in the City of Oxnard. There are several active or potentially active faults that may affect Oxnard including the San Andreas Fault, northeast of the project area, and onshore and offshore segments of the Oak
Ridge Fault, which is the nearest potentially active fault to the site. The most likely active faults to seismically affect the city and the project site are the Oak Ridge, Ventura, Simi-Santa Rosa, Bailey, and San Andreas faults (DOC 2010a, DOC 2010b):

- **Oak Ridge Fault**, located approximately 6 miles to the northwest of the site, is considered active
- **Ventura Fault**, located approximately 8 miles northwest of the site, is considered active
- **Simi-Santa Rosa Fault**, located approximately 5 miles to the northeast, is considered active
- **Bailey Fault**, located approximately 5.5 miles east of the site, is considered active
- **San Andreas Fault**, located approximately 46 miles to the northeast of the city, is considered active.

As part of the Development Services standard permitting procedure and uniformly applied development conditions, Costco and/or their contractors shall submit a site-specific soils investigation prepared by a licensed geotechnical engineer. At a minimum, the study shall include liquefaction and compressible soils characteristics on-site and shall identify any necessary construction techniques or other mitigation measures to prevent significant liquefaction/compressible soils impacts on the proposed project. All recommendations of the report shall be incorporated into the project as conditions of approval. The report shall be submitted concurrently with plans submitted for review by the Building Official. Therefore, with the application of uniformly applied development conditions and standards, the project would have a **Less Than Significant** impact on the existing geological and soil conditions.

4-5) The project is located about 6.5 miles inland from the Pacific Ocean is not near any body of water subject to seiche. **No Impact.**

**Mitigation:** None required

**Cumulative Impact:** The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Geology and soils were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 6.2, Certified Final PEIR, October 2011, page 6-2.

### H. HAZARDS AND HAZARDOUS MATERIALS

<table>
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<tr>
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<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would the project create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials that cannot be addressed through compliance with standard regulatory requirements?</td>
<td>☐ ☐ ☒ ☐</td>
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<tr>
<td>2. Would the project create a significant hazard to the public or the environment through reasonably foreseeable up-set and accident conditions involving the release of hazardous materials into the environment?</td>
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</table>
# H. HAZARDS AND HAZARDOUS MATERIALS

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<tr>
<th>Question</th>
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<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. 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, in quantities or a manner that would create a substantial hazard?</td>
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<tr>
<td>4. Would the project be located on a site which 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?</td>
<td>[ ]</td>
<td>[ ]</td>
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<tr>
<td>5. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</td>
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**Discussion:**

1-3) The project includes demolition of an existing fuel service station and the construction of a replacement fuel service station in a nearby location. Operations will include a 12 pump fueling station (24 fueling positions), with an associated attendant office and parking in an area characterized by light industrial and commercial development. The nearest school, Rio Lindo Elementary School, is located approximately one mile west of the project site. The project would be required to meet City Code Standards and the California Building and Fire Codes. While transportation and storage of fuel would occur as part of project operation, these activities would not create a significant hazard given that no sensitive receptors (residences, schools) are located in the immediate site vicinity. Compliance with State and County regulations regarding the transport and storage of fuels would ensure that impacts would be **Less Than Significant**.

4) The project applicant has verified that the project site is not on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, **No Impact** is anticipated.

5) The project site is located within an airport land use plan, in the vicinity of a private airstrip, or near any wildland fire hazard zones. The proposed development is within an urbanized area already designed with roadways to accommodate access for emergency and other service vehicles. As shown in the project description, the project would have six access points on Auto Center Drive and Paseo Mercado, as well as an emergency exit on the adjacent private drive. Therefore, **No Impact** is anticipated.

**Mitigation:** No mitigation measures are required.

**Cumulative Impact:** The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Hazards and hazardous materials were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 6.5, Certified Final PEIR, October 2011, page 6-25.
## I. HYDROLOGY AND WATER QUALITY

<table>
<thead>
<tr>
<th>Question</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would the project violate any water quality standards or waste discharge requirements?</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>2. Would the project 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 preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?</td>
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<tr>
<td>3. Would the project 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 on- or off-site flooding or exceed the capacity of existing or planned stormwater drainage systems?</td>
<td>☐</td>
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</tr>
<tr>
<td>4. Would the project place new structures 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?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
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<tr>
<td>5. Would the project impede or redirect flood flows such that it would increase on- or off-site flood potential?</td>
<td>☐</td>
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<td>☐</td>
</tr>
<tr>
<td>6. 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?</td>
<td>☐</td>
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<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>7. Would the project be exposed to a substantial risk related to inundation by seiche, tsunami, or mudflow?</td>
<td>☐</td>
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</tbody>
</table>

1) The City of Oxnard lies within the Oxnard Plain Basin and Oxnard Forebay Basin with small portions of the City in the Mound Basin. The overall water quality for the Oxnard Plain Basin and Oxnard Forebay Basin was rated “good” to “injurious” by the Regional Water Quality Control Board. There are no known active or abandoned water wells on site, which would cause threats to water quality. Costco would be required through uniformly applied conditions to meet the City’s water quality standards. All wastewater would be treated by the City Wastewater system and to applicable standards. Impacts would be **Less Than Significant** and no mitigation is required.

2) Continued use of the project site was anticipated in the 2015 Urban Water Management Plan (UWMP) that provides for reliable water supply, primarily through the Groundwater Recovery Enhancement and Treatment (GREAT) Program. The GREAT Program EIR (available on City Planning Division webpage or on request) is incorporated by reference and available for review at the City of Oxnard’s Planning Division office. The 2015
UWMP projects total potable water demand to 2040 of 38,225 acre-feet without the implementation of conservation programs, with an available water supply of 54,341 acre-feet (City of Oxnard 2016). Impacts would be **Less Than Significant** and no mitigation is required.

3, 5) Water quality and drainage impacts associated with the proposed use would primarily be those associated with motor vehicles and landscape maintenance. The primary source of contaminants would be oil, grease, and particulates emitted by motor vehicles. Underground gasoline storage on the site is kept in a closed containment system to prevent leaking into surrounding groundwater. There are no surface water bodies or wetlands within the vicinity of the proposed project; however existing absorption rates, drainage patterns, and runoff rates of the subject site and surrounding areas would be affected by an increase in impervious surfaces on-site. In order to comply with the National Pollution Discharge Elimination System (NPDES) requirements for a permit to discharge storm water and NPDES requirements for a construction permit. The subject lot would be required and would be subject to the review and approval of the City of Oxnard in order to verify compliance with NPDES requirements. Impacts to water quality are expected to be **Less Than Significant** as a result of this project.

4) In accordance with Federal Emergency Management Agency (FEMA) flood zone maps (#06111C0910E), the project site is located in Zone AH, which is within the 100-year flood zone (the area with a 1% chance per year of flooding). FEMA regulations require that habitable structures, such as the attendant booth, be elevated 2 feet above the flood elevation. If constructed to be above the flood level of a 100 year storm, the project would have a **Less Than Significant** impact.

6-7) The proposed project is not subject to flooding due to dam or levee failure, and would not increase exposure to risks associated with dam or levee failure. A tsunami is a tidal wave produced by off-shore seismic activity; seiches are seismically induced waves that occur in large bodies of water, such as lakes. The project site is not located within a tsunami hazard zone (California Department of Conservation, March 2009). Additionally, because the project site is not sufficiently close to a large body of water other than the ocean, seiches are not a significant concern. As described above in Section VI, *Geology and Soils*, the project site is not located within an area subject to potentially high landslide or debris and mud flows. Therefore, **No Impact** related to these hazards would occur.

**Mitigation:** No mitigation measures are required.

**Cumulative Impact:** The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Hydrology and water quality were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 4.3, Certified Final PEIR, October 2011, page 4-25.

### J. LAND USE AND PLANNING

<table>
<thead>
<tr>
<th>Potential Impact</th>
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<th>Less Than Significant Impact With Mitigation</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>2. Would the project conflict involve land uses that are not compatible with an applicable airport land use compatibility plan?</td>
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</tbody>
</table>
J. LAND USE AND PLANNING

<table>
<thead>
<tr>
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<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>4. Would the project physically divide an established community?</td>
<td>☐</td>
<td>☐</td>
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</tr>
</tbody>
</table>

Discussion:
1) The project proposes a General Plan Amendments and RSCCSP to change the land use designation of Parcel No. 144-0-150-095 (Site 1) from RSCCSP Planning Area 4: Commercial Manufacturing, to Planning Area 3: Retail Commercial, the same designation as Parcel No 144-0-143-055 (the existing Costco site). Changing the zoning district will allow a Lot Line Adjustment to incorporate the 1.6 acre undeveloped Site 2 into the Costco parcel and create a replacement parcel around the existing fueling facility. The proposed relocated fueling facility use would then be an allowed accessory use to the Costco retail use and be fully consistent with the General Plan and RSCCSP. With these approvals, there is No Impact.

2-3) The project site is not located within an area that is subject to an adopted habitat conservation plan or natural community plan. No Impact would occur.

4) The proposed project does not include any components, such as a new road, that would physically divide an established residential community. The project occurs within and adjacent to an existing retail use. No Impact would occur.

Mitigation: No mitigation measures are required.

Cumulative Impact: The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Land use and planning were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 3.2, Certified Final PEIR, October 2011, page 3-2.

K. MINERAL RESOURCES

<table>
<thead>
<tr>
<th>Impact Level</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 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?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>2. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan or other land use plan?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>

Discussion:
1-2) According to the 2030 General Plan, the City of Oxnard has mineral/sand/gravel deposits primarily along the Santa Clara River channel, along Highway 101 corridor and along the eastern edge of the City extending west to
Oxnard Boulevard. The project will not create a unique demand on available mineral resources in the City, since the project site is not located in an area of importance for mineral deposits. The project site lies within the MRZ-1 and MRZ-4 area and does not fall within any of the areas listed as having significant mineral deposits. Therefore, the project would have **No Impact** on any known mineral resources.

**Mitigation:** No mitigations required.

Cumulative Impact: The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Mineral resources were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 5.6, Certified Final PEIR, October 2011, page 5-33.

### L. NOISE

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

1. Would the project generate or expose persons to noise levels exceeding standards established in the Oxnard 2030 General Plan or Noise Ordinance, or applicable standards of other agencies?

2. Would the project generate or expose persons to excessive groundborne vibration or groundborne noise levels?

3. Would the project generate a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

4. Would the project generate a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

5. For a project located within an airport land use plan for Oxnard Airport or within two miles of Naval Base Ventura County at Point Mugu, would the project expose people residing or working in the project area to excessive noise levels?

6. Would the project expose non-human species to excessive noise?

**Discussion:**

1–4) Noise is defined as unwanted sound that disturbs human activity. Environmental noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability. Noise level measurements include intensity, frequency, and duration, as well as time of occurrence. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz). Sound pressure level is measured on a logarithmic scale with the 0 dB level based...
on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dB, and a sound that is 10 dB less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a 3 dB change in community noise levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while those along arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

In addition to the instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period. The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the daytime. Two commonly used noise metrics – the Day-Night average level (Ldn) and the Community Noise Equivalent Level (CNEL) recognize this fact by weighting hourly Leqs over a 24-hour period. The Ldn is a 24-hour average noise level that adds 10 dB to actual nighttime (10:00 PM to 7:00 AM) noise levels to account for the greater sensitivity to noise during that time period. The CNEL is identical to the Ldn, except it also adds a 5 dB penalty for noise occurring during the evening (7:00 PM to 10:00 PM). Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called ground borne noise. Ground borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. Ground-borne vibration related to human annoyance is generally related to velocity levels expressed in vibration decibels (VdB). However, construction-related ground borne vibration in relation to its potential for building damage can also be measured in inches per second (in/sec) peak particle velocity (PPV) (Federal Transit Administration, May 2006). Based on the FTA’s Transit Noise and Vibration Impact Assessment and the California Department of Transportation’s 1992 Transportation-Related Earthborne Vibration, Technical Advisory, vibration levels decrease by 6 VdB with every doubling of distance.

The State Noise/Land Use Compatibility Standards suggest a normally acceptable exterior noise exposure of up to 65 dBA CNEL for sensitive land uses such as residences and schools. Less sensitive commercial and industrial uses may be compatible with ambient noise levels up to 70 dBA, or even 75 dBA for industrial uses. The project is surrounded by agricultural, commercial, and industrial uses, which are not considered sensitive to noise increases. The project site is vacant and any new development would increase on-site and near-by ambient noise levels. Short-term noise generated by construction activities would occur. Average noise levels associated with the use of heavy equipment at construction sites can range from about 76 to 89 dBA at 50 feet from the source, depending upon the types of equipment in operation at any given time and phase of construction (FTA, May 2006). Typical noise levels of equipment provided by the Federal Transit Administration (FTA) are shown in the table below.
As stated in Oxnard’s 2030 General Plan, the State of California has identified acceptable noise levels for various land uses, including residential development. As for potential long term noise impacts, the Noise Element states that measurement results of industrial areas throughout the City indicate that noise levels due to stationary sources in Oxnard can be significant (in the 65-80 dB(A) range).

There are no noise sensitive land uses such as residential uses in the vicinity. Additionally, the project will be required, through uniformly applied standard Development Services conditions, to comply with the City Code and California noise regulations. The project is a relocation of an existing fueling facility from Site 2, which is relatively close to the Ventura (101) Freeway, to Site 2 along Auto Center Drive and, as a result, customers at Site 1 will be exposed to less ambient noise. There would be a transfer of facility operational noise from Site 2 to Site 1 resulting in an increase in ambient noise at Site 2 compared to its present vacant status, but not exceeding City noise standards and, therefore, less than significant. With implementation of the proposed two mitigation measures related to construction, the noise impacts are expected to be Less Than Significant.

5) The project site is not located near the Oxnard Airport and is outside the noise contours as depicted on Figure IX-2 in the 2030 General Plan. The nearest airport, Camarillo Airport, is located 2 miles east of the project site. No Impact related to airport noise would occur.

6) The project is located within a developed urban area. The 1.6 acre vacant lot is devoid of vegetation or visible based on a site inspection on October 19, 2017. No Impact related to exposure of non-human species to excessive noise would occur.

Mitigation: The following mitigation measures shall apply to the proposed project

Short Term Impacts:

NOISE -1 During all 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.

NOISE -2 Construction times shall be limited to 7 a.m. to 7 p.m. daily or in accordance with City Ordinances restricting construction times at the time of construction, whichever is more restrictive.
Monitoring: Development Services shall monitor these mitigation measures at the time of permit issuance and during construction. Result after mitigation: Upon implementation of the above mitigation measures, the project will not result in any residual significant adverse effects on the environment related to noise.

Cumulative Impact: The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Noise impacts were analyzed by the 2030 General Plan PEIR and found to be significant for which an overriding consideration was adopted. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 6.4, Certified Final PEIR, October 2011, page 6-15.

M. POPULATION, EDUCATION, AND HOUSING

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would the project involve a General Plan amendment that could result in an increase in population beyond that projected in the adopted General Plan that may result in one or more significant physical environmental effects?</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>2. Would the project induce substantial growth on the project site or surrounding area, resulting in one or more significant physical environmental effects?</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>3. Would the project result in a substantial (15 single-family or 25 multi-family dwelling units – about one-half block) net loss of housing units through demolition, conversion, or other means that may necessitate the development of replacement housing?</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>4. Would the project result in a net loss of existing housing units affordable to very low- or low-income households (as defined by federal and/or City standards), through demolition, conversion, or other means that may necessitate the development of replacement housing?</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>5. Would the project cause an increase in enrollment at local public schools that would exceed capacity and necessitate the construction of new or expanded facilities?</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>6. Would the project directly or indirectly interfere with the operation of an existing or planned school?</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
</tbody>
</table>

Discussion:
1) The project includes a General Plan Amendment that changes the land use designation from Limited Industrial to Regional Commercial for a 1.6 acre vacant parcel entirely surrounded by commercial development. The project involves no housing nor could foreseeable lead indirectly to additional housing and, therefore, no increase in the City’s population or project 2030 population upon which the 2030 General Plan is based and for which policies to avoid and/or mitigate environmental impacts are based. Therefore, No Impact would occur.

2) The project is a relocation of an existing use within and adjacent to the existing location. Therefore, No Impact would occur.
3-6) The project has no housing component and does not increase employment significantly leading to an indirect impact on housing or schools. Therefore, **No Impact** would occur.

**Mitigation:** No mitigation measures are required.

**Cumulative Impact:** The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Population and housing were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapters 3.2 and 3.4, Certified Final PEIR, October 2011, pages 3-2 and 3-17.

**N. PUBLIC SERVICES AND RECREATION**

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

1. Would the project increase demand for fire protection service such that new or expanded facilities would be needed to maintain acceptable service levels, the construction of which may have significant environmental effects?  

2. Would the project increase demand for law enforcement service such that new or expanded facilities would be needed to maintain acceptable service levels, the construction of which may have significant environmental effects?

3. Would the project increase the use of existing park facilities such that substantial physical deterioration of the facility would occur or be accelerated or that new or expanded park facilities would be needed to maintain acceptable service levels?

4. Would the project increase the need for or use of existing library or other community facilities such that substantial physical deterioration of the facilities would occur or be accelerated in order to maintain acceptable levels of service?

**Discussion:**

1-2) The Oxnard Fire Department (OFD) provides fire protection to the City of Oxnard. Eight fire stations and a staff of more 134 uniformed Fire Department personnel currently serve the City\(^1\). All stations are staffed with a total of 25 full time basis fire fighters. The basic unit is the engine company, which consists of a captain who supervises the crew, an engineer who is responsible for the safe operation of the equipment, and a firefighter who carries out the basic firefighting and medical tasks. The National Fire Protection Association’s (NFPA) recommended standard for fire department staffing is one firefighter per 1,000 residents. The OFD is staffed by 134 uniformed members.\(^2\) Based on a US Census estimated 2017 population of 207,772\(^3\), Oxnard’s 2016 ratio is

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\(^1\) *City of Oxnard Fire Department*, website: https://www.oxnard.org/fire-department/fire-station-locations-fire-department/, December 14, 2016

\(^2\) Sergio Martinez, Battalion Chief, Oxnard Fire Department, January, 2016.

\(^3\) Based on a US Census estimated 2017 population of 207,772.
one firefighter per 1,546 residents. In addition, the NFPA recommends each fire station service approximately 15,000 residents. Oxnard’s eight fire stations serve approximately 25,900 residents per station. Furthermore, the Fire Department can access additional manpower and equipment through an automatic aid agreement with Ventura County and a mutual aid agreement with the City of Ventura and Naval Base Ventura County.

The Oxnard Police Department provides police protection in this area. In addition to the Police Headquarters in downtown Oxnard, there are seven storefront police substations in use. According to California Dept. of Finance 2017 population is 207,772. As of July 2017, the Police Department staffing level was 249 sworn officers and 123 civilian employees. This is a ratio of 1.2 officers per 1,000 residents. The City will monitor the need for additional public facilities and/or personnel as part of the Five-Year Development Plan.

The project is the relocation and small expansion of an existing fueling facility within an existing retail area. Uniformly applied development policies that require adequate fire hydrants, OFD site access, emergency signage, fire alarms, addressable smoke detectors, and other requirements of the Uniform Fire Code will minimize potential impacts on Fire Department services. Uniformly applied development policies requested by the Police Department will minimize potential impacts on Police Department services. The impact of the expanded fuel facility on Site 1 and replacement parking lot on Site 2 on fire and police services will be Less Than Significant.

3-4) The proposed project does not propose to add any residential units and a small increase in employment would not create significant indirect demand on parks, libraries, and other community facilities and services. There would be No Impact on these services.

Mitigation: No mitigation measures are required.

Cumulative Impact: The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Public services were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 4.4, Certified Final PEIR, October 2011, page 4-39.

<table>
<thead>
<tr>
<th>O. TRANSPORTATION AND CIRCULATION</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would the project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections) based on adopted City of Oxnard level of service (LOS) standards?</td>
<td>☐ ☐ ☒ ☐</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2. Would the project exceed, either individually or cumulatively, an LOS standard established by the Ventura County Congestion Management program (CMP) for designated roads or highways?</td>
<td>☐ ☐ ☒ ☐</td>
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</table>
O. TRANSPORTATION AND CIRCULATION

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<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Would the project result in a change in traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>4. 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)?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>5. Would the project result in inadequate emergency access?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>6. Would the project conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>

A traffic report was completed for the project by Kittleson & Associates, Inc. (K&A) in August, 2017. The report describes the existing conditions, project trip generation rates, and the impact of the project on existing conditions. It also includes an analysis of the proposed and two developing projects in the immediate auto center vicinity, the Gold Coast Transit operation facility and the Audi of Oxnard dealership. The project site is served by a circulation system comprising arterial and collector streets. Traffic flow on urban arterials is most constrained at intersections. Therefore, a detailed analysis of project impact, if any, on traffic flows must examine the operating conditions of critical intersections during peak travel periods. Peak traffic hours are defined as 7:00 – 9:00 am for the AM peak and 4:00 to 6:00 pm for the PM peak, on Monday through Friday. Levels of Service (LOS) A through F are used to rate intersection operations at morning and evening peak weekday periods with LOS A indicating free flow operations and LOS F indicating congested operations. In the city of Oxnard LOS C is the acceptable operating standard for intersections.

Discussion:

1-4) Based on the August 2017 K&A traffic study, the nearby intersections operate at or above:

Table O-1

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Traffic Control</th>
<th>AM Peak Hour V/C Ratio or Delay</th>
<th>PM Peak Hour V/C Ratio or Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Rose Ave./Auto Center Dr./E. Ventura Blvd.</td>
<td>Signal</td>
<td>0.66/LOS B</td>
<td>0.77/LOS C</td>
</tr>
<tr>
<td>Auto Center Dr. /E. Ventura Blvd.</td>
<td>Signal</td>
<td>0.48/LOS A</td>
<td>0.46/LOS A</td>
</tr>
<tr>
<td>Auto Center Dr. / Paseo Mercado</td>
<td>Signal</td>
<td>0.43/LOS A</td>
<td>0.44/LOS A</td>
</tr>
<tr>
<td>Auto Center Dr./Los Olivos/Costco Access</td>
<td>Two-way Stop-controlled</td>
<td>38.6 sec. delay LOS E</td>
<td>&gt; 50.0 sec. delay LOS F</td>
</tr>
<tr>
<td>Rice Ave./Santa Clara Ave./Auto Center Dr./US 101 Off-Ramp</td>
<td>Signal</td>
<td>0.36/LOS A</td>
<td>0.56/LOS A</td>
</tr>
</tbody>
</table>

The existing fueling facility with 16 stations serves approximately 225 vehicles (450 total trips) during the weekday p.m. peak hour, derived from Costco sales. Midday sales are almost the same. As the fueling facility is limited to Costco members, A&K evaluated eight similar Costco’s that expanded their fueling facilities in Washington, Oregon, California, Utah, and Hawaii to determine what percent of existing fueling facility customers were already at the Costco for shopping and, with that information, what amount of new vehicle trips would occur from increasing the number of fueling stations from 16 to 24, as proposed in the project (A&K study, pg. 23).

The data indicate that about 34 percent of customers left home and came to shop in the Costco warehouse, and then purchased fuel. The fueling trip in classified as ‘internal’ to the destination shopping trip. Another 34 percent were ‘pass by’ as the customers were already in the immediate area for another reason (commuting or shopping elsewhere) and were already using local streets and the freeway. The final 37 percent were ‘diverted’ trips of customers who were driving in the west Ventura County area and for another reason and rerouted themselves to Costco for fueling. Diverted trips may have an impact on local streets and intersections.

Based on this information, a total project trip generation estimate is shown below in Table O-2. The overall project would generate 44 additional new external trips during the weekday midday peak period and 43 additional new external trips during the weekday pm peak period (each customer is 2 trips, in and out). Of these new external trips, 16 would be pass by (already on Auto Center Drive) and 16 would be diverted (nearby on Rose or Rice Avenues) leaving only 11 and 12 additional new “Primary” external trips attributable to the expansion from 16 to 24 fueling stations. The A&K study notes that these estimates are conservative based on the best available data regarding Costco gasoline and diesel sales (A&K study, pg. 28). The relocation and small number of new primary trips would have a negligible impact on existing traffic patterns and service levels.

### Table O-2

**Oxnard Costco Project Trip Generation Estimates**

<table>
<thead>
<tr>
<th>Source: A&amp;K Traffic Study, August 2017, pg. 28</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weekday Midday</strong></td>
</tr>
<tr>
<td>Peak Hour Trip Ends</td>
</tr>
<tr>
<td><strong>Additional Trips from Fueling Position Expansion</strong></td>
</tr>
<tr>
<td><strong>Additional Trips from Diesel Addition</strong></td>
</tr>
<tr>
<td><strong>Total Trip Ends</strong></td>
</tr>
<tr>
<td><strong>Reduction for Internal Trips (34%)</strong></td>
</tr>
<tr>
<td><strong>Total External Trip Ends</strong></td>
</tr>
<tr>
<td><strong>Pass-by Trips (37%)</strong></td>
</tr>
<tr>
<td><strong>Diverted Trips (37%)</strong></td>
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<tr>
<td><strong>Net New Trip Ends</strong></td>
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</tbody>
</table>

The project curb cuts, driveways, interior circulation and site access are designed to meet City engineering standards and City Fire Department standards to ensure fire apparatus can reach all parts of the site, and no safety issues have been identified. The proposed project includes reconfiguration of the existing parking lot areas and on-site circulation in accordance with the City Code. The project is providing more than code required parking of 1 space per 250 square feet of gross floor area (City Code Section16-622(F), shopping centers). The proposed development does not have any features that would create unusual demands for additional parking over that which is required by City Code.

As shown in Table O-3, the Auto Center Dr./Los Olivos/Costco Access intersection (Site 3) operates with an unacceptable LOS E. The project includes all A&K recommendations including the installation of a City-
approved traffic signal at this intersection, modifying Auto Center Drive medians to allow for turn lanes, modifying lane striping, and creating pedestrian crosswalks. The A&K study also factored in additional future traffic generated by the Gold Coast Transit facility (approved and in plan check as of October, 2017) at the corner of Paseo Mercado and a new Audi of Oxnard car dealership and recalculated LOS at the study intersections. The newly signalized intersection would operate at LOS A in all peak periods and the remaining intersections would operation at LOS C or better. Therefore, the project would have **Less Than Significant** traffic impacts on the street systems and intersection LOS’s.

Table O-3

Oxnard Costco Weekday Midday Peak Hour Existing + Project
Existing LOS and LOS with New Signal at Auto Center Drive/Los Olivos Intersection

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing LOS</th>
<th>Existing + Project</th>
<th>Change</th>
<th>Impact</th>
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</thead>
<tbody>
<tr>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
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<tr>
<td></td>
<td>LOS</td>
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<td>LOS</td>
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<tr>
<td>1</td>
<td>North Rose Ave./Auto Center Dr./East Ventura Blvd.</td>
<td>0.66</td>
<td>B</td>
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<tr>
<td>2</td>
<td>Auto Center Dr./Ventura Blvd.</td>
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<td>0.48</td>
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<tr>
<td>3</td>
<td>Auto Center Dr./Paseo Mercado</td>
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<td>0.42</td>
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<tr>
<td>4</td>
<td>Auto Center Dr./Los Olivos/Eastern Costco Access</td>
<td>--</td>
<td>E</td>
<td>47.4</td>
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<tr>
<td>5</td>
<td>Rice Ave./Santa Clara Ave./Auto Center Dr./US 101 Off-ramp</td>
<td>0.36</td>
<td>A</td>
<td>0.36</td>
</tr>
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</table>

Table O-4

Oxnard Costco Weekday PM Peak Hour Existing + Project
Existing LOS and LOS with New Signal at Auto Center Drive/Los Olivos Intersection

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing LOS</th>
<th>Existing + Project</th>
<th>Change</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
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<tr>
<td></td>
<td>LOS</td>
<td></td>
<td>LOS</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>North Rose Ave./Auto Center Dr./East Ventura Blvd.</td>
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<tr>
<td>4</td>
<td>Auto Center Dr./Los Olivos/Eastern Costco Access</td>
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<td>&gt;50</td>
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<tr>
<td>5</td>
<td>Rice Ave./Santa Clara Ave./Auto Center Dr./US 101 Off-ramp</td>
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</table>
5) The project curb cuts, driveways, interior circulation and site access are designed to meet City engineering standards and City Fire Department standards to ensure fire apparatus can reach all parts of the site, and no safety issues have been identified. The proposed project includes reconfiguration of the existing parking lot areas and on-site circulation in accordance with the City Code. The project improves the Auto Center Dr./Los Olivos/Costco Access intersection by adding a traffic signal that can be changed by emergency vehicles, therefore the project would have \textbf{No Impact} on emergency access and response.

6) The project is a relocation and expansion of a fueling facility where bicycles and transit would not normally be present as opposed to cars and light trucks. The project does not inhibit existing Costco bicycle facilities and transit service and, by signalizing the Auto Center Dr./Los Olivos/Costco Access intersection, improves access by Gold Coast buses travelling between the future dispatch yard on Paseo Mercado and Rice/Santa Clara Avenue. \textbf{No Impact}.

\textbf{Mitigation:} No mitigation measures are required.

\textbf{Cumulative Impact:} The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Traffic and Circulation were analyzed by the 2030 General Plan PEIR and found to be significant for which an overriding consideration was adopted. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 4.2, Certified Final PEIR, October 2011, page 4-2.

\section*{P. UTILITIES AND ENERGY}

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Less Than Significant Impact With Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Would the project need new or expanded water supply entitlements that are not anticipated in the current Urban Water Management Plan?</td>
<td></td>
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</tr>
<tr>
<td>2. Would additional wastewater conveyance or treatment capacity be required to serve project demand and existing commitments?</td>
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<tr>
<td>3. Would the project generate solid waste that would exceed the permitted capacity of a landfill serving the City?</td>
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<tr>
<td>4. Would the project conflict with federal, state, or local statutes and regulations related to solid waste?</td>
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<tr>
<td>5. Would the project involve wasteful, inefficient and unnecessary consumption of energy during project construction, operation, maintenance, and/or removal?</td>
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<tr>
<td>6. Would the project require additional energy facilities, the provision of which may have a significant effect on the environment?</td>
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<tr>
<td>7. Would the project be inconsistent with existing energy standards?</td>
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<tr>
<td>8. Would the project preempt future energy development or future energy conservation, or inhibit the future use of renewable energy or energy storage?</td>
<td></td>
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</tbody>
</table>
Discussion:

1-2) The project would increase water demand by a negligible amount for the peripheral landscaping on the vacant lot that would comply with State and City water conservation requirements. All other new landscaping is replacing removed landscaping and would not increase water demand except during the brief period of plant establishment. The development of the 1.6 acre vacant lot as an industrial use was anticipated in the water demand data used in the adopted 2015 Urban Water Management Plan (UWMP). The project’s actual water demand for only landscaping will be less than the UWMP estimates as an industrial use. The proposed project would be required to comply with measures to treat storm water runoff by implementing Best Management Practices (BMPs) in accordance with National Pollutant Discharge Elimination System (NPDES) requirements. Therefore, No Impact to water supply demand or wastewater are anticipated.

3-4) Standard conditions of approval and application of uniformly applied development standards require compliance with the City’s recycling programs, which require solid waste recycling and disposal plans and reporting during construction and operation of the facility. Therefore, impacts related to solid waste would have No Impact.

5-8) Standard conditions of approval and application of uniformly applied development standards require compliance with the California Green Building Code which includes energy efficiency standards. The project would use state-of-the-art LED fixtures that would not significantly, and may actually reduce, energy consumption compared to the older fixtures in the existing fueling canopy. A condition of approval requires the canopy to be solar-panel ready. Therefore, there would be No Impact related to energy.

Mitigation: No mitigation measures are required.

Cumulative Impact: The cumulative project area is defined as the entire City of Oxnard at its planned 2030 buildout which includes the proposed project. Utilities and services were analyzed by the 2030 General Plan PEIR and found not to be significant after implementation of uniformly applied development policies and regulations. The 2030 General Plan PEIR is incorporated by reference, specifically Chapter 4.3, Certified Final PEIR, October 2011, page 4-25.

Q. MANDATORY FINDINGS OF SIGNIFICANCE

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>
1. 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 rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☐ | ☐ | ☐ | ☑ |
### Q. MANDATORY FINDINGS OF SIGNIFICANCE

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant With Mitigation</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Does the project have impacts that are individually limited, but cumulatively considerable (&quot;Cumulatively considerable&quot; 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)?</td>
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<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

No new significant adverse effects are expected to result from the proposed project with implementation of the mitigations listed herein. Many mitigation measures imposed on similar past projects are now treated as uniformly applied development standards and best practices and incorporated into the project description.

1) As discussed in Section E, Cultural Resources, the project site does not contain potentially historic structures that would be removed or altered by the proposed project. The project would also be required to comply with standard procedures for assessment and preservation of subsurface resources compliant with the State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98, which regulate disturbance and disposition of cultural resources and human remains. Compliance with these regulations, which detail the appropriate actions necessary in the event human remains are encountered, would reduce impacts to these cultural resources to a No Impact level.

As discussed in Section D, Biological Resources, the project area is located within an existing urbanized area that has been previously disturbed. The site lacks significant native vegetation that would provide a habitat for any unique, rare, or endangered plant or animal species. The site does not contain and is not adjacent to wetlands. The area is urbanized and there is no potential for adverse effects to wildlife resources or their habitat either directly or indirectly. There would be No Impact related to biological resources.

2) The proposed project would result in Less Than Significant Impacts with Implementation of Mitigation Measures provided herein. The proposed project is an urban infill project in an area planned for development under the 2030 General Plan and the Rose-Santa Clara Corridor Specific Plan. Most of the surrounding properties are currently developed, and it is therefore expected that project implementation would result in less than significant cumulative impacts. Cumulative citywide significant impacts were documented in the 2030 General Plan Program EIR and overriding considerations were adopted in 2011.

3) The project improves the operation of a member-discount priced fueling facility that serves many Oxnard residents, many of whom qualify as members of an environmental justice population and is a community benefit. There are no residences impacted by the project, or population other than Costco employees and patrons.
REFERENCES

1. California, State of, Air Resources Board, CalEEMod Program.
6. City of Oxnard, Development Services Department, Planning Division, Zone Maps, current edition.
7. City of Oxnard, Fire Department, Fire Protection Planning Guide
10. Ventura County Air Pollution Control District, Ventura County Air Quality Assessment Guidelines, October 2003.
15. California State University - Fullerton South Central Coastal Information Center, California Historical Resources Information System, Department of Anthropology, Fullerton, California.
17. Ventura County Cultural Heritage Board, Ventura County Historical Landmarks & Points of Interest–August 1991, Ventura County Recreation Services.

Environmental Impact Reports


Specific Plans

21. City of Oxnard, Rose Santa Clara Corridor Specific Plan
Attachments:

A. Air Quality model (‘CalEEMod’) results
   a. Proposed Development, Summer (ROG, NOx)
   b. Proposed Development, Annual (CO2e)
   c. Existing Development, Summer (ROG, NOx)
   d. Existing Development, Annual (CO2e)

B. August 2017 Traffic Study

C. September 2017 Arborist Report

D. December 2016 Cultural Resources “Quick Check” Cal State Fullerton
City of Oxnard
Costco MND 17-3
Attachment A
CalEEMod
1.0 Project Characteristics

1.1 Land Usage

<table>
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<tr>
<th>Land Uses</th>
<th>Size</th>
<th>Metric</th>
<th>Lot Acreage</th>
<th>Floor Surface Area</th>
<th>Population</th>
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<td>Gasoline/Service Station</td>
<td>16.00</td>
<td>Pump</td>
<td>0.05</td>
<td>2,258.80</td>
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</table>

1.2 Other Project Characteristics

- **Urbanization**: Urban
- **Wind Speed (m/s)**: 2.6
- **Precipitation Freq (Days)**: 31
- **Climate Zone**: 8
- **Operational Year**: 2017
- **Utility Company**: Southern California Edison
- **CO2 Intensity (lb/MWhr)**: 630.89
- **CH4 Intensity (lb/MWhr)**: 0.029
- **N2O Intensity (lb/MWhr)**: 0.006

1.3 User Entered Comments & Non-Default Data

- **Project Characteristics**: -
- **Land Use**: Set lot acreage and square feet of lot.
- **Construction Phase**: -
- **Sequestration**: -
- **Energy Mitigation**: -

<table>
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2.0 Emissions Summary
2.1 Overall Construction (Maximum Daily Emission)

### Unmitigated Construction

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<th>NOx</th>
<th>CO</th>
<th>SO2</th>
<th>Fugitive PM10</th>
<th>Exhaust PM10</th>
<th>PM10 Total</th>
<th>Fugitive PM2.5</th>
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<th>PM2.5 Total</th>
<th>Bio-CO2</th>
<th>NBio-CO2</th>
<th>Total CO2</th>
<th>CH4</th>
<th>N2O</th>
<th>CO2e</th>
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<tbody>
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<td>Year</td>
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### Mitigated Construction

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<tr>
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### Percent Reduction

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## 2.2 Overall Operational

### Unmitigated Operational

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### Mitigated Operational

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### 3.0 Construction Detail

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3.1 Mitigation Measures Construction

3.2 Demolition - 2018

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3.2 Demolition - 2018
Mitigated Construction On-Site

Acres of Grading: 0.5

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Mitigated Construction Off-Site

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### 3.3 Site Preparation - 2018

#### Unmitigated Construction On-Site

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3.3 Site Preparation - 2018

**Mitigated Construction On-Site**

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### Mitigated Construction On-Site

| Category      | ROG | NOx | CO  | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio-CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|-----|-----|-----|-----|---------------|--------------|------------|---------------|--------------|------------|----------|---------|----------|-----------|-----|-----|------|
| Fugitive Dust |     |     |     |     |               |              |            |               |              |            |          |         |           |     |     |      |
| Off-Road      | 1.0520 | 9.3131 |     |     |               |              |            |               |              |            |          |         |           |     |     |      |
| Total         | 1.0520 | 9.3131 |     |     |               |              |            |               |              |            |          |         |           |     |     |      |

### Mitigated Construction Off-Site

| Category    | ROG | NOx | CO  | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio-CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|-----|-----|-----|-----|---------------|--------------|------------|---------------|--------------|------------|----------|---------|----------|-----------|-----|-----|------|
| Hauling     | 0.0000 | 0.0000 |     |     |               |              |            |               |              |            |          |         |           |     |     |      |
| Vendor      | 0.0000 | 0.0000 |     |     |               |              |            |               |              |            |          |         |           |     |     |      |
| Worker      | 0.1359 | 0.0305 |     |     |               |              |            |               |              |            |          |         |           |     |     |      |
| Total       | 0.1359 | 0.0305 |     |     |               |              |            |               |              |            |          |         |           |     |     |      |
### 3.5 Building Construction - 2018

#### Unmitigated Construction On-Site

**Acres of Paving: 0**

| Category | ROG | NOx | CO  | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|----------|-----|-----|-----|-----|---------------|--------------|------------|---------------|--------------|-------------|-----------|----------|-----------|----------|-----|-----|------|
|          |     |     |     |     |               |              |            |               |              |             |           |          |           |          |     |     |      |
| Off-Road | 1.0786 | 10.9578 |
| Total    | 1.0786 | 10.9578 |

#### Unmitigated Construction Off-Site

| Category | ROG | NOx | CO  | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|----------|-----|-----|-----|-----|---------------|--------------|------------|---------------|--------------|-------------|-----------|----------|-----------|----------|-----|-----|------|
|          |     |     |     |     |               |              |            |               |              |             |           |          |           |          |     |     |      |
| Hauling  | 0.0000 | 0.0000 |
| Vendor   | 0.0000 | 0.0000 |
| Worker   | 0.0136 | 3.0500e-003 |
| Total    | 0.0136 | 3.0500e-003 |
3.5 Building Construction - 2018
Mitigated Construction On-Site

Acres of Paving: 0

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### 3.6 Paving - 2018

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3.6 Paving - 2018

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### 3.7 Architectural Coating - 2018

**Unmitigated Construction On-Site**

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,388; Non-Residential Outdoor: 1,129

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**Unmitigated Construction Off-Site**

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3.7 Architectural Coating - 2018

Mitigated Construction On-Site

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,388; Non-Residential Outdoor: 1,129

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Mitigated Construction Off-Site

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile
### 4.2 Trip Summary Information

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### 4.3 Trip Type Information

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### 4.4 Fleet Mix

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### 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy
5.2 Energy by Land Use - NaturalGas

**Mitigated**

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6.0 Area Detail

6.1 Mitigation Measures Area

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6.2 Area by SubCategory

### Unmitigated

| SubCategory       | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------|-----|-----|----|-----|---------------|--------------|------------|---------------|---------------|-------------|-----------|---------|----------|----------|-----|-----|------|
| Architectural Coating | 0.0143 |     |    |     |               |              |            |               |               |            |          |         |          |       |     |      |
| Consumer Products  | 0.0465 |     |    |     |               |              |            |               |               |            |          |         |          |       |     |      |
| Landscaping       | 1.6500e-004 | 2.0000e-005 | | | | | | | | | | | | | | |
| Total             | 0.0628 |     |    |     |               |              |            |               |               |            |          |         |          |       |     |      |

### Mitigated

| SubCategory       | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------|-----|-----|----|-----|---------------|--------------|------------|---------------|---------------|-------------|-----------|---------|----------|----------|-----|-----|------|
| Architectural Coating | 0.0143 |     |    |     |               |              |            |               |               |            |          |         |          |       |     |      |
| Consumer Products  | 0.0465 |     |    |     |               |              |            |               |               |            |          |         |          |       |     |      |
| Landscaping       | 1.6500e-004 | 2.0000e-005 | | | | | | | | | | | | | | |
| Total             | 0.0628 |     |    |     |               |              |            |               |               |            |          |         |          |       |     |      |

7.0 Water Detail

7.1 Mitigation Measures Water
8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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<th>Days/Year</th>
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10.0 Vegetation
Costco Fuel Facility Relocation  
Ventura County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

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<th>Metric</th>
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1.2 Other Project Characteristics

- Urbanization: Urban  
- Wind Speed (m/s): 2.6
- Precipitation Freq (Days): 31
- Climate Zone: 8  
- Operational Year: 2017
- Utility Company: Southern California Edison

- CO2 Intensity (lb/MWhr): 630.89
- CH4 Intensity (lb/MWhr): 0.029
- N2O Intensity (lb/MWhr): 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics:
- Land Use - Set lot acreage and square feet of lot.
- Construction Phase:
- Sequestration:
- Energy Mitigation:

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## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

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#### Mitigated Construction

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#### Percent Reduction

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## 2.2 Overall Operational

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**Trips and VMT**
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--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
Demolition | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT
Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT
Grading | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT
Building Construction | 7 | 22.00 | 11.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT
Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT
Architectural Coating | 1 | 4.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT

### 3.1 Mitigation Measures Construction

### 3.2 Demolition - 2017

**Unmitigated Construction On-Site**

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### 3.2 Demolition - 2017

**Unmitigated Construction Off-Site**

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**Mitigated Construction On-Site**

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3.2 Demolition - 2017

**Mitigated Construction Off-Site**

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3.3 Site Preparation - 2017

**Unmitigated Construction On-Site**

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3.3 Site Preparation - 2017
Unmitigated Construction Off-Site

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### 3.4 Grading - 2017

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3.4 Grading - 2017

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3.4 Grading - 2017
Mitigated Construction Off-Site

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|----------|-----|-----|----|-----|---------------|--------------|------------|---------------|---------------|-------------|-----------|----------|-----------|-----------|-----|-----|-----|
| Hauling  | 0.0000 | 0.0000 |    |     |               |              |            |               |               |             |           |          |           |          |     |     |     |
| Vendor   | 0.0000 | 0.0000 |    |     |               |              |            |               |               |             |           |          |           |          |     |     |     |
| Worker   | 0.1164 | 0.0269 |    |     |               |              |            |               |               |             |           |          |           |          |     |     |     |
| Total    | 0.1164 | 0.0269 |    |     |               |              |            |               |               |             |           |          |           |          |     |     |     |

3.5 Building Construction - 2017
Unmitigated Construction On-Site

Acres of Paving: 0

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|----------|-----|-----|----|-----|---------------|--------------|------------|---------------|---------------|-------------|-----------|----------|-----------|-----------|-----|-----|-----|
| Off-Road | 2.9546 | 19.1088 |    |     |               |              |            |               |               |             |           |          |           |          |     |     |     |
| Total    | 2.9546 | 19.1088 |    |     |               |              |            |               |               |             |           |          |           |          |     |     |     |
3.5 Building Construction - 2017
Unmitigated Construction Off-Site

Acres of Paving: 0

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|----------|-----|-----|----|-----|---------------|--------------|------------|---------------|--------------|------------|----------|---------|----------|---------|-----|-----|------|
| Hauling  | 0.0000 | 0.0000 |   |     |               |              |            |               |              |            |          |         |          |        |     |     |      |
| Vendor   | 0.1588 | 0.9535 |   |     |               |              |            |               |              |            |          |         |          |        |     |     |      |
| Worker   | 0.3202 | 0.0740 |   |     |               |              |            |               |              |            |          |         |          |        |     |     |      |
| **Total** | **0.4790** | **1.0275** | | | | | | | | | | | | | | | |

Mitigated Construction On-Site

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|----------|-----|-----|----|-----|---------------|--------------|------------|---------------|--------------|------------|----------|---------|----------|---------|-----|-----|------|
| Off-Road | 2.9519 | 19.0913 |   |     |               |              |            |               |              |            |          |         |          |        |     |     |      |
| **Total** | **2.9519** | **19.0913** | | | | | | | | | | | | | | | |
### 3.5 Building Construction - 2017

**Mitigated Construction Off-Site**

**Acres of Paving:** 0

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### 3.6 Paving - 2017

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### 3.6 Paving - 2017
#### Mitigated Construction Off-Site

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### 3.7 Architectural Coating - 2017
#### Unmitigated Construction On-Site

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 105,000; Non-Residential Outdoor: 35,000

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### 3.7 Architectural Coating - 2017

#### Unmitigated Construction Off-Site

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 105,000; Non-Residential Outdoor: 35,000

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#### Mitigated Construction On-Site

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### 3.7 Architectural Coating - 2017

**Mitigated Construction Off-Site**

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 105,000; Non-Residential Outdoor: 35,000

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### 4.0 Operational Detail - Mobile

#### 4.1 Mitigation Measures Mobile

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### 4.2 Trip Summary Information
4.3 Trip Type Information

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4.4 Fleet Mix

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy
5.2 Energy by Land Use - Natural Gas

### Unmitigated

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6.0 Area Detail

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### 6.2 Area by SubCategory

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6.2 Area by SubCategory

Mitigated

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7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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10.0 Vegetation
Traffic and Circulation Study

Oxnard Costco Gasoline Expansion

Oxnard, California

August 2017
Traffic and Circulation Study

Oxnard Costco Gasoline Expansion

Oxnard, California

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Project No. 18042

August 2017
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Section 1
Executive Summary
EXECUTIVE SUMMARY

Costco is proposing to relocate the existing fuel station to a different area on site and to expand from 16 fueling positions to 24 fueling positions. The fuel station relocation will provide better circulation, more queue stacking space, and to allow for a larger fuel station to be built. The fuel station will be relocated to the north-east corner of the Costco site. The new fuel station area will provide over 175 feet of usable queue storage area behind the first row of fuel islands. In addition to the relocation, the project will also include the provision of diesel fuel sales to provide that option to their members. As part of the project, the existing fuel station area will be decommissioned and replaced with additional parking for the Costco warehouse. The expansion will result in more efficient processing of vehicles, shorter wait times, shorter queues, and less idling.

The results of this study indicate that the proposed Oxnard Costco Gasoline Expansion can be constructed while maintaining acceptable traffic operations at the study intersections, assuming provision of the recommended mitigation measures.

FINDINGS

Year 2017 Existing Conditions

- The unsignalized Auto Center Drive/Los Olivos/Eastern Costco Access intersection currently operates at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The remaining study intersections operate at LOS “C” or better during the weekday midday and p.m. peak hours.

Alternative Lane Configuration – North Rose Avenue/Auto Center Drive/East Ventura Boulevard

- The City of Oxnard is planning to resurface the Auto Center Drive neighborhood in the near future. One of the concepts the City is currently evaluating is to restripe northbound Rose Avenue at Auto Center Drive to provide a second northbound right-turn lane. At the request of City of Oxnard staff, the addition of a second northbound right-turn lane was evaluated, even though this improvement is not part of the Costco fuel station relocation project.
  - Through discussions with City staff, it was noted queues in the northbound right-turn lane at the North Rose Avenue/Auto Center Drive/East Ventura Boulevard intersection have been observed to spill back to the upstream US 101 Northbound Off-ramp/Rose Avenue intersection.
    - The addition of a second northbound right-turn lane would reduce queue lengths in the existing northbound right-turn lane by 198 and 250 feet during the weekday midday and p.m. peak hours, respectively.
Operations at the intersection would improve from LOS “B” to LOS “A” during the weekday midday peak hour; no noticeable change in operations would be anticipated during the weekday p.m. peak hour.

- Queues on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection would not change noticeably during the weekday midday and p.m. peak hours. The existing storage lengths provided on the eastbound approach would be able to accommodate the changes in queue length.
  - The addition of a second northbound right-turn lane (not associated with Costco fuel station relocation) may introduce some additional weaving on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection.
    - Advance signage on the northbound approach of the North Rose Avenue/Auto Center Drive/East Ventura Boulevard intersection could help drivers pre-position in the correct turn-lane if they need to make a turning maneuver at the adjacent Auto Center Drive/Ventura Boulevard intersection.
    - Over time, as drivers become familiar with the proposed changes to lane configurations, the frequency of weaving maneuvers on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection would decrease.

Development Plan

- The expansion and relocation of the Oxnard Costco fuel station would generate approximately 44 and 43 additional external trip ends during the weekday midday and p.m. peak hours, respectively (or 22 total additional vehicles in each peak hour).
  - Of these external trips, 16 trips would be pass-by trips and 16 would be diverted trips. The remaining 12 external trip ends would be net new trips to the site using the surrounding transportation system.

- Existing fuel station trips were re-assigned to the transportation network to account for the relocation to the northeast portion of the site.

- The on-site relocation would create a new connection to the private (unnamed) easement road to the east but would only be accessible by fuel trucks by way of a chained fence.

- Costco proposes to install a traffic signal at the Auto Center Drive/Los Olivos/Eastern Costco Access intersection. Volume-based Manual on Uniform Traffic Control Devices (MUTCD) signal warrants would be met.
o The intersection would be reconfigured to accommodate the changes to the Auto Center Drive median and to align with the Los Olivos public street opposite to the Costco site access. The westbound left-turn pocket would be extended from 165 feet to 250 feet. The south leg of the intersection would be widened to provide additional redundancy and to serve peak period or seasonal needs. The new configuration would provide a 20-foot inbound lane, a 11-foot northbound left-turn lane, a 11 foot northbound thru/left-shared lane, and a 14-foot northbound right-turn lane. The 14-foot northbound right-turn lane could accommodate the turning radius of larger vehicles.

o A 60-foot long southbound left-turn lane at the eastern Costco drive aisle would be constructed to provide access to the relocated fuel station.

Existing + Project Traffic Conditions

- The unsignalized Auto Center Drive/Los Olivos/Eastern Costco Access intersection would to continue to operate at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The remaining study intersections would operate at LOS “C” or better during the weekday midday and p.m. peak hours.

- Analysis of signal control as mitigation demonstrates the intersection would operate at LOS “A” and at ICU volume-to-capacity ratio (V/C) of 0.41 during both the weekday midday and p.m. peak hours.

- Forecast 95th percentile queues would be accommodated by the proposed design.

Alternative Lane Configuration – North Rose Avenue/Auto Center Drive/East Ventura Boulevard

- Provision of a second northbound right-turn lane was evaluated under Existing + Project conditions during both study time periods:

  o The northbound right-turn queues at the intersection would increase by approximately six feet and 74 feet during the weekday midday and p.m. peak periods, respectively, after project traffic were to be added to the roadway network. This improvement would prevent northbound queues from spilling back to the upstream North Rose Avenue/US 101 Northbound Off-ramp intersection.

  o Queues on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection would not change noticeably during the weekday midday and p.m. peak hours under Existing + Project traffic conditions. The existing storage lengths provided on the eastbound approach would be able to accommodate the changes in queue length.
Cumulative (Existing + Approved/Pending) Traffic Conditions

- Study intersections were analyzed with the addition of traffic generated by projects which have been approved or are pending within the project study area. At the direction of City staff, two projects were included in this analysis:
  - Gold Coast Transit
  - Audi of Oxnard

- The unsignalized Auto Center Drive/Los Olivos/Eastern Costco Access intersection would continue to operate at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The remaining study intersections would operate at LOS “C” or better during the weekday midday and p.m. peak hours.

Cumulative + Project Traffic Conditions

- The unsignalized Auto Center Drive/Los Olivos/Eastern Costco Access intersection would continue to operate at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The remaining study intersections would operate at LOS “C” or better during the weekday midday and p.m. peak hours.
  - Auto Center Drive/ Los Olivos/Eastern Costco Access: As proposed under the Existing + Project traffic conditions, the operations of the Auto Center Drive/ Los Olivos/Eastern Costco Access intersection would be improved by converting the control strategy from two-way stop-controlled to signalized control. Under the proposed intersection control and configuration, the intersection would operate at LOS “A” with an ICU V/C of 0.42 during both the weekday midday and p.m. peak hours. Forecast 95\textsuperscript{th} percentile queues would be accommodated by the proposed design.

RECOMMENDATIONS

The following list provides a summary of the mitigation measures recommended as part of this proposed development:

- Auto Center Drive/Los Olivos/Eastern Costco Access Intersection:
  - Install a traffic signal
  - Modify the existing Auto Center Drive median on the west side of the intersection to accommodate the turning radius of larger vehicles exiting the site
  - Remove existing luminaires in the median on both sides of Auto Center Drive and replace them with signal pole illumination
  - Extend the westbound left-turn pocket from 165 feet to 250 feet
o Adjust/improve the alignment of the Los Olivos public street opposite to the Costco site access and extend the southbound approach lane striping to 100 feet

o Widen the south leg of the intersection to accommodate a 20-foot inbound lane, a 11-foot northbound left-turn lane, a 11 foot northbound thru/left-shared lane, and a 14-foot northbound right-turn lane. The 14-foot northbound right-turn lane could accommodate the turning radius of larger vehicles

- Eastern Costco Access / Fuel Station Driveway Intersection:

  o Develop a 60-foot long southbound left-turn lane at the Eastern Costco drive aisle to provide access to the relocated fuel station.

Additional details of the study methodology, findings, and recommendations are provided within this report.
Section 2
Introduction
INTRODUCTION

PROJECT DESCRIPTION

Costco is proposing to expand and relocate the existing Oxnard Costco Gasoline facility to improve the service provided to members at this location who currently experience long queues and wait times during the peak periods. The existing fuel station consists of four islands with a total of 16 vehicle fueling positions. It is currently located on the southern portion of the Costco site along Ventura Boulevard. The existing configuration provides three islands located together, each with approximately 80 feet of usable queue storage area behind the fuel pumps, plus a fourth island (separated from the other islands by landscaping and the fuel station controller enclosure) with approximately 120 feet of usable queue storage area behind the fuel pumps. Figure 1 illustrates the existing street network and project site location.

Costco is proposing to relocate the fuel station to a different area on site to provide better circulation, more queue stacking space, and to allow for a larger 24 fueling position station to be built. The expansion will result in more efficient processing of vehicles, shorter wait times, shorter queues, and less idling. The fuel station will be relocated to the north-east corner of the Costco site. Figure 2 illustrates the new proposed site plan. The new fuel station area will provide over 175 feet of usable queue storage area behind the first row of fuel islands. In addition to the relocation, the project will also include the provision of diesel fuel sales to provide that option to their members. As part of the project, the existing fuel station area will be decommissioned and replaced with additional parking for the Costco warehouse.

SCOPE OF THE REPORT

This analysis determines the transportation-related impacts associated with the proposed Oxnard Costco Gasoline Expansion and was prepared in accordance with the City of Oxnard’s requirements for traffic impact studies. The study intersections and scope of this project were selected after City staff was consulted. The operational analyses were performed at these intersections:

1. North Rose Avenue/Auto Center Drive/East Ventura Boulevard
2. Auto Center Drive/Ventura Boulevard
3. Auto Center Drive/Paseo Mercado
4. Auto Center Drive/Los Olivos/Eastern Costco Access
5. Rice Avenue/Santa Clara Avenue/Auto Center Drive/US 101 Off-ramp
This report evaluates the traffic conditions under the following scenarios:

- Existing traffic volumes;
- Existing traffic volumes with projected site traffic added;
- Cumulative traffic volumes (existing traffic with traffic from approved/pending projects added); and,
- Cumulative traffic volumes with projected site traffic added (existing + approved/pending projects + proposed project).

Site access and circulation are also address as a part of this study.
Section 3
Existing Conditions
EXISTING CONDITIONS

The existing conditions analysis identifies the site conditions and current operational and geometric characteristics of the roadways within the study area. These conditions will be compared with future conditions later in this report.

SITE CONDITIONS AND ADJACENT LAND USES

A Costco Wholesale warehouse, car wash, and gasoline fueling station are currently present on the site, located just south of Auto Center Drive. The parcel where the gasoline station is proposed to be relocated currently lies undeveloped to the east of the warehouse. In addition to providing access to the Costco site, Auto Center Drive contains driveway entrances to several automotive dealerships, as well as commercial shopping centers.

TRANSPORTATION FACILITIES

The project site is served by a circulation system comprised of highways, arterial streets, and collector streets. The major roadways serving the site are discussed in Table 1.

Table 1. Existing Transportation Facilities and Roadways in the Study Area

<table>
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<th>Roadway</th>
<th>Functional Classification(^1)</th>
<th>Number of Lanes</th>
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<td>4 to 6 Lanes</td>
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<td>4 Lanes</td>
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<td>Major Collector</td>
<td>2 to 4 Lanes</td>
<td>35</td>
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\(^1\) Functional classification obtained from Caltrans California Road System (CRS) Maps.

Pedestrian and Bicycle Facilities

Given the commercial nature of the study area, sidewalks are prevalent along almost all street frontages, except for the north side of Auto Center Drive to the east of the project site where no sidewalk is provided along the frontage of the agricultural fields. In the study area, there are existing on-street bicycle facilities along:
- North Rose Avenue south of the North Rose Avenue/Auto Center Drive/East Ventura Boulevard intersection;
- Auto Center Drive between Ventura Boulevard and Rice Avenue/Santa Clara Avenue.

**TRANSIT FACILITIES**

Gold Coast Transit District operates three bus lines within the site vicinity:

- **Route 15**: Providing service between St. John’s Hospital and Esplanade, the route travels along the site frontage and operates daily on 20 to 50 minute headways between 6:00 a.m. and 9:00 p.m. The closest stop to the project site is 0.5 miles west of the site along Auto Center Drive.

- **Route 17**: Providing service between Esplanade and Oxnard College, this route operates daily on 40 minute headways between 6:30 a.m. and 10:30 p.m. The closest stop to the project site is approximately 0.75 miles to the west near the North Rose Avenue/Auto Center Drive/East Ventura Boulevard intersection.

- **Route 22**: Providing service between the Wells Center and Nyeland Acres, this route runs on 40 minute headways between 6:00 a.m. and 7:30 p.m. during weekdays and approximately one hour headways between 7:00 a.m. and 8:00 p.m. on weekends. The closest stop to the project site is approximately 0.5 miles east of the site in the northwest quadrant of the Rice Avenue/Santa Clara Avenue/Auto Center Drive intersection.

**TRAFFIC VOLUMES AND PEAK HOUR OPERATIONS**

Weekday midday peak period (11:00 a.m. to 1:00 p.m.) and weekday p.m. peak period (4:00 – 6:00 p.m.) turning movement counts were obtained at the Auto Center Drive/Los Olivos/Costco Site Driveway intersection on Tuesday, March 7, 2017 and Thursday, July 7, 2016, respectively. At the direction of City staff, traffic counts at the other four study intersections were obtained from the *Audi of Oxnard Traffic and Circulation Study* dated November 21, 2016. **Appendix A** contains the traffic count worksheets used in this study. The existing lane configurations and traffic control devices are illustrated in **Figure 3. Figure 4** shows the existing weekday midday and p.m. peak hour traffic volumes at the study intersections.

All level of service analyses described in this report were performed in accordance with the Intersection Capacity Utilization (ICU) methodologies for signalized intersections (using *Traffix* software) and HCM 2010 methodologies for unsignalized intersections (using *Synchro 9* software) required by the City of Oxnard. **Appendix B** contains a description of level of service and the criteria by which they are determined. **Appendix B** also indicates how level of service is measured and what
is generally considered the acceptable range of level of service. Intersection level of service (LOS) is analogous to the letter grades in a school report card. Motorists using an intersection that operates at LOS “A” experience very little delay, while those using an intersection that operates at LOS “F” will experience intolerably long delays.

All intersection level of service evaluations used the peak 15-minute flow rate during the weekday midday and p.m. peak hours. Using the peak 15-minute flow rate ensures that this analysis is based on a reasonable worst-case scenario. For this reason, the analysis reflects conditions that are only likely to occur for 15 minutes out of each average peak hour. The transportation system will likely operate under conditions better than those described in this report during all other time periods.
Table 2 summarizes the level-of-service analysis for the study intersections under the weekday midday and p.m. peak hour existing traffic conditions. Appendix C includes the level-of-service worksheets under existing traffic conditions.

As shown in Table 2, the unsignalized Auto Center Drive/Los Olivos/Eastern Costco Access intersection currently operate at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The remaining study intersections operate at LOS “C” or better during the weekday midday and p.m. peak hours.

Table 2. Existing Peak Hour Levels of Service

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<th>Weekday Midday Peak Hour</th>
<th>Weekday PM Peak Hour</th>
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<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
<td>LOS</td>
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<tr>
<td>1 North Rose Ave./Auto Center Dr./East Ventura Blvd.</td>
<td>Signalized</td>
<td>0.66</td>
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<tr>
<td>2 Auto Center Dr./Ventura Blvd.</td>
<td>Signalized</td>
<td>0.48</td>
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<td>3 Auto Center Dr./Paseo Mercado</td>
<td>Signalized</td>
<td>0.43</td>
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<td>4 Auto Center Dr./Los Olivos/Eastern Costco Access</td>
<td>Two-way Stop-controlled</td>
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<td>38.6</td>
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<tr>
<td>5 Rice Ave./Santa Clara Ave./Auto Center Dr./US 101 Off-ramp</td>
<td>Signalized</td>
<td>0.36</td>
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Alternative Lane Configuration

The City of Oxnard is planning to resurface the Auto Center Drive neighborhood in the near future. One of the concepts the City is currently evaluating is to restripe northbound Rose Avenue at Auto Center Drive to provide a second northbound right-turn lane. At the request of City of Oxnard staff, the traffic operations intersection were also evaluated with the addition of a second northbound right-turn lane at the North Rose Avenue/Auto Center Drive/East Ventura Boulevard, even though this improvement is not part of the Costco fuel station relocation/expansion project. Through discussions with City staff, it was noted queues in the northbound right-turn lane at the North Rose Avenue/Auto Center Drive/East Ventura Boulevard intersection have been observed to spill back to the upstream North Rose Avenue/US 101 Northbound Off-ramp intersection.
The scope of this study does not include modeling the North Rose Avenue/US 101 Northbound Off-ramp intersection. As such, the models could not be fully calibrated to match field-observed queuing conditions. However, the relative comparison of queues with respect to assumed addition of a second northbound right-turn lane on North Rose Avenue at Auto Center Drive provides an appropriate proxy for evaluating the impacts.

The anticipated operations at the intersection and adjacent Auto Center Drive/Ventura Boulevard intersection under this alternative lane configuration scheme are shown in Table 3. Existing and anticipated 95th percentile queue lengths were obtained using SimTraffic software. Appendix D contains the queueing output reports from SimTraffic.

**North Rose Avenue/Auto Center Drive/East Ventura Boulevard**

As shown in Table 3, the addition of a second northbound right-turn lane would reduce queue lengths in the existing northbound right-turn lane by 198 and 208 feet during the weekday midday and p.m. peak hours, respectively. The anticipated reduction during the weekday midday peak hour would prevent the northbound queues from spilling back to the upstream North Rose Avenue/US 101 Northbound Off-ramp intersection. The queues on other approaches would not change noticeably with the addition of the northbound right-turn lane.

Operations at the intersection would improve from LOS “B” to LOS “A” during the weekday midday peak hour; the operations would not change noticeably during the weekday p.m. peak hour.

**Auto Center Drive/Ventura Boulevard**

With the addition of the northbound right-turn lane at the adjacent North Rose Avenue/Auto Center Drive/East Ventura Boulevard intersection, queues on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection would not change noticeably during the weekday midday and p.m. peak hours. The existing storage lengths provided on the eastbound approach would be able to accommodate the anticipated queues.
Table 3. Anticipated Traffic Operations with Additional Northbound Right-Turn Lane at North Rose Avenue/Auto Center Drive/East Ventura Boulevard – Existing Traffic Volumes

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Lane Group</th>
<th>Available Storage (feet)</th>
<th>Weekday Midday Peak Hour</th>
<th>Weekday PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Existing</td>
<td>Alternative Lane</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Average Configuration</td>
<td>Average Configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ICU V/C LOS</td>
<td>ICU V/C LOS</td>
</tr>
<tr>
<td>1. North Rose Avenue / Auto Center Drive / East Ventura Boulevard</td>
<td>NBR</td>
<td>500</td>
<td>340</td>
<td>0.66 B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>142</td>
<td>0.49 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>345</td>
<td>0.77 C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>137</td>
<td>0.77 C</td>
</tr>
<tr>
<td>2. Auto Center Drive / Ventura Boulevard</td>
<td>EBL</td>
<td>90</td>
<td>47</td>
<td>0.48 A</td>
</tr>
<tr>
<td></td>
<td>EBT</td>
<td>Cont.</td>
<td>35</td>
<td>0.48 A</td>
</tr>
<tr>
<td></td>
<td>EBR</td>
<td>150</td>
<td>141</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>127</td>
</tr>
</tbody>
</table>
Section 4
Transportation Impact Analysis
TRANSPORTATION IMPACT ANALYSIS

IMPACT THRESHOLD CRITERIA
The City of Oxnard’s criteria for evaluating project impacts at intersections is based upon the change in ICU/LOS attributable to the project. The City has established LOS “C” as the threshold of significance for determining project impacts at both signalized and unsignalized intersections. If the addition of project traffic increases the ICU V/C by 0.02 or more at a signalized intersection operating at LOS “C” or worse, it should be mitigated to the ICU level identified without the project traffic. These criteria were used to determine the significance of the impacts generated by the project at the study intersections.

PROJECT-GENERATED TRAFFIC VOLUMES
In developing a trip generation estimate for fuel station relocation and expansion, it is important to recognize that a fuel station exists on site today and the proposed project is an expansion and relocation of this existing use, not the addition of a new use. Furthermore, the market area of the Oxnard Costco is already defined through existing membership and operations. As such, it’s unlikely that trip generation of the fuel station will increase directly in proportion to the increased number of fueling positions. More likely is that the additional fueling positions will serve to more efficiently and effectively process the current peak demand at the fuel station, thus reducing wait times, vehicle queuing, and vehicle idling. Although the standard reference ITE Trip Generation (5th Edition – Reference 1) currently reports trip generation for gasoline stations based on the independent variable of fueling positions, more recent transportation studies indicate that other variables besides the specific number of fueling pumps have a much larger influence on trip generation. To confirm this approach, before and after data from other comparable Costco Gasoline fuel station expansion sites was reviewed to determine a more representative relationship between new trip generation and the addition of fueling positions to the existing station.
Before & After Fuel Expansion Data Summary

KAI worked with Costco to identify eight other Costco Gasoline locations that have expanded in size. There are several examples where Costco Gasoline fuel stations had been expanded from three islands (12 fueling positions) to four islands (16 fueling positions), one example of expanding from 16 to 20 positions, and one example of expanding from 12 to 20 positions. The comparable expansion sites identified were:

- Salem, Oregon
- Kona, Hawaii
- Orem, Utah
- Vancouver, Washington
- Concord, California
- Folsom, California
- Waipio, Hawaii
- Issaquah, Washington

To work with a representative sample size, Costco provided fuel transactions collected on an hourly basis for a period before and after the expansion at each of these locations. Only data that was collected during similar months of the year prior to and after the expansion was included in this summary (for example, fuel transactions for the months of March and April before the expansion were compared to fuel transactions for the months of March and April after the expansion). The results of this before and after comparison for the eight listed sites are provided in Table 4.

Table 4. Average Weekday Fuel Transactions Before & After Data Summary

<table>
<thead>
<tr>
<th>Location</th>
<th>Average Weekday Daily Fuel Transactions</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before Expansion</td>
<td>After Expansion</td>
</tr>
<tr>
<td>Salem, OR</td>
<td>1,911</td>
<td>2,223</td>
</tr>
<tr>
<td>Kona, HI</td>
<td>2,336</td>
<td>2,406</td>
</tr>
<tr>
<td>Orem, UT</td>
<td>2,239</td>
<td>2,390</td>
</tr>
<tr>
<td>Concord, CA</td>
<td>2,502</td>
<td>2,578</td>
</tr>
<tr>
<td>Folsom, CA</td>
<td>2,370</td>
<td>2,593</td>
</tr>
<tr>
<td>Vancouver, WA</td>
<td>2,370</td>
<td>2,709</td>
</tr>
<tr>
<td>Waipio, HI1</td>
<td>3,941</td>
<td>4,258</td>
</tr>
<tr>
<td>Issaquah, WA2</td>
<td>2,800</td>
<td>3,150</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Expansion from 16 fueling positions to 20 fueling positions
2 Expansion from 12 fueling positions to 20 fueling positions

As shown in Table 4, each of the eight sites recorded an increase in the number of Average Weekday Daily Fuel Transactions. However, the increase found in all situations is significantly less than what would be calculated from a direct linear relationship to the number of vehicle fueling positions. Using a linear relationship, expanding the fuel station from 12 to 16 fueling positions would equate to an increase in activity or trip generation of 33%, expanding from 16 to 20 positions would equate to an increase of 25%, and expanding from 12 to 20 would equate to an increase of
67%. However, the actual before and after data only shows an average increase of 9.2% in daily fuel transactions.

This data demonstrates that increasing the number of fueling positions at the Oxnard Costco Gasoline facility will not result in a direct linear increase in trip generation. The before and after data captures the change in demand that results from reducing peak hour queues and wait times at the fuel stations due to the effect of latent demand and more efficient peak operations. In all cases, peak queues and wait times are significantly reduced and those members who previously chose not to purchase fuel because of the wait times will likely do so in either case once the operations are improved.

**Fuel Station Expansion Trip Generation Estimate**

From the traffic and transaction count data collected onsite, the Oxnard Costco Gasoline facility generates approximately 450 total trip ends (or 225 total vehicles) during the weekday p.m. peak hour under the existing conditions. The total trip ends generated at the gasoline facility during the weekday midday peak hour is derived from sales data obtained, which indicates that the weekday midday peak hour is nearly identical to weekday p.m. peak hour sales (weekday midday represents approximately 101 percent of the weekday p.m. peak hour sales). The data from **Table 4** and the observed increase in activity from other Costco Gasoline expansion sites was then applied to the existing trip generation to estimate the expected number of additional total trips that would result from the proposed expansion to the Oxnard Costco Gasoline facility. Applying the determined 9.2% increase in activity due to the proposed expansion, the new total trip generation estimate is summarized in **Table 5**.

**Table 5. Oxnard Costco Gasoline Expansion Trip Generation Estimate**

<table>
<thead>
<tr>
<th></th>
<th>Weekday Midday Peak Hour</th>
<th>Weekday PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing Trip Ends</td>
<td>Expected Increase in Trip Ends</td>
</tr>
<tr>
<td>Total Trip Ends</td>
<td>455</td>
<td>42 (9.2% increase)</td>
</tr>
</tbody>
</table>

As can be seen from **Table 5**, the proposed additional fueling positions would generate approximately 42 additional weekday midday peak hour and weekday p.m. peak hour total trip ends (or 21 total additional vehicles during each peak hour).

**Diesel Addition Trip Generation Estimate**

KAI also evaluated the trip generation impacts of adding diesel gasoline sales to the fuel station. At this time, the information related to diesel sales at Costco Gasoline facilities is limited due to the fact that only a small number of locations provide diesel (although several sites have been approved
to add diesel in the near future). Costco provided information to KAI related to the diesel sales at the five existing Costco Gasoline locations that provide diesel. The data from these locations shows that diesel sales make up a very small amount of the activity at the overall Costco Gasoline facilities at approximately 5.3% on average. In addition, on a daily basis, the five fuel stations with diesel did not generate any additional amount of traffic beyond what would be expected for a typical fuel station based on the information in the Costco trip generation database. As such, it appears that the provision of diesel does not significantly affect the number of trips generated by a Costco Gasoline fuel station. The proportion of vehicles on the roadway today that use diesel fuel is also a very small portion of the overall vehicles in circulation so these results are as expected and we do not estimate a measureable or noticeable increase in trips at the Oxnard Costco Gasoline facility due to the addition of diesel fuel sales.

However, in order to be conservative, a 5.3% increase in existing trip generation was assumed to account for the potential impact from the addition of diesel gasoline to the existing fuel station. Table 6 summarizes the estimate for additional trips due to the diesel addition.

Table 6. Oxnard Costco Diesel Trip Generation Estimate

<table>
<thead>
<tr>
<th></th>
<th>Weekday PM Peak Hour</th>
<th>Weekday PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>Conservative Estimate for Increase (5.3%)</td>
</tr>
<tr>
<td>Total Trip Ends</td>
<td>455</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>450</td>
<td>24</td>
</tr>
</tbody>
</table>

As can be seen from Table 6, the addition of diesel would generate approximately 25 additional weekday midday peak hour and 24 additional weekday p.m. peak hour total trip ends (or 13 and 12 total additional vehicles, respectively).

Overall Project Trip Generation Estimate

For the past 16 years, Kittelson and Associates, Inc. (KAI) has maintained a database of traffic data and travel characteristics for Costco Wholesale. The database contains transportation information such as trip rates, trip type percentages, and parking demand for Costco locations in the United States as well as Canada and Mexico. The database is updated and refined each time new Costco traffic counts or information become available to KAI and provides use-specific data that most accurately represents the anticipated traffic characteristics of the unique development type.

The Costco transportation data base maintained by KAI contains a large quantity of data related to Costco Gasoline fuel stations. Trip generation rates and trip type information for over 35 Costco Gasoline facilities located throughout the United States are included. Costco has invested significant effort into developing this use-specific trip generation database for both their warehouses and their fuel stations because of the unique characteristics of Costco customer travel that exist due to
membership requirements and the nature of Costco sales. These unique elements apply to the trip
generation for Costco warehouses, Costco Gasoline fuel stations, and the interaction of trips
between the two. Table 7 summarizes the Costco Gasoline trip generation characteristics broken
down by internal trips, pass-by trips, and diverted trips.

Table 7. Costco Gasoline Trip Generation Characteristics (By Type)

<table>
<thead>
<tr>
<th>Trip Characteristic</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Trip Percentage</td>
<td>34%</td>
</tr>
<tr>
<td>Pass-by Trip Percentage</td>
<td>37%</td>
</tr>
<tr>
<td>Diverted Trip Percentage</td>
<td>37%</td>
</tr>
</tbody>
</table>

As indicated in the Table 7, the unique nature of Costco operations and its membership
requirements result in different trip characteristics than those observed at the standard fuel
stations summarized in the standard reference, Trip Generation, published by the Institute of
Transportation Engineers (ITE)\(^1\). The percentage of pass-by trips at Costco fuel stations is
considerably lower than that quoted in the ITE manual for typical fuel stations. Correspondingly,

\(\text{Table 7, the unique nature of Costco operations and its membership requirements result in different trip characteristics than those observed at the standard fuel stations summarized in the standard reference, Trip Generation, published by the Institute of Transportation Engineers (ITE)\(^1\). The percentage of pass-by trips at Costco fuel stations is considerably lower than that quoted in the ITE manual for typical fuel stations. Correspondingly, membership requirements also have a significant effect on trip internalization (or sharing of trips) between the warehouse and the fuel station. Fewer people exclusively visit a Costco fuel station (in comparison to a typical standalone station) because they have another primary purpose for visiting the site (that being a trip to the warehouse).

Internal Trips

A key finding from the studies conducted at Costco facilities is the fact that approximately 34% of
the weekday p.m. peak hour trips to and from Costco fuel stations are internal capture trips.
Internal capture trips account for those members who patronize both the warehouse and the
gasoline pumps during a single visit to the Costco site. As such, although they account for a trip to
both the warehouse and the fuel station, they only account for one overall vehicle trip to the site
and on the surrounding transportation system. Table 7 shows that, based on studies including
surveys at Costco fuel stations and membership card transaction data, on average 34% of the
members buying gas during the weekday p.m. peak hour are members whose main purpose to the
site is to visit the Costco warehouse. At some sites this number ranges as high as 75% but for the
purposes of a conservative analysis the average estimate is used for this estimate.

Pass-by Trips

Pass-by trips represent members (and trips) that are currently traveling on the immediate surrounding street network for some other primary purpose (such as a trip from work to home) and stop into the site during their normal travel. Pass-by trips do not result in a net increase in traffic on the surrounding transportation system. The only impact occurs at site access driveways where they become turning movements. Based on data collected through customer surveys at Costco fuel stations, on average 37% of members buying gas during the weekday p.m. peak hour can be classified as pass-by trip capture from the surrounding street system. This is lower than the average pass-by rate (42%) quoted in the ITE Trip Generation Handbook, 3rd Edition, for ITE land use code 944 (Gasoline/Service Center), attributable to the unique travel characteristics that result from Costco’s membership requirements.

Diverted Trips

Diverted trips represent members (and trips) that are traveling nearby (but not directly adjacent to) the site for some other primary purpose, but reroute to the site for fuel during their normal travel. Diverted trips therefore have a slightly greater impact on the surrounding transportation system, but the impact is limited only to those one or two intersections along the route that lead to the site access driveways. Based on data collected through customer surveys at Costco fuel stations, on average 37% of the members buying gas during the weekday p.m. peak hour can be classified as diverted trip capture from the surrounding street system. This is roughly equal to the average diverted trip rate quoted in the ITE Trip Generation Handbook, 3rd Edition, for ITE Code 944 (35%).

Primary Trips

Remaining trips are classified as primary trips, whose sole purpose traveling to the site is to visit the fuel station and then return directly to their origin. After accounting for the other trip types discussed, primary trips represent less than 20% of the total trips that would be counted at the entrance to the fuel station. In other words, very few people make exclusive trips to Costco fuel stations during peak periods.

Based on the information outline above for the impacts of the additional fueling positions and the addition of diesel gasoline sales, a total project trip generation estimate was prepared as summarized in Table 8.
Table 8. Oxnard Costco Gasoline Expansion & Relocation Trip Generation Estimate

<table>
<thead>
<tr>
<th></th>
<th>Weekday Midday Peak Hour Trip Ends</th>
<th>Weekday PM Peak Hour Trip Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Trips from Fueling Position Expansion</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Additional Trips from Diesel Addition</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>Total Trip Ends</td>
<td>67</td>
<td>66</td>
</tr>
<tr>
<td>Reduction for Internal Trips (34%)</td>
<td>(23)</td>
<td>(23)</td>
</tr>
<tr>
<td>Total External Trip Ends</td>
<td>44</td>
<td>43</td>
</tr>
<tr>
<td>Pass-by Trips (37%)</td>
<td>(16)</td>
<td>(16)</td>
</tr>
<tr>
<td>Diverted Trips (37%)</td>
<td>(16)</td>
<td>(16)</td>
</tr>
<tr>
<td>Net New Trip Ends</td>
<td>12</td>
<td>11</td>
</tr>
</tbody>
</table>

As shown in Table 8, the overall project would generate approximately 44 and 43 additional external trip ends during the weekday midday and p.m. peak hours, respectively (or 22 total additional vehicles in each peak hour). Of these external trips, 16 trips would be pass-by trips and 16 trips would be diverted trips. The remaining external trip ends (12 during the weekday midday peak hour and 11 during the weekday p.m. peak hour) would be net new trips to the site using the surrounding transportation system. Again, it should be noted that this represents a conservative estimate for the increase in trips based on the best available data regarding Costco Gasoline diesel sales.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

This section discusses the anticipated shifts in traffic demand and internal circulation patterns once the fuel station is relocated from the south end of the site to the northeast corner.

Internal Trips

The on-site relocation of the fuel station would produce subtle changes in internal circulation patterns on the Costco Warehouse site itself, but would not impact site driveways or adjacent public roadways.

External Trips

Possible shifts in overall travel patterns to the Costco Warehouse site due to remaining trip types (pass-by, diverted, primary) were also evaluated. Based on publicly available historical average daily traffic (ADT) volumes, the ratio of volume on Auto Center Drive (10,100 ADT) is approximately five times greater than Ventura Boulevard (2,500 ADT) in the immediate vicinity of the Costco site. Despite the somewhat dated nature of the available data, the overall proportion of volume on these two roadways is likely similar.
Therefore, it can be assumed that approximately 20% of all trips to/from the Costco site (including the fuel station) use Ventura Boulevard, while the remaining 80% use Auto Center Drive. This also makes intuitive sense, since the current transportation network already creates a natural disposition for a majority of Costco traffic to orient towards Auto Center Drive given that Ventura Boulevard terminates in a cul-de-sac just east of the site and ties back into Auto Center Drive to the west. Since 35% of fuel station trips are internal, and the remaining trip types (pass-by, diverted, primary) are already largely oriented toward Auto Center Drive, we would anticipate a minimal (5%) shift in traffic demand from Ventura Boulevard site driveways to Auto Center Drive once the on-site relocation of the Costco fuel station occurs. This shift would not have a meaningful impact on site driveway operations or internal circulation. Figure 5 shows the existing, rerouted gasoline facility trips at the study intersections due to the relocation of the gasoline fuel pumps. Figure 6 and Figure 7 illustrate the pass-by and diverted trips generated from the fuel station expansion, respectively.

Figure 8 illustrates the trip distribution and assignment assumed for the project-generated trips due to the fuel station expansion. Figures 5, 6, 7, and 8 together are the total project-generated traffic volumes, taking into account both the fuel station relocation and the fuel station expansion. Figure 9 illustrates the existing + project traffic volumes, which accounts for the existing traffic volumes on the roadway network (Figure 4), and the total project-generated traffic volumes (Figures 5, 6, 7, and 8).

Easement Road Connection

The on-site relocation of the Costco fuel station would also create a new connection to the private (unnamed) easement road to the east. However, the private easement road would only be accessible by fuel trucks by way of a chained fence, and would not be accessible to Costco members.
Note: Negative trips are trips rerouted away from the original turning movement due to the fuel station relocation; positive trips are trips being rerouted to a specific movement.
Pass-by Trips Due To Fuel Station Expansion
Weekday Midday and PM Peak Hours
Oxnard, California
Note: Negative trips are trips diverted from the original movement due to the fuel station expansion; positive trips are diverted trips added to a specific movement.

Diverted Trips Due To Fuel Station Expansion
Weekday Midday and PM Peak Hours
Oxnard, California
Trip Distribution and Assignment for Project Trips Due to Fuel Station Expansion
Weekday Midday and PM Peak Hours
Oxnard, California

Figure 8
Existing + Project Traffic Volumes
Weekday Midday and PM Peak Hours
Oxnard, California

Figure 9
PROJECT-SPECIFIC ANALYSIS

Levels of service for the study intersections were estimated using the existing + project peak hour volumes. Table 9 and Table 10 show the anticipated operations during the weekday midday and p.m. peak hours, respectively, and identify project-specific impacted intersections based on the City of Oxnard’s impact thresholds. Appendix E contains the operational worksheets for existing + project traffic volumes.

As shown in Table 9 and Table 10, the operations at the Auto Center Drive/Paseo Mercado intersection would improve, primarily due to the rerouting of existing trips utilizing the fuel station. All other intersections would not experience impacts as a result of the proposed fuel station relocation, with the exception noted below:

Auto Center Drive/Los Olivos/Eastern Costco Access

The critical southbound approach of unsignalized site access point would continue operate at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The volume-to-capacity ratio of the critical southbound approach would increase by approximately 0.05 and 0.10 during the weekday midday and p.m. peak hours, primarily due to the rerouting of existing fuel station trips. While not modeled in this analysis, operations at the southern Costco access points along Paseo Mercado and Ventura Boulevard may also improve due to the reduction/rerouting of trips to the Auto Center Drive/Los Olivos/Eastern Costco Access intersection.

A signal warrant analysis was performed at this intersection using the Manual on Uniform Traffic Control Devices (MUTCD) signal warrant methodology, and this intersection would meet the signal warrant under the existing + project conditions. Appendix F contains the signal warrant analysis worksheets.

Mitigation

As shown in Figure 5, the redistribution of traffic volumes surrounding the Costco site is expected to be fairly substantial, particularly from the west as motorists detour from Paseo Mercado or Ventura Boulevard to use the easternmost Costco access on Auto Center Drive for outbound maneuvers or to access the fuel center. With this redistribution of trips, maintaining the existing unsignalized control would result in excessive delays and queuing at the access. Accordingly, Costco proposes to install a traffic signal at the easternmost Costco access on Auto Center Drive to serve these demands.

A conceptual layout of the intersection was prepared to assess the potential impacts to the Costco site, necessary changes to the Auto Center Drive median, and alignment with the Los
Olivos public street opposite to the Costco site access. Based on discussions and comments received from City staff this concept was revised to provide additional redundancy and serve peak period or seasonal needs. This included widening the south leg of the intersection to accommodate a 20-foot inbound lane, a 11-foot northbound left-turn lane, a 11 foot northbound thru/left-shared lane, and a 14-foot northbound right-turn lane. The 14-foot northbound right-turn lane could accommodate the turning radius of larger vehicles.

**Figure 10** provides a conceptual design layout of the intersection as revised, with modified dimensions as shown. As the traffic signal would be turned over to the City of Oxnard following construction, specific aspects of the signal related to timing, phasing, detection type, and other hardware would be further discussed with City staff. Key geometric aspects are illustrated in **Figure 10**.

**Table 11** and **Table 12** summarize the level of service under existing + project with mitigations conditions for the intersection of Auto Center Drive/Los Olivos/Eastern Costco Access.
Table 9. Existing + Project Weekday Midday Peak Hour Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing</th>
<th>Existing + Project</th>
<th>Change</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
<td>LOS</td>
<td>ICU V/C</td>
</tr>
<tr>
<td>1 North Rose Ave. /Auto Center Dr./East Ventura Blvd.</td>
<td>0.66</td>
<td>--</td>
<td>B</td>
<td>0.68</td>
</tr>
<tr>
<td>2 Auto Center Dr. / Ventura Blvd.</td>
<td>0.48</td>
<td>--</td>
<td>A</td>
<td>0.48</td>
</tr>
<tr>
<td>3 Auto Center Dr. / Paseo Mercado</td>
<td>0.43</td>
<td>--</td>
<td>A</td>
<td>0.42</td>
</tr>
<tr>
<td>4 Auto Center Dr. / Los Olivos/Eastern Costco Access</td>
<td>--</td>
<td>38.6</td>
<td>E</td>
<td>--</td>
</tr>
<tr>
<td>5 Rice Ave./Santa Clara Ave./Auto Center Dr./US 101 Off-ramp</td>
<td>0.36</td>
<td>--</td>
<td>A</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Table 10. Existing + Project Weekday PM Peak Hour Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing</th>
<th>Existing + Project</th>
<th>Change</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
<td>LOS</td>
<td>ICU V/C</td>
</tr>
<tr>
<td>1 North Rose Ave. /Auto Center Dr./East Ventura Blvd.</td>
<td>0.77</td>
<td>--</td>
<td>C</td>
<td>0.77</td>
</tr>
<tr>
<td>2 Auto Center Dr. / Ventura Blvd.</td>
<td>0.46</td>
<td>--</td>
<td>A</td>
<td>0.46</td>
</tr>
<tr>
<td>3 Auto Center Dr. / Paseo Mercado</td>
<td>0.44</td>
<td>--</td>
<td>A</td>
<td>0.41</td>
</tr>
<tr>
<td>4 Auto Center Dr. / Los Olivos/Eastern Costco Access</td>
<td>--</td>
<td>&gt;50</td>
<td>F</td>
<td>--</td>
</tr>
<tr>
<td>5 Rice Ave./Santa Clara Ave./Auto Center Dr./US 101 Off-ramp</td>
<td>0.56</td>
<td>--</td>
<td>A</td>
<td>0.56</td>
</tr>
</tbody>
</table>
### Table 11. Existing + Project with Mitigation Weekday Midday Peak Hour Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing + Project</th>
<th>Existing + Project with Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
</tr>
<tr>
<td>4</td>
<td>Auto Center Dr./ Los Olivos/Eastern Costco Access</td>
<td>--</td>
</tr>
</tbody>
</table>

### Table 12. Existing + Project with Mitigation Weekday PM Peak Hour Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing + Project</th>
<th>Existing + Project with Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
</tr>
<tr>
<td>4</td>
<td>Auto Center Dr./ Los Olivos/Eastern Costco Access</td>
<td>--</td>
</tr>
</tbody>
</table>
Figure 10. Conceptual Auto Center Drive/Los Olivos/Eastern Costco Access Signal Layout

- 11 ft width x 100 ft length
- 11 ft width x 100 ft length
- Modify median to accommodate truck turns
- Remove luminaire & replace with signal pole illumination
- 20 ft width inbound lane
- Remove existing drive-aisle and reconfigure parking area
- Widen inbound lane to allow bypassing queues
- 11 ft width x 60 ft length
- 11 ft width x 100 ft length
- Realign with the Costco site access and extend southbound approach lane striping to 100 feet
- Crosswalks/accessible ramps on all approaches
- Extend left-turn lane from 165 feet to 250 feet
- Remove luminaire & replace with signal pole illumination
- Provide a 14-foot right-turn lane to accommodate truck turns
- Gated access for exiting fuel trucks
- Provide striping to guide vehicles to the inside lane and encourage equal lane utilization
- Provide turn lane for inbound fuel facility trips
**Signalized Intersection Operations and Queuing**

An operational analysis of the proposed traffic signal and internal driveway to the relocated fuel station (Intersection #6) was conducted. This analysis was based on the estimated rerouting of trips anticipated with the fuel center expansion and on-site relocation. This analysis was prepared to ensure that the number of storage lanes, length of available storage, and signal phasing could accommodate the anticipated demands and avoid internal congestion.

With the installation of a traffic signal, the operational analysis at the intersection of Auto Center Drive/Los Olivos/Eastern Costco Access shows that the intersection would operate at LOS “A” and at ICU volume-to-capacity ratio (V/C) of 0.41 during both the weekday midday and p.m. peak hours. Anticipated 95<sup>th</sup> percentile queues were estimated in *SimTraffic* and are shown in Table 13. All queues would be accommodated within the storage bays shown in the conceptual layout and within the existing left-turn bays on Auto Center Drive, except for the following location:

- **Westbound left turn approach at the intersection of Auto Center Drive / Los Olivos / Eastern Costco Access:** The anticipated 95<sup>th</sup> percentile queue would be 179 feet (or approximately eight vehicles) during the weekday midday peak hour under the Existing plus Project conditions. The existing turn pocket length of 165 feet would not be able to accommodate this anticipated queue. Therefore, Costco proposes to extend the westbound left-turn pocket from the existing length of 165 feet to 250 feet, which would be able to accommodate the anticipated queue of 179 feet at this location.

**Table 13. Forecast 95<sup>th</sup> Percentile Queue Length at Auto Center Drive/Los Olivos/Eastern Costco Access and Eastern Costco Access/Fuel Station Driveway Intersections, Existing + Project Traffic Volumes**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Lane Group</th>
<th>Existing/Proposed* Storage (feet)</th>
<th>95&lt;sup&gt;th&lt;/sup&gt;-Percentile Queues (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Weekday Midday Peak Hour</td>
</tr>
<tr>
<td>4. Auto Center Drive / Los Olivos / Eastern Costco Access</td>
<td>EBL</td>
<td>155/145*</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>EBTR</td>
<td>-</td>
<td>283</td>
</tr>
<tr>
<td></td>
<td>WBL</td>
<td>165/250*</td>
<td>179</td>
</tr>
<tr>
<td></td>
<td>WBTR</td>
<td>-</td>
<td>132</td>
</tr>
<tr>
<td></td>
<td>NBL</td>
<td>100*</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>NBTL</td>
<td>105*</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>NBR</td>
<td>165*</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>SBL</td>
<td>100*</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>SBTR</td>
<td>-</td>
<td>48</td>
</tr>
<tr>
<td>6. Eastern Costco Access / Fuel Station Driveway</td>
<td>SBL</td>
<td>60*</td>
<td>51</td>
</tr>
</tbody>
</table>
Within the parking lot, traffic control measures shall be implemented, which include signs (STOP, DO NOT ENTER, etc.) that provide clear directional messaging to drivers. The signing and striping plans for the access points shall be coordinated with the traffic signal design to ensure consistent driver messaging and right-of-way for northbound and southbound motorists within the Costco site. 

**Appendix G** contains the operational worksheets for the existing + project with mitigation conditions.

As provided within **Figure 10**, a short southbound left-turn lane is also proposed for inbound traffic into the fuel station. This left-turn lane was designed to accommodate three vehicles, which would be the anticipated maximum queue length at this internal uncontrolled intersection; this is consistent with the results from the SimTraffic queuing results as shown for Intersection 6 Eastern Costco Access/ Fuel Station Driveway in **Table 13**. However, with the proximity to the traffic signal, a platoon of vehicles could be simultaneously entering the site from the westbound left-turn bay on Auto Center Drive. To ensure the forecast westbound left-turn queue on Auto Center Drive (anticipated to be eight vehicles during peak hour signal cycles) could be accommodated without creating internal congestion, the inbound drive aisle is proposed to be widened to 20-feet, which would allow following motorists to bypass vehicles waiting to turn into the fuel center if a queue were present.

**Alternative Lane Configuration**

At the request of City of Oxnard staff, the traffic operations were also evaluated with the addition of a second northbound right-turn lane at the North Rose Avenue/Auto Center Drive/East Ventura Boulevard. **Table 14** provides a comparison of queue lengths between existing and existing + project conditions under the current lane configuration, while **Table 15** provides a comparison of anticipated queue lengths under the alternative lane configuration scheme. The anticipated 95th percentile queue lengths were obtained from the SimTraffic analysis. **Appendix H** contains the level-of-service analysis worksheets and SimTraffic queuing analysis output for existing + project with alternative lane configuration traffic conditions.

**North Rose Avenue/Auto Center Drive/East Ventura Boulevard**

As shown in **Table 14**, during the p.m. peak hour, the existing + project conditions would have a shorter northbound right-turn 95th percentile queue length at the intersection of North Rose Avenue/Auto Center Drive/East Ventura Boulevard than the existing conditions, even though the Project is adding traffic to this approach. This is because the signal timing at this intersection is actuated and that when there are more vehicles arriving at the intersection, the green time would adjust slightly based on the actuation by the platoon of arriving vehicles. When there are more vehicles arriving at the intersection, green time would be extended up to the maximum split. The longer green time under the existing + project conditions would result in a shorter queue length for the northbound right-turn approach as compared to the existing conditions.
Table 14. Anticipated Traffic Operations at North Rose Avenue/Auto Center Drive/East Ventura Boulevard – Existing + Project Traffic Volumes

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Lane Group</th>
<th>Available Storage (feet)</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Rose Avenue / Auto Center Drive / East Ventura Boulevard</td>
<td>NBR</td>
<td>500</td>
<td>340</td>
<td>0.66</td>
<td>B</td>
<td>348</td>
<td>0.68</td>
<td>B</td>
<td>345</td>
<td>0.77</td>
<td>C</td>
<td>342</td>
</tr>
<tr>
<td>2. Auto Center Drive / Ventura Boulevard</td>
<td>EBL</td>
<td>90</td>
<td>47</td>
<td>0.48</td>
<td>A</td>
<td>56</td>
<td>0.48</td>
<td>A</td>
<td>34</td>
<td>0.46</td>
<td>A</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>EBT</td>
<td>Cont.</td>
<td>193</td>
<td></td>
<td></td>
<td>245</td>
<td></td>
<td>A</td>
<td>172</td>
<td>0.46</td>
<td>A</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>EBR</td>
<td>150</td>
<td>141</td>
<td></td>
<td></td>
<td>151</td>
<td></td>
<td>A</td>
<td>127</td>
<td></td>
<td></td>
<td>137</td>
</tr>
</tbody>
</table>

Table 15. Anticipated Traffic Operations with Additional Northbound Right-Turn Lane at North Rose Avenue/Auto Center Drive/East Ventura Boulevard – Existing + Project Traffic Volumes

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Lane Group</th>
<th>Available Storage (feet)</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
<th>95th %-tile Queue (feet)</th>
<th>Average Intersection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Rose Avenue / Auto Center Drive / East Ventura Boulevard</td>
<td>NBR</td>
<td>500</td>
<td>142</td>
<td>0.49</td>
<td>A</td>
<td>148</td>
<td>0.49</td>
<td>A</td>
<td>137</td>
<td>0.77</td>
<td>C</td>
<td>211</td>
</tr>
<tr>
<td>2. Auto Center Drive / Ventura Boulevard</td>
<td>EBL</td>
<td>90</td>
<td>35</td>
<td>0.49</td>
<td>A</td>
<td>67</td>
<td>0.49</td>
<td>A</td>
<td>37</td>
<td>0.46</td>
<td>A</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>EBT</td>
<td>Cont.</td>
<td>175</td>
<td></td>
<td></td>
<td>220</td>
<td></td>
<td>A</td>
<td>175</td>
<td>0.46</td>
<td>A</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td>EBR</td>
<td>150</td>
<td>120</td>
<td></td>
<td></td>
<td>144</td>
<td></td>
<td>A</td>
<td>118</td>
<td></td>
<td></td>
<td>137</td>
</tr>
</tbody>
</table>
Relative to the queues forecast under existing traffic volumes with the alternative lane configuration, the northbound right-turn queues at the intersection would increase by approximately six feet and 74 feet during the weekday midday and p.m. peak periods, respectively, after project traffic is added to the roadway network. The addition of a second northbound right-turn lane would prevent the northbound queues from spilling back to the upstream North Rose Avenue/US 101 Northbound Off-ramp intersection. The queues for the other approaches would not change noticeably with the addition of the northbound right-turn lane.

**Auto Center Drive/Ventura Boulevard**

With the addition of the northbound right-turn lane at the adjacent North Rose Avenue/Auto Center Drive/East Ventura Boulevard intersection, queues on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection would not change noticeably during the weekday midday and p.m. peak hours relative to existing conditions with the alternative lane configurations. The existing storage lengths provided on the eastbound approach would be able to accommodate the forecast 95th percentile queues.

**CUMULATIVE (EXISTING + APPROVED/PENDING PROJECTS) CONDITIONS**

The City of Oxnard requires study intersections to be analyzed with the addition of traffic generated by projects which have been approved or are pending within the project study area. At the direction of City staff, two approved/pending projects were included in this analysis:

- Gold Coast Transit
- Audi of Oxnard

The volumes added at each study intersection by the Gold Coast Transit development were obtained from the Gold Coast Transit Traffic and Circulation Study (dated June 4, 2014), while the volumes added by the proposed Audi dealership were obtained from the Audi of Oxnard Traffic and Circulation Study (dated November 21, 2016). **Figure 11** illustrates the cumulative no project peak hour traffic volumes at the study intersections, which accounts for the existing traffic volumes (**Figure 4**) + trips generated by the two approved/pending projects.
Cumulative No Project Traffic Volumes
Weekday Midday and PM Peak Hours
Oxnard, California

Figure 11
Cumulative Volumes and Intersection Levels of Service

Levels of service for the cumulative scenario peak hour traffic volumes were estimated at each of the study intersections. Table 16 shows the anticipated operations during the weekday midday and p.m. peak hours. Appendix I contains the operational worksheets for cumulative conditions.

Table 16. Cumulative Peak Hour Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Traffic Control</th>
<th>Weekday Midday Peak Hour</th>
<th>Weekday PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
<td>LOS</td>
</tr>
<tr>
<td>1 North Rose Ave./Auto Center Dr./East Ventura Blvd.</td>
<td>Signalized</td>
<td>0.70</td>
<td>--</td>
</tr>
<tr>
<td>2 Auto Center Dr./Ventura Blvd.</td>
<td>Signalized</td>
<td>0.49</td>
<td>--</td>
</tr>
<tr>
<td>3 Auto Center Dr./Paseo Mercado</td>
<td>Signalized</td>
<td>0.45</td>
<td>--</td>
</tr>
<tr>
<td>4 Auto Center Dr./Los Olivos/Eastern Costco Access</td>
<td>Two-way Stop-controlled</td>
<td>--</td>
<td>43.9</td>
</tr>
<tr>
<td>5 Rice Ave./Santa Clara Ave./Auto Center Dr./US 101 Off-ramp</td>
<td>Signalized</td>
<td>0.37</td>
<td>--</td>
</tr>
</tbody>
</table>

As shown in Table 16, the intersection of Auto Center Drive/Los Olivos/Eastern Costco Access would continue to operate at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. All the other study intersections would operate at LOS “C” or better during the weekday midday and p.m. peak hours.

CUMULATIVE + PROJECT ANALYSIS

Cumulative + Project Volumes and Intersection Levels of Service

Levels of service for the study intersections were estimated using the cumulative + project peak hour volumes.
Figure 12 illustrates the anticipated cumulative + project peak hour traffic volumes at the study intersections, which accounts for the cumulative no project traffic volumes (Figure 11) + the total project-generated traffic volumes (Figures 5, 6, 7, and 8). Table 17 and Table 18 show the anticipated operations during the weekday midday and p.m. peak hours, respectively, and identify project-specific impacted intersections based on the City of Oxnard’s impact thresholds. Appendix J contains the operational worksheets for cumulative + project traffic volumes.

As shown in Table 17 and Table 18, the project would not have a substantial impact at any of the study intersections with the following exception:

Auto Center Drive/Los Olivos/Eastern Costco Access

The critical southbound approach of unsignalized site access point would operate at LOS “F” during both the weekday midday and p.m. peak hours. The volume-to-capacity ratio of the critical southbound approach would increase by approximately 0.04 and 0.08 during the weekday midday and p.m. peak hours, respectively, primarily due to the rerouting of existing fuel station trips. While not modeled in this analysis, operations at the southern Costco access points along Paseo Mercado and Ventura Boulevard may also improve due to the reduction/rerouting of trips to the Auto Center Drive/Los Olivos/Eastern Costco Access intersection.

Mitigation

As proposed under the existing + project traffic conditions, the operations at the Auto Center Drive/Los Olivos/Eastern Costco Access intersection could be improved by converting the control strategy from two-way stop-controlled to signalized control. If the lane configurations previously proposed were implemented, the intersection would operate at LOS “A” with an ICU V/C of 0.42 during both the weekday midday and p.m. peak hours under cumulative + project traffic conditions.

Table 19 and Table 20 summarize the level of service under cumulative + project weekday midday and p.m. peak hours with mitigations for the intersection of Auto Center Drive/Los Olivos/Eastern Costco Access. Table 21 summarizes the results of the SimTraffic queueing analysis at the Auto Center Drive/Los Olivos/Eastern Costco Access and Eastern Costco Access/Fuel Station Driveway intersections during the weekday midday and p.m. peak hours under cumulative + project traffic conditions. Appendix K contains the operational worksheets for the cumulative + project with mitigation conditions.
Cumulative + Project Traffic Volumes
Weekday Midday and PM Peak Hours
Oxnard, California
Table 17. Cumulative + Project Weekday Midday Peak Hour Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Cumulative</th>
<th>Cumulative + Project</th>
<th>Change</th>
<th>Significant Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
<td>LOS</td>
<td>ICU V/C</td>
</tr>
<tr>
<td>1 North Rose Ave./Auto Center Dr./East Ventura Blvd.</td>
<td>0.70</td>
<td>--</td>
<td>C</td>
<td>0.72</td>
</tr>
<tr>
<td>2 Auto Center Dr./Ventura Blvd.</td>
<td>0.49</td>
<td>--</td>
<td>A</td>
<td>0.51</td>
</tr>
<tr>
<td>3 Auto Center Dr./Paseo Mercado</td>
<td>0.45</td>
<td>--</td>
<td>A</td>
<td>0.44</td>
</tr>
<tr>
<td>4 Auto Center Dr./Los Olivos/Eastern Costco Access</td>
<td>--</td>
<td>43.9</td>
<td>E</td>
<td>--</td>
</tr>
<tr>
<td>5 Rice Ave./Santa Clara Ave./Auto Center Dr./US 101 Off-ramp</td>
<td>0.37</td>
<td>--</td>
<td>A</td>
<td>0.37</td>
</tr>
</tbody>
</table>

*Under the cumulative weekday midday peak hour conditions, the intersection of North Rose Ave./Auto Center Dr./East Ventura Blvd. would operate at LOS C with ICU V/C of 0.702; under the cumulative + project weekday midday peak hour conditions, the intersection would operate at LOS C with ICU V/C of 0.718. The increase in ICU V/C with the project would be 0.016, which is less than the City’s Impact Threshold Criteria of 0.02.

Table 18. Cumulative + Project Weekday PM Peak Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Cumulative</th>
<th>Cumulative + Project</th>
<th>Change</th>
<th>Significant Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
<td>LOS</td>
<td>ICU V/C</td>
</tr>
<tr>
<td>1 North Rose Ave./Auto Center Dr./East Ventura Blvd.</td>
<td>0.78</td>
<td>--</td>
<td>C</td>
<td>0.78</td>
</tr>
<tr>
<td>2 Auto Center Dr./Ventura Blvd.</td>
<td>0.49</td>
<td>--</td>
<td>A</td>
<td>0.49</td>
</tr>
<tr>
<td>3 Auto Center Dr./Paseo Mercado</td>
<td>0.45</td>
<td>--</td>
<td>A</td>
<td>0.42</td>
</tr>
<tr>
<td>4 Auto Center Dr./Los Olivos/Eastern Costco Access</td>
<td>--</td>
<td>&gt;50</td>
<td>F</td>
<td>--</td>
</tr>
<tr>
<td>5 Rice Ave./Santa Clara Ave./Auto Center Dr./US 101 Off-ramp</td>
<td>0.56</td>
<td>--</td>
<td>A</td>
<td>0.56</td>
</tr>
</tbody>
</table>
### Table 19. Cumulative + Project with Mitigation Weekday Midday Peak Hour Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Cumulative + Project</th>
<th>Cumulative + Project with Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
</tr>
<tr>
<td>4</td>
<td>Auto Center Dr./ Los Olivos/Eastern Costco Access</td>
<td>--</td>
</tr>
</tbody>
</table>

### Table 20. Cumulative + Project with Mitigation Weekday PM Peak Hour Levels of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Cumulative + Project</th>
<th>Cumulative + Project with Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICU V/C</td>
<td>Crit. Mov. Delay (s)</td>
</tr>
<tr>
<td>4</td>
<td>Auto Center Dr./ Los Olivos/Eastern Costco Access</td>
<td>--</td>
</tr>
</tbody>
</table>
Table 21. Forecast 95th Percentile Queue Length at Auto Center Drive/Los Olivos/Eastern Costco Access and Eastern Costco Access/Fuel Station Driveway Intersections, Cumulative + Project Traffic Volumes

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Lane Group</th>
<th>Existing/Proposed* Storage (feet)</th>
<th>95th-Percentile Queues (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Weekday Midday Peak Hour</td>
</tr>
<tr>
<td>4. Auto Center Drive / Los Olivos / Eastern Costco Access</td>
<td>EBL</td>
<td>155/145*</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>EBTR</td>
<td>-</td>
<td>269</td>
</tr>
<tr>
<td></td>
<td>WBL</td>
<td>165/250*</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>WBTR</td>
<td>-</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td>NBL</td>
<td>100*</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>NBTL</td>
<td>105*</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>NBR</td>
<td>165*</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>SBL</td>
<td>100*</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>SBTR</td>
<td>-</td>
<td>48</td>
</tr>
<tr>
<td>6. Eastern Costco Access / Fuel Station Driveway</td>
<td>SBL</td>
<td>60*</td>
<td>55</td>
</tr>
</tbody>
</table>

As shown in Table 21, all queues would be accommodated within the storage bays shown in the conceptual layout (Figure 10) and within the existing left-turn bays on Auto Center Drive, except for the following location:

- **Westbound left turn approach at the intersection of Auto Center Drive / Los Olivos / Eastern Costco Access**: The anticipated 95th percentile queue would be 178 feet (or approximately eight vehicles) during the weekday midday peak hour under the Cumulative plus Project conditions. The existing turn pocket length of 165 feet would not be able to accommodate this anticipated queue. Therefore, Costco proposes to extend the westbound left-turn pocket from the existing length of 165 feet to 250 feet, which would be able to accommodate the anticipated queue of 178 feet at this location.

Southbound left-turn queue length at the internal driveway to the fuel station would be approximately three vehicles, which is the same as the existing plus project conditions.

**SITE ACCESS AND CIRCULATION**

As shown in Figure 2, access to the site would be provided by five existing driveways:

- Two full-movement driveways on Auto Center Drive (one of which would become signalized)
- Two full-movement driveways on Paseo Mercado
- One full-movement driveway on Ventura Boulevard
The on-site relocation of the Costco fuel station would also create a new connection to the private (unnamed) easement road to the east. However, the private easement road would only be accessible by fuel trucks by way of a chained fence, and would not be accessible to Costco members.

VENTURA COUNTY GENERAL PLAN CONSISTENCY

The City of Oxnard and Ventura County implemented the “Reciprocal Traffic Mitigation Agreement” wherein the City and County agree a pro-rata share of the cost of mitigations will be collected by each agency for identified traffic impacts in the other jurisdiction. The project would be consistent with the Ventura County General Plan by complying with the terms of the “Reciprocal Traffic Mitigation Agreement” between the City and County approved on February 2, 1993.

VENTURA COUNTY CONGESTION MANAGEMENT PROGRAM

According to the County’s Congestion Management Program (CMP), the minimum acceptable standard for traffic operations is LOS “E”. To ensure local jurisdictions are not unfairly penalized for existing congestion, the CMP locations operating in the LOS “F” range during 1993 are considered acceptable.

Intersection Operations

Two of the study intersections are contained in the County’s CMP Monitoring Report: both the North Rose Avenue/Auto Center Drive/East Ventura Boulevard and Rice Avenue/Santa Clara Avenue/Auto Center Drive intersections would operate better than LOS “E” under cumulative + project peak hour traffic conditions.
Section 5
Conclusions and Recommendations
CONCLUSIONS AND RECOMMENDATIONS

FINDINGS

Year 2017 Existing Conditions

- The unsignalized Auto Center Drive/Los Olivos/Eastern Costco Access intersection currently operates at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The remaining study intersections operate at LOS “C” or better during the weekday midday and p.m. peak hours.

Alternative Lane Configuration – North Rose Avenue/Auto Center Drive/East Ventura Boulevard

- The City of Oxnard is planning to resurface the Auto Center Drive neighborhood in the near future. One of the concepts the City is currently evaluating is to restripe northbound Rose Avenue at Auto Center Drive to provide a second northbound right-turn lane. At the request of City of Oxnard staff, the addition of a second northbound right-turn lane was evaluated, even though this improvement is not part of the Costco fuel station relocation project.
  - Through discussions with City staff, it was noted queues in the northbound right-turn lane at the North Rose Avenue/Auto Center Drive/East Ventura Boulevard intersection have been observed to spill back to the upstream US 101 Northbound Off-ramp/Rose Avenue intersection.
    - The addition of a second northbound right-turn lane would reduce queue lengths in the existing northbound right-turn lane by 198 and 250 feet during the weekday midday and p.m. peak hours, respectively.
    - Operations at the intersection would improve from LOS “B” to LOS “A” during the weekday midday peak hour; no noticeable change in operations would be anticipated during the weekday p.m. peak hour.
    - Queues on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection would not change noticeably during the weekday midday and p.m. peak hours. The existing storage lengths provided on the eastbound approach would be able to accommodate the changes in queue length.
  - The addition of a second northbound right-turn lane (not associated with Costco fuel station relocation) may introduce some additional weaving on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection.
- Advance signage on the northbound approach of the North Rose Avenue/Auto Center Drive/East Ventura Boulevard intersection could help drivers pre-position in the correct turn-lane if they need to make a turning maneuver at the adjacent Auto Center Drive/Ventura Boulevard intersection.

- Over time, as drivers become familiar with the proposed changes to lane configurations, the frequency of weaving maneuvers on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection would decrease.

Development Plan

- The expansion and relocation of the Oxnard Costco fuel station would generate approximately 44 and 43 additional external trip ends during the weekday midday and p.m. peak hours, respectively (or 22 total additional vehicles in each peak hour).

  - Of these external trips, 16 trips would be pass-by trips and 16 would be diverted trips. The remaining 12 external trip ends would be net new trips to the site using the surrounding transportation system.

- Existing fuel station trips were re-assigned to the transportation network to account for the relocation to the northeast portion of the site.

- The on-site relocation would create a new connection to the private (unnamed) easement road to the east but would only be accessible by fuel trucks by way of a chained fence.

- Costco proposes to install a traffic signal at the Auto Center Drive/Los Olivos/Eastern Costco Access intersection. Volume-based Manual on Uniform Traffic Control Devices (MUTCD) signal warrants would be met.

  - The intersection would be reconfigured to accommodate the changes to the Auto Center Drive median and to align with the Los Olivos public street opposite to the Costco site access. The westbound left-turn pocket would be extended from 165 feet to 250 feet. The south leg of the intersection would be widened to provide additional redundancy and to serve peak period or seasonal needs. The new configuration would provide a 20-foot inbound lane, a 11-foot northbound left-turn lane, a 11 foot northbound thru/left-shared lane, and a 14-foot northbound right-turn lane. The 14-foot northbound right-turn lane could accommodate the turning radius of larger vehicles.

  - A 60-foot long southbound left-turn lane at the eastern Costco drive aisle would be constructed to provide access to the relocated fuel station.
Existing + Project Traffic Conditions

- The unsignalized Auto Center Drive/Los Olivos/Eastern Costco Access intersection would continue to operate at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The remaining study intersections would operate at LOS “C” or better during the weekday midday and p.m. peak hours.
  - Analysis of signal control as mitigation demonstrates the intersection would operate at LOS “A” and at ICU volume-to-capacity ratio (V/C) of 0.41 during both the weekday midday and p.m. peak hours.
  - Forecast 95th percentile queues would be accommodated by the proposed design.

Alternative Lane Configuration – North Rose Avenue/Auto Center Drive/East Ventura Boulevard

- Provision of a second northbound right-turn lane was evaluated under Existing + Project conditions during both study time periods:
  - The northbound right-turn queues at the intersection would increase by approximately six feet and 74 feet during the weekday midday and p.m. peak periods, respectively, after project traffic is added to the roadway network. This improvement would prevent northbound queues from spilling back to the upstream North Rose Avenue/US 101 Northbound Off-ramp intersection.
  - Queues on the eastbound approach of the Auto Center Drive/Ventura Boulevard intersection would not change noticeably during the weekday midday and p.m. peak hours under Existing + Project traffic conditions. The existing storage lengths provided on the eastbound approach would be able to accommodate the changes in queue length.

Cumulative (Existing + Approved/Pending) Traffic Conditions

- Study intersections were analyzed with the addition of traffic generated by projects which have been approved or are pending within the project study area. At the direction of City staff, two projects were included in this analysis:
  - Gold Coast Transit
  - Audi of Oxnard

- The unsignalized Auto Center Drive/Los Olivos/Eastern Costco Access intersection would continue to operate at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The remaining study intersections would operate at LOS “C” or better during the weekday midday and p.m. peak hours.
Cumulative + Project Traffic Conditions

- The unsignalized Auto Center Drive/Los Olivos/Eastern Costco Access intersection would continue to operate at LOS “E” and LOS “F” during the weekday midday and p.m. peak hours, respectively. The remaining study intersections would operate at LOS “C” or better during the weekday midday and p.m. peak hours.
  - **Auto Center Drive/ Los Olivos/Eastern Costco Access**: As proposed under the Existing + Project traffic conditions, the operations of the Auto Center Drive/ Los Olivos/Eastern Costco Access intersection could be improved by converting the control strategy from two-way stop-controlled to signalized control. Under the proposed intersection control and configuration, the intersection would operate at LOS “A” with an ICU V/C of 0.42 during both the weekday midday and p.m. peak hours. Forecast 95th percentile queues would be accommodated by the proposed design.

RECOMMENDATIONS

The following list provides a summary of the mitigation measures recommended as part of this proposed development:

- **Auto Center Drive/Los Olivos/Eastern Costco Access Intersection:**
  - Install a traffic signal
  - Modify the existing Auto Center Drive median on the west side of the intersection to accommodate the turning radius of larger vehicles exiting the site
  - Remove existing luminaires in the median on both sides of Auto Center Drive and replace them with signal pole illumination
  - Extend the westbound left-turn pocket from 165 feet to 250 feet
  - Adjust/improve the alignment of the Los Olivos public street opposite to the Costco site access and extend the southbound approach lane striping to 100 feet
  - Widen the south leg of the intersection to accommodate a 20-foot inbound lane, a 11-foot northbound left-turn lane, a 11 foot northbound thru/left-shared lane, and a 14-foot northbound right-turn lane. The 14-foot northbound right-turn lane could accommodate the turning radius of larger vehicles

- **Eastern Costco Access / Fuel Station Driveway Intersection:**
  - Develop a 60-foot long southbound left-turn lane at the Eastern Costco drive aisle to provide access to the relocated fuel station
Section 6
References
REFERENCES

Appendix A
Traffic Count Data
ITM Peak Hour Summary
Prepared by: National Data & Surveying Services

Paseo Mercado South and Auto Center Dr., Oxnard

Peak Hour Summary

Southbound Approach

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Control: Signalized

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Total Volume Per Leg

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**Method for determining peak hour:** Total Entering Volume

**LOCATION:** Los Olivos -- Auto Center Dr

**CITY/STATE:** Oxnard, CA

**QC JOB #:** 14246200

**DATE:** Tue, Mar 07 2017

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**Peak 15-Min: 12:00 PM -- 12:15 PM**

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### Peak 15-Min Flowrates

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**Comments:**

- Method for determining peak hour: Total Entering Volume

Report generated on 3/13/2017 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212
Type of peak hour being reported: Intersection Peak

LOCATION: Costco Dwy (East) -- Auto Center Dr
CITY/STATE: Oxnard, CA

Method for determining peak hour: Total Entering Volume

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

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Comments:

Report generated on 7/20/2016 12:04 PM
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212
Appendix B
Description of Level-of-Service Methods and Criteria
APPENDIX B LEVEL OF SERVICE CONCEPT

Level of service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various level of service from “A” to “F”.

Signalized Intersections

Table B-1 identifies the relationship between level of service and ICU volume-over-capacity ratio (V/C). Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service “C” is generally considered to represent the minimum acceptable design standard by the City of Oxnard.

Table B-1: Level of Service Criteria for Signalized Intersections

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<td>Conditions of free unobstructed flow, no delays, and all signal phases sufficient in duration to clear all approaching vehicles.</td>
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<td>Conditions of stable flow, very little delay, a few phases are unable to handle all approaching vehicles.</td>
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<td>C</td>
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<td>Conditions of stable flow, delays are low to moderate, full use of peak direction signal phase(s) is experienced.</td>
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<td>D</td>
<td>0.81-0.90</td>
<td>Conditions approaching unstable flow, delays are moderate to heavy, significant signal time deficiencies are experienced for short durations during the peak traffic period.</td>
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<td>0.91-1.00</td>
<td>Conditions of unstable flow, delays are significant, signal phase timing is generally insufficient, congestion exists for extended duration throughout the peak period.</td>
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<td>F</td>
<td>&gt;1.01</td>
<td>Conditions of forced flow, travel speeds are low, and volumes are well-above capacity. This condition is often caused when vehicles released by an upstream signal are unable to proceed because of back-ups from a downstream signal.</td>
</tr>
</tbody>
</table>

Unsignalized Intersections

Unsignalized intersections include two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections. A qualitative description of the various service levels associated with an unsignalized intersection is presented in Table B-2. A quantitative definition of level of service for unsignalized intersections is presented in Table B-3. Using this definition, Level of Service “E” is generally considered to represent the minimum acceptable design standard.
Table B-2: Level of Service Criteria for Unsignalized Intersections

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Average Delay per Vehicle to Minor Street</th>
</tr>
</thead>
</table>
| A                | • Nearly all drivers find freedom of operation.  
                     • Very seldom is there more than one vehicle in queue. |
| B                | • Some drivers begin to consider the delay an inconvenience.  
                     • Occasionally there is more than one vehicle in queue. |
| C                | • Many times there is more than one vehicle in queue.  
                     • Most drivers feel restricted, but not objectionably so. |
| D                | • Often there is more than one vehicle in queue.  
                     • Drivers feel quite restricted. |
| E                | • Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement.  
                     • There is almost always more than one vehicle in queue.  
                     • Drivers find the delays approaching intolerable levels. |
| F                | • Forced flow.  
                     • Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection. |

Table B-3: Level of Service Criteria for Unsignalized Intersections

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Average Control Delay per Vehicle (Seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt;10.0</td>
</tr>
<tr>
<td>B</td>
<td>&gt;10.0 and ≤ 15.0</td>
</tr>
<tr>
<td>C</td>
<td>&gt;15.0 and ≤ 25.0</td>
</tr>
<tr>
<td>D</td>
<td>&gt;25.0 and ≤ 35.0</td>
</tr>
<tr>
<td>E</td>
<td>&gt;35.0 and ≤ 50.0</td>
</tr>
<tr>
<td>F</td>
<td>&gt;50.0</td>
</tr>
</tbody>
</table>

It should be noted that the level-of-service criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less galling than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized.
intersections. For these reasons, it is considered that the control delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. While overall intersection level of service is calculated for AWSC intersections, level of service is only calculated for the minor approaches and the major street left turn movements at TWSC intersections. No delay is assumed to the major street through movements. For TWSC intersections, the overall intersection level of service remains undefined: level of service is only calculated for each minor street lane.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOEs) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th-percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards, as is the case in many public agencies.
Appendix C
Existing Conditions
Level-of-Service Worksheets
Scenario Report

Scenario: Existing Midday
Command: Existing Midday
Volume: Existing Midday
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: Default Trip Generation
Trip Distribution: Default Trip Distribution
Paths: Default Path
Routes: Default Route
Configuration: Default Configuration

Level Of Service Computation Report

ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 N Rose Ave / Auto Center Dr / E Ventura Blvd

Cycle (sec): 100
Critical Vol./Cap.(X): 0.663
Loss Time (sec): 0
Average Delay (sec/veh): xxxxxx
Optimal Cycle: 68
Level Of Service: B

Street Name: North Rose Avenue / Auto Center Drive / East Ventura Blvd
Approach: North Bound / South Bound / East Bound / West Bound
Operation: L - T - R / L - T - R / L - T - R / L - T - R
Control: Protected / Include / Include / Include
Rights: Ovl / Include / Include / Include
Min. Green: 0 / 0 / 0 / 0
Y+R: 4.0 / 4.0 / 4.0 / 4.0
Lanes: 1 / 0 / 2 / 0 / 1 / 1 / 0 / 1 / 0 / 1 / 2 / 1 / 0 / 0 / 1

Volume Module:
Base Vol: 138 443 786 139 413 12 7 97 135 749 102 129
Growth 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
Initial Bse: 138 443 786 139 413 12 7 97 135 749 102 129
User 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
PHF 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
PHF Volume: 138 443 786 139 413 12 7 97 135 749 102 129
Reduced Vol: 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0
PCE 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
MLF 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
Final Volume: 138 443 786 139 413 12 7 97 135 749 102 129
OvlAdjVol: 502

Saturation Flow Module:
Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Sat: 1600 3200 1600 1600 3110 90 1600 1600 1600 4225 575 1600

Capacity Analysis Module:
Vol/Sat: 0.09 0.14 0.49 0.09 0.13 0.13 0.00 0.06 0.08 0.18 0.18 0.08
OvlAdjV/S: 0.31
Crit Moves: **** **** **** ****
## Level Of Service Computation Report

### Intersection #2 Ventura Blvd / Auto Center Dr

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<td></td>
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<tr>
<td>West Bound</td>
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<td>Y+R:</td>
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### Intersection #3 Paseo Mercado / Auto Center Dr

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<tr>
<td>West Bound</td>
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<td>Growth Adj:</td>
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### Level Of Service Computation Report

**18042 Oxnard Costco Gasoline Expansion**

**Existing Midday**

<table>
<thead>
<tr>
<th>ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)</th>
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**Intersection #:** 5 Rice Ave / Santa Clara Ave / Auto Center Dr

<table>
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<th>Cycle (sec):</th>
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<th>Critical Vol./Cap.(X):</th>
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<tr>
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<td>0</td>
<td>Average Delay (sec/veh):</td>
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<td>Optimal Cycle:</td>
<td>31</td>
<td>Level Of Service:</td>
<td>A</td>
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**Street Name:** Rice Avenue / Santa Clara Avenue / Auto Center Drive

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<th>Movement:</th>
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<th>West Bound</th>
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<tr>
<td>Rights:</td>
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<td>Include</td>
<td>Include</td>
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</tr>
<tr>
<td>Min. Green:</td>
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<td>10 10 6 6 10 10 10</td>
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<tr>
<td>Y+R:</td>
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<tr>
<td>Lanes:</td>
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<td></td>
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</tbody>
</table>

**Volume Module:**

| Base Vol: | 290 340 0 0 425 97 125 0 533 367 299 24 |
| Growth Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Initial Base: | 290 340 0 0 425 97 125 0 533 367 299 24 |
| User Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PHF Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PHF Volume: | 290 340 0 0 425 97 125 0 533 367 299 24 |
| Reduced Vol: | 0 0 0 0 0 0 0 0 0 0 0 0 |
| PCE Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| MLP Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Final Volume: | 290 340 0 0 425 97 125 0 533 367 299 24 |

**Saturation Flow Module:**

| Sat/Lane: | 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 |
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes: | 2.00 2.00 0.00 0.00 3.00 1.00 2.00 0.00 2.00 1.60 1.30 0.10 |
| Final Sat.: | 3200 3200 0 0 4800 1600 3200 0 3200 2555 2079 167 |

**Capacity Analysis Module:**

| Vol/Sat: | 0.09 0.11 0.00 0.00 0.09 0.06 0.04 0.00 0.17 0.14 0.14 0.14 |
| Crit Moves: | **** |

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND
**HCM 2010 TWSC**  
**Oxnard Costco Gas Expansion**  
4: E. Costco Dwy/Los Olivos & Auto Center Dr

### Intersection

| Int Delay, s/veh | 6 |

### Movement

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<th>EBT</th>
<th>EBR</th>
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<th>WBT</th>
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<th>NBT</th>
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<th>SBL</th>
<th>SBT</th>
<th>SBR</th>
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<td>393</td>
<td>44</td>
<td>269</td>
<td>407</td>
<td>34</td>
<td>24</td>
<td>2</td>
<td>152</td>
<td>26</td>
<td>1</td>
<td>27</td>
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<td>Future Vol, veh/h</td>
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<td>269</td>
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<td>34</td>
<td>24</td>
<td>2</td>
<td>152</td>
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### Major/Minor

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### Minor Lane/Major Mvmt

| Capacity (veh/h) | 408 | 1115 | - | - | 1119 | - | - | 160 |
| HCM Lane V/C Ratio | 0.436 | 0.022 | - | - | 0.24 | - | - | 0.338 |
| HCM Control Delay (s) | 20.5 | 8.3 | - | - | 9.2 | - | - | 38.6 |
| HCM Lane LOS          | C  | A   | - | - | A   | - | - | E     |
| HCM 95th %tile Q(veh) | 2.2 | 0.1 | - | - | 0.9 | - | - | 1.4  |
Scenario Report

Scenario: Existing PM
Command: Existing PM
Volume: Existing PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: Default Trip Generation
Trip Distribution: Default Trip Distribution
Paths: Default Path
Routes: Default Route
Configuration: Default Configuration

Level Of Service Computation Report

ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 N Rose Ave / Auto Center Dr / E Ventura Blvd

Cycle (sec): 100
Critical Vol./Cap.(X): 0.765
Loss Time (sec): 0
Average Delay (sec/veh): xxxxxx
Optimal Cycle: 97
Level Of Service: C

Street Name: North Rose Avenue / Auto Center Drive / East Ventura Blvd
Approach: North Bound / South Bound / East Bound / West Bound
Movement: L - T - R / L - T - R / L - T - R / L - T - R
Control: Protected / Protected / Protected / Protected
Rights: Ovl Include / Include / Include / Include
Min. Green: 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 1 0 2 0 1 1 0 1 1 0 1 2 1 0 0

Volume Module:
Base Vol: 217 693 642 148 797 28 7 95 232 902 185 219
Growth 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
Initial Bse: 217 693 642 148 797 28 7 95 232 902 185 219
User 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
PHF 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
PHF Volume: 217 693 642 148 797 28 7 95 232 902 185 219
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 217 693 642 148 797 28 7 95 232 902 185 219
PCE 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
FinalVolume: 217 693 642 148 797 28 7 95 232 902 185 219
OvlAdjVol: 280

Saturation Flow Module:
Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Sat.: 1600 3200 1600 1600 3091 109 1600 1600 3983 817 1600

Capacity Analysis Module:
Vol/Sat.: 0.14 0.22 0.40 0.09 0.26 0.26 0.00 0.06 0.15 0.23 0.23 0.14
OvlAdjV/S: 0.17
Crit Moves: **** **** ****
### Intersection #2 Ventura Blvd / Auto Center Dr

**Cycle (sec):** 130  
**Critical Vol./Cap.(X):** 0.455  
**Loss Time (sec):** 0  
**Average Delay (sec/veh):** xxxxxx

#### Capacity Analysis Module

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<th>Crit Moves:</th>
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#### Volume Module

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### Intersection #3 Paseo Mercado / Auto Center Dr

**Cycle (sec):** 100  
**Critical Vol./Cap.(X):** 0.441  
**Loss Time (sec):** 0  
**Average Delay (sec/veh):** xxxxxx

#### Capacity Analysis Module

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Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND
Existing PM                Mon Apr 17, 2017 11:42:11                 Page 5-1
--------------------------------------------------------------------------------
18042 Oxnard Costco Gasoline Expansion
Existing PM
Level Of Service Computation Report
--------------------------------------------------------------------------------
Intersection #5 Rice Ave / Santa Clara Ave / Auto Center Dr
 Level Of Service Computation Report
********************************************************************************
Intersection #5 Rice Ave / Santa Clara Ave / Auto Center Dr
********************************************************************************
Cycle (sec):         105                Critical Vol./Cap.(X):         0.555
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        42                Level Of Service:                  A
********************************************************************************
Street Name: Rice Avenue / Santa Clara Avenue         Auto Center Drive
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted       Protected         Permitted
Rights:           Include          Include          Include          Include
Min. Green:     5   10     0     0   10    10     6    6     6    10   10    10
Y+R:          4.8  5.0   4.0   5.0  5.0   5.0   4.8  4.8   4.8   5.0  5.0   5.0
Lanes:        2  0  2  0  0    0  0  3  0  1    2  0  0  0  2    1  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     404  665     0     0  876   160   151    0   550   596  344    13
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00 1.00  1.00
Initial Base: 404 665  0  0 876  160  151  0  550  596  344  13
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00 1.00  1.00
PHF Volume:   404  665     0     0  876   160   151    0   550   596  344    13
Reduced Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  404  665     0     0  876   160   151    0   550   596  344    13
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00 1.00  1.00
FinalVolume:  404  665     0     0  876   160   151    0   550   596  344    13
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1600 1600  1600  1600 1600  1600  1600 1600  1600 1600  1600
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00 1.00  1.00
Lanes:        2.00 2.00  0.00  0.00 3.00  1.00  2.00 0.00  2.00 1.88  1.08  0.04
Final Sat.:  3200 3200     0     0 4800  1600  3200    0  3200  3099 1726    65
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.21  0.00  0.00 0.18  0.10  0.05 0.00  0.17 0.20  0.20  0.20
Crit Moves: ****
********************************************************************************

Traflix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND
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## Minor Lane/Major Mvmt

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| HCM Lane V/C Ratio | 0.533 | 0.041 | -   | -   | 0.026 | -   | -   | 0.67  |
| HCM Control Delay (s) | 26.5  | 9.2  | -   | -   | 9.4   | -   | -   | 86.1  |
| HCM Lane LOS  | D     | A    | -   | -   | A     | -   | -   | F     |
| HCM 95th %tile Q(veh) | 3     | 0.1  | -   | -   | 0.8   | -   | -   | 3.5   |
Appendix D
Existing Conditions
Alternative Lane Configuration
Level-of-Service & Queuing Analysis Worksheets
### Existing Midday Expansion

With Additional NBR lane at North Rose Ave./Auto Center Dr./E. Ventura Blvd.

#### Scenario Report

**Scenario:** Existing Midday

**Command:** Existing Midday

**Volume:** Existing Midday

**Geometry:** Default Geometry

**Impact Fee:** Default Impact Fee

**Trip Generation:** Default Trip Generation

**Trip Distribution:** Default Trip Distribution

**Paths:** Default Path

**Routes:** Default Route

**Configuration:** Default Configuration

---

#### Level Of Service Computation Report

**ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)**

Intersection #1: N Rose Ave / Auto Center Dr / E Ventura Blvd.

- **Cycle (sec):** 100
- **Critical Vol./Cap.(X):** 0.487
- **Loss Time (sec):** 0
- **Average Delay (sec/veh):** xx
- **Optimal Cycle:** 44
- **Level Of Service:** A

**Street Name:** North Rose Avenue, Auto Center Drive, East Ventura Blvd.

**Approach:**
- North Bound
- South Bound
- East Bound
- West Bound

**Movement:**
- L - T - R
- L - T - R
- L - T - R
- L - T - R

**Control:**
- Protected
- Protected
- Protected
- Protected

**Rights:**
- Ovl
- Include
- Include
- Include

**Min. Green:**
- 0
- 0
- 0
- 0
- 0
- 0
- 0
- 0
- 0
- 0

**Y+R:**
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0

**Lanes:**
- 2
- 1
- 1
- 0
- 1
- 1
- 0
- 1
- 1
- 0

---

**Volume Module:**

- **Base Vol:** 138 443 786 139 413 12 797 135 749 102 129
- **Growth Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Initial Bse:** 138 443 786 139 413 12 797 135 749 102 129
- **User Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PHF Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PHF Volume:** 138 443 786 139 413 12 797 135 749 102 129
- **Reduct Vol:** 0
- **Reduced Vol:** 138 443 786 139 413 12 797 135 749 102 129
- **PCE Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **MLF Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Final Volume:** 138 443 786 139 413 12 797 135 749 102 129
- **OvlAdjVol:** 219

---

**Saturation Flow Module:**

- **Sat/Lane:** 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
- **Adjustment:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Lanes:** 1.00 2.00 2.00 1.00 1.00 9.06 1.00 1.00 1.00 2.64 0.36
- **Final Sat.:** 1600 3200 3200 1600 3110 90 1600 1600 1600 4225 575 1600

---

**Capacity Analysis Module:**

- **Vol/Sat:** 0.09 0.14 0.25 0.09 0.13 0.13 0.00 0.06 0.08 0.18 0.18 0.08
- **OvlAdj/V:** 0.07
- **Crit Moves:** **** **** ****
Existing Midday

18042 Oxnard Costco Gasoline Expansion

Existing Midday
With Additional NBR lane at North Rose Ave./Auto Center Dr./E. Ventura Blvd.

Level Of Service Computation Report

ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

<table>
<thead>
<tr>
<th>Intersection #2 Ventura Blvd / Auto Center Dr</th>
</tr>
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<tbody>
<tr>
<td>Cycle (sec): 130</td>
</tr>
<tr>
<td>Loss Time (sec): 0</td>
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<td>Optimal Cycle: 50</td>
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<table>
<thead>
<tr>
<th>Street Name: Ventura Boulevard Auto Center Drive</th>
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</thead>
<tbody>
<tr>
<td>Approach: North Bound South Bound East Bound West Bound</td>
</tr>
<tr>
<td>Movement: L - T - R L - T - R L - T - R L - T - R</td>
</tr>
<tr>
<td>Control: Split Phase Split Phase Permit+Prot Permit+Prot</td>
</tr>
<tr>
<td>Rights: Include Include Include Include</td>
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<tr>
<td>Min. Green: 5 5 5 5 5 5 20 20 20 20 5</td>
</tr>
<tr>
<td>Y+R: 5.0 5.0 4.0 4.0 4.0 4.0 6.0 6.0 6.0 6.0</td>
</tr>
<tr>
<td>Lanes: 2 0 1 0 1 0 0 1 0 2 0 1 1 0 1 1</td>
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</table>

**Volume Module:**

| Base Vol: 484 3 46 6 6 36 30 544 451 28 444 14 |
| Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Initial Bse: 484 3 46 6 6 36 30 544 451 28 444 14 |
| User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PRF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PRF Volume: 484 3 46 6 6 36 30 544 451 28 444 14 |
| Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 |
| Reduced Vol: 484 3 46 6 6 36 30 544 451 28 444 14 |
| PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Final Volume: 484 3 46 6 6 36 30 544 451 28 444 14 |

**Saturation Flow Module:**

| Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 |
| Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes: 2.00 1.00 1.00 0.12 0.12 0.76 1.00 2.00 1.00 1.00 1.00 1.00 |
| Final Sat.: 3200 1600 1600 200 200 1200 1600 3200 1600 1600 3102 98 |

**Capacity Analysis Module:**

| Vol/Sat: 0.15 0.00 0.03 0.03 0.03 0.03 0.02 0.17 0.28 0.02 0.14 0.14 |
| Crit Moves: **** **** **** **** **** **** ****
### Queuing and Blocking Report

**Oxnard Costco Gas Expansion**  
**Weekday Midday - Existing**

### Intersection: 1: N. Rose Ave & Ventura Blvd/Auto Center Dr

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<td>L</td>
<td>T</td>
<td>R</td>
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<td>T</td>
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### Intersection: 2: Ventura Boulevard/Ford Dwy & Auto Center Dr

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### Zone Summary

Zone wide Queuing Penalty: 219
Existing PM

Mon Apr 17, 2017 14:04:27

Page 1

The document contains a report on an existing PM (Pavement Management) project for the Oxnard Costco Gasoline Expansion. It details the existing PM with an additional NBR (Non-Bus Rapid) lane at North Rose Ave./Auto Center Dr./E. Ventura Blvd. The scenario report outlines the existing PM, command, volume, geometry, impact fee, trip generation, trip distribution, paths, routes, and configuration. The report includes level of service computation details for Intersection #1, N Rose Ave. / Auto Center Dr. / E Ventura Blvd. with specific cycle times, critical volumes, and other traffic flow metrics. TheTraffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND

Existing PM

Mon Apr 17, 2017 14:04:27

Page 2

The document contains a report on an existing PM (Pavement Management) project for the Oxnard Costco Gasoline Expansion. It details the existing PM with an additional NBR (Non-Bus Rapid) lane at North Rose Ave./Auto Center Dr./E. Ventura Blvd. The scenario report outlines the existing PM, command, volume, geometry, impact fee, trip generation, trip distribution, paths, routes, and configuration. The report includes level of service computation details for Intersection #1, N Rose Ave. / Auto Center Dr. / E Ventura Blvd. with specific cycle times, critical volumes, and other traffic flow metrics. The Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND

Existing PM

Mon Apr 17, 2017 14:04:27

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18042 Oxnard Costco Gasoline Expansion

Existing PM

With Additional NBR lane at North Rose Ave./Auto Center Dr./E. Ventura Blvd.

Scenario Report

Scenario: Existing PM

Command: Existing PM

Volume: Existing PM

Geometry: Default Geometry

Impact Fee: Default Impact Fee

Trip Generation: Default Trip Generation

Trip Distribution: Default Trip Distribution

Paths: Default Path

Routes: Default Route

Configuration: Default Configuration

Level Of Service Computation

Report

ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 N Rose Ave / Auto Center Dr / E Ventura Blvd

Cycle (sec): 100

Critical Vol./Cap.(X): 0.765

Loss Time (sec): 0

Average Delay (sec/veh): xxxxxx

Optimal Cycle: 97

Level Of Service: C

Street Name: North Rose Avenue

Approach: North Bound

L - T - R

Saturation Flow Module:

Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 1600

Adjusted: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.00 2.00 1.00 1.00 0.93 0.97 1.00

Final Sat.: 1600 3200 3200 1600 3091 109 1600 1600 3983 817 1600

Capacity Analysis Module:

Vol/Sat: 0.14 0.22 0.20 0.09 0.26 0.26 0.00 0.06 0.15 0.23 0.23 0.14

OvlAdj/S: 0.00

Critical Moves: **** **** ****

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Existing PM

Mon Apr 17, 2017 14:04:27

Page 2-1

18042 Oxnard Costco Gasoline Expansion

Existing PM

With Additional NBR lane at North Rose Ave./Auto Center Dr./E. Ventura Blvd.

Scenario Report

Scenario: Existing PM

Command: Existing PM

Volume: Existing PM

Geometry: Default Geometry

Impact Fee: Default Impact Fee

Trip Generation: Default Trip Generation

Trip Distribution: Default Trip Distribution

Paths: Default Path

Routes: Default Route

Configuration: Default Configuration

Level Of Service Computation

Report

ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 N Rose Ave / Auto Center Dr / E Ventura Blvd

Cycle (sec): 100

Critical Vol./Cap.(X): 0.765

Loss Time (sec): 0

Average Delay (sec/veh): xxxxxx

Optimal Cycle: 97

Level Of Service: C

Street Name: North Rose Avenue

Approach: North Bound

L - T - R

Saturation Flow Module:

Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 1600

Adjusted: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 1.00 2.00 2.00 1.00 1.00 0.93 0.97 1.00

Final Sat.: 1600 3200 3200 1600 3091 109 1600 1600 3983 817 1600

Capacity Analysis Module:

Vol/Sat: 0.14 0.22 0.20 0.09 0.26 0.26 0.00 0.06 0.15 0.23 0.23 0.14

OvlAdj/S: 0.00

Critical Moves: **** **** ****

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18042 Oxnard Costco Gasoline Expansion
Existing PM
With Additional NBR lane at North Rose Ave./Auto Center Dr./E. Ventura Blvd.

Level Of Service Computation Report

Intersection #2 Ventura Blvd / Auto Center Dr

| Cycle (sec): | 130 |
| Loss as Cycle Length % Method (Base Volume Alternative) | 0.455 |
| Average Delay (sec/veh): | xxxxx |
| Optimal Cycle: | 50 |

| Street Name: | Ventura Boulevard | Auto Center Drive |
| Approach: | North Bound | South Bound | East Bound | West Bound |
| Movement: | L - T - R | L - T - R | L - T - R | L - T - R |
| Control: | Split Phase | Split Phase | Permit+Prot | Permit+Prot |
| Rights: | Include | Include | Include | Include |
| Min. Green: | 5 | 5 | 5 | 5 |
| Y+R: | 5.0 | 5.0 | 4.0 | 4.0 |
| Lanes: | 2 | 0 | 1 | 0 | 1 | 0 | 0 |

| Volume Module: |
| Base Vol: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 451 | 408 | 46 | 766 | 8 |
| Growth Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 451 | 408 | 46 | 766 | 8 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PRF 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 |
| PRF Volume: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 451 | 408 | 46 | 766 | 8 |
| Reduce Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 451 | 408 | 46 | 766 | 8 |
| PCE 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 |
| MLF 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 |
| Final Volume: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 451 | 408 | 46 | 766 | 8 |

| Saturation Flow Module: |
| Sat/Lane: | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 4900 | 1600 | 1600 | 1600 | 1600 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 2.00 | 1.00 | 1.00 | 0.07 | 0.00 | 0.93 | 1.00 | 2.00 | 1.00 | 1.00 | 1.98 | 0.02 |
| Final Sat: | 3200 | 1600 | 1600 | 110 | 0 | 1490 | 1600 | 3200 | 1600 | 1600 | 3167 | 33 |

| Capacity Analysis Module: |
| Vol/Sat: | 0.15 | 0.00 | 0.02 | 0.02 | 0.00 | 0.02 | 0.00 | 0.14 | 0.26 | 0.03 | 0.24 | 0.24 |
| Crit Moves: | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** |

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND
### Intersection: 1: N. Rose Ave & Ventura Blvd/Auto Center Dr

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<th>EB</th>
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<th>EB</th>
<th>WB</th>
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### Intersection: 1: N. Rose Ave & Ventura Blvd/Auto Center Dr

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<tr>
<td>95th Queue (ft)</td>
<td>436</td>
<td>405</td>
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<tr>
<td>Link Distance (ft)</td>
<td>339</td>
<td>339</td>
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<tr>
<td>Upstream Blk Time (%)</td>
<td>16</td>
<td>5</td>
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<tr>
<td>Queueing Penalty (veh)</td>
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<td>0</td>
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<tr>
<td>Storage Bay Dist (ft)</td>
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<td>Storage Blk Time (%)</td>
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<tr>
<td>Queueing Penalty (veh)</td>
<td>36</td>
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# Queuing and Blocking Report

**Oxnard Costco Gas Expansion**

**Weekday PM - Existing**

---

**Intersection: 2: Ventura Boulevard/Ford Dwy & Auto Center Dr**

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<tr>
<th>Movement</th>
<th>EB</th>
<th>EB</th>
<th>EB</th>
<th>WB</th>
<th>WB</th>
<th>B6</th>
<th>B6</th>
<th>B20</th>
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<td>T</td>
<td>R</td>
<td>L</td>
<td>T</td>
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<td>Maximum Queue (ft)</td>
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**Intersection: 2: Ventura Boulevard/Ford Dwy & Auto Center Dr**

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<td>T</td>
<td>R</td>
<td>LTR</td>
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**Zone Summary**

Zone wide Queuing Penalty: 1148
Appendix E
Existing + Project Conditions
Level-of-Service Worksheets
Scenario Report

Scenario: Existing + Project Midday
Command: Existing + Project Midday
Volume: Existing + Project Midday
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: Default Trip Generation
Trip Distribution: Default Trip Distribution
Paths: Default Path
Routes: Default Route
Configuration: Default Configuration

Level Of Service Computation Report

ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #: N Rose Ave / Auto Center Dr / E Ventura Blvd

Cycle (sec): 100
Critical Vol./Cap.(X): 0.678
Loss Time (sec): 0
Average Delay (sec/veh): xxxxxx
Optimal Cycle: 71
Level Of Service: B

Street Name: North Rose Avenue / Auto Center Drive / East Ventura
Approach: North Bound / South Bound / East Bound / West Bound
Movement: L - T - R / L - T - R / L - T - R / L - T - R

Control: Protected / Include
Rights: Ovl / Include
Min. Green: 0 / 0 / 0 / 0
Y+R: 4.0 / 4.0 / 4.0 / 4.0
Lanes: 1 / 0 / 2 / 0

Volume Module:
Base Vol: 138 / 442 / 812 / 144 / 414 / 12
Growth Adj: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
Initial Bse: 138 / 442 / 812 / 144 / 414 / 12
User Adj: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
PHF Adj: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
PHF Volume: 138 / 442 / 812 / 144 / 414 / 12
Reduct Vol: 0 / 0 / 0 / 0 / 0 / 0
Reduced Vol: 138 / 442 / 812 / 144 / 414 / 12
PCE Adj: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
Final Volume: 138 / 442 / 814 / 144 / 414 / 12
OvlAdjVol: 518

Saturation Flow Module:
Sat/Lane: 1600 / 1600 / 1600 / 1600 / 1600 / 1600
Adjustment: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
Final Sat.: 1600 / 3200 / 1600 / 3110 / 1600 / 6415

Capacity Analysis Module:
Vol/Sat: 0.09 / 0.14 / 0.09 / 0.13 / 0.00 / 0.08 / 0.08 / 0.18 / 0.08
OvlAdjV/S: 0.32
Crit Moves: **** **** **** ****

Trafficix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND
### ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

**Intersection #2 Ventura Blvd / Auto Center Dr**

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<th>Auto Center Drive</th>
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<tbody>
<tr>
<td>Approach:</td>
<td>North Bound</td>
<td>South Bound</td>
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<tr>
<td>Movements:</td>
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<td>L - T - R</td>
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<table>
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<th>Split Phase</th>
<th>Permit + Prot</th>
<th>Permit + Prot</th>
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<td>Rights:</td>
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<td>Include</td>
<td>Include</td>
<td>Include</td>
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<tr>
<td>Min. Green:</td>
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<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Y+R:</td>
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<td>4.0</td>
<td>5.0</td>
<td>4.0</td>
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<tr>
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<td>0 1 2 0 1 1 1 1 0</td>
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<td></td>
</tr>
<tr>
<td>Volume Module:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Base Vol:</td>
<td>484 3 46 6 6 36</td>
<td>30 608 451</td>
<td>28 482 14</td>
<td></td>
</tr>
<tr>
<td>Growth Adj:</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Base:</td>
<td>484 3 46 6 6 36</td>
<td>30 608 451</td>
<td>28 482 14</td>
<td></td>
</tr>
<tr>
<td>User Adj:</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
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<td></td>
</tr>
<tr>
<td>PHF Adj:</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF Volume:</td>
<td>484 3 46 6 6 36</td>
<td>30 608 451</td>
<td>28 482 14</td>
<td></td>
</tr>
<tr>
<td>Reduced Vol:</td>
<td>0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCE Adj:</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Volume:</td>
<td>484 3 46 6 6 36</td>
<td>30 608 451</td>
<td>28 482 14</td>
<td></td>
</tr>
</tbody>
</table>

| Saturation Flow Module: |
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 |
| Lanes:      | 2.00 1.00 0.12 0.12 0.12 |
| Final Sat.: | 3200 1600 200 200 1200 |

| Capacity Analysis Module: |
| Vol/Sat:    | 0.15 0.00 0.03 0.03 0.03 0.02 0.19 0.28 0.02 0.15 0.16 |

<table>
<thead>
<tr>
<th>Level of Service Computation Report</th>
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<tr>
<td><strong>Cyclist Moves:</strong></td>
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<td><strong>Vol/Sat:</strong></td>
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<tr>
<td>0.15 0.00 0.03 0.03 0.03 0.02 0.19 0.28 0.02 0.15 0.16</td>
</tr>
</tbody>
</table>

**Optimal Cycle:** 130 sec
**Critical Vol./Cap. (X):** 0.481
**Average Delay (sec/veh):** xxxxxx
**Level of Service:** A

---

### ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

**Intersection #3 Paseo Mercado / Auto Center Dr**

<table>
<thead>
<tr>
<th>Street Name:</th>
<th>Paseo Mercado</th>
<th>Auto Center Drive</th>
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<tbody>
<tr>
<td>Approach:</td>
<td>North Bound</td>
<td>South Bound</td>
</tr>
<tr>
<td>Movements:</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
</tbody>
</table>

| Control:     | Protected    | Protected         | Protected      | Permit + Prot |
| Rights:      | Include      | Include           | Include        | Include      |
| Min. Green:  | 5 5 5 5 5 5 | 0 0 0 0 0 0 0 0 0 0 |
| Y+R:         | 5.0 4.0 5.0 | 4.0 4.0 5.0       | 4.0 4.0 5.0   |
| Lanes:       | 1 0 0 1 0 0 | 1 0 0 1 0 0 0 0 0 0 1 1 0 0 0 1 1 1 0 |
| Volume Module: |
| Base Vol:    | 162 0 197 0 0 | 0 0 0 0 0 |
| Growth Adj:  | 1.00 1.00 1.00 | 1.00 1.00 1.00 |
| Initial Base:| 162 0 197 0 0 | 0 0 0 0 0 |
| User Adj:    | 1.00 1.00 1.00 | 1.00 1.00 1.00 |
| PHF Adj:     | 1.00 1.00 1.00 | 1.00 1.00 1.00 |
| PHF Volume:  | 162 0 197 0 0 | 0 0 0 0 0 |
| Reduced Vol: | 0 0 0 0 0 0 0 0 0 0 0 0 |
| PCE Adj:     | 1.00 1.00 1.00 | 1.00 1.00 1.00 |
| Final Volume:| 162 0 197 0 0 | 0 0 0 0 0 |

| Saturation Flow Module: |
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes:      | 1.00 0.00 0.00 0.00 0.00 0.00 |
| Final Sat.: | 3200 1600 0 0 0 0 |

| Capacity Analysis Module: |
| Vol/Sat:    | 0.10 0.00 0.12 0.00 0.00 0.00 0.00 0.20 0.20 0.10 0.13 0.00 |

**Optimal Cycle:** 100 sec
**Critical Vol./Cap. (X):** 0.424
**Average Delay (sec/veh):** xxxxxx
**Level of Service:** A
### Level Of Service Computation Report

**Intersection #5 Rice Ave / Santa Clara Ave / Auto Center Dr**

**Cycle (sec):** 105  
**Critical Vol./Cap.(X):** 0.364  
**Loss Time (sec):** 0  
**Average Delay (sec/veh):** xxxxxx  
**Optimal Cycle:** 31  
**Level Of Service:** A

**Street Name:** Rice Avenue / Santa Clara Avenue  
**Approach:** North Bound  
**Movement:** L - T - R  
**Control:** Protected  
**Rights:** Include  
**Min. Green:** 5  
**Y+R:** 4.8  
**Lanes:** 2

**Volume Module:**

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<tr>
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**Saturation Flow Module:**

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</table>

**Capacity Analysis Module:**

| Vol/Sat: | 0.09 0.11 0.00 0.00 0.09 0.06 0.04 0.00 0.17 0.14 0.14 0.14 |

**Crit Moves: ****

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### Intersection

**Int Delay, s/veh**: 97.7

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<td>Future Vol, veh/h</td>
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<td>194</td>
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<th>NB</th>
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<td>HCM Control Delay, s</td>
<td>0.3</td>
<td>3.9</td>
<td>$ 468.6</td>
<td>47.4</td>
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<tr>
<td>HCM LOS</td>
<td>F</td>
<td>E</td>
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<tr>
<th>Minor Lane/Major Mvmt</th>
<th>NBLn1</th>
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<th>EBT</th>
<th>EBR</th>
<th>WBL</th>
<th>WBT</th>
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<tr>
<td>HCM Lane LOS</td>
<td>F</td>
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**Notes**
- Volume exceeds capacity
- Delay exceeds 300s
- Computation Not Defined
- All major volume in platoon
## Crit Moves:  ****  ****  ****  ****

### Level Of Service Computation Report

#### Cycle (sec):  130
#### Loss Time (sec):  0
#### Average Delay (sec/veh):  xxxxxx

#### Level Of Service Report

#### Street Name:  Ventura Boulevard
#### Auto Center Drive

#### Movement:

<table>
<thead>
<tr>
<th>Movement</th>
<th>L - T - R</th>
<th>L - T - R</th>
<th>L - T - R</th>
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<td>User 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</td>
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<td>PHF 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</td>
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<tr>
<td>Reduced Vol:  0 0 0 0 0 0 0 0 0 0 0 0</td>
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<tr>
<td>Reduced Vol:  490 3 37 2 0 27 24 512 408 46 801 8</td>
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<tr>
<td>PCE 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</td>
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<tr>
<td>MLP 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</td>
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<tr>
<td>Final Volume:  490 3 37 2 0 27 24 512 408 46 801 8</td>
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### Saturation Flow Module:

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<th>Lanes</th>
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<td>2.00 1.00 0.07 0.00 0.93 1.00 2.00 1.00 1.00 1.00 0.00 0.00</td>
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<tr>
<td>3200 1600 1600 110 0 1490 1600 3200 1600 1600 3168 32</td>
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### Capacity Analysis Module:

| Vol/Sat: | 0.15 0.00 0.02 0.02 0.00 0.02 0.02 0.16 0.26 0.03 0.25 0.25 |
| Cret Moves: | **** |

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Existing + Project PM  Mon Apr 17, 2017 11:46:07  Page 3-1

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Existing + Project PM  Mon Apr 17, 2017 11:46:07  Page 4-1

**Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND**
## Scenario Report

**Scenario:** Existing + Project PM  
**Command:** Existing + Project PM  
**Volume:** Existing + Project PM  
**Geometry:** Default Geometry  
**Impact Fee:** Default Impact Fee  
**Trip Generation:** Default Trip Generation  
**Trip Distribution:** Default Trip Distribution  
**Paths:** Default Path  
**Routes:** Default Route  
**Configuration:** Default Configuration

### Level of Service Computation Report

Intersection: #1 N Rose Ave / Auto Center Dr / E Ventura Blvd  
**Cycle (sec):** 100  
**Critical Vol./Cap.(X):** 0.771  
**Loss Time (sec):** 0  
**Average Delay (sec/veh):** xxxxxx  
**Optimal Cycle:** 99  
**Level Of Service:** C

<table>
<thead>
<tr>
<th>Street Name</th>
<th>North Rose Avenue</th>
<th>Auto Center Drive / East Ventura</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approach:</strong> North Bound</td>
<td>1  0  2  0  1</td>
<td>1  0  1  0  1  0  1  0  0  1</td>
</tr>
<tr>
<td><strong>Movement:</strong> L - T - R</td>
<td>4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0</td>
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</tr>
</tbody>
</table>

### Volume Module:

| Base Vol: | 217  692  667  152  798  28  6  126  231  915  201  224 |
| Growth 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 |
| User 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 |
| PHF 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 |
| PHF Volume: | 217  692  667  152  798  28  6  126  231  915  201  224 |
| Reduced Vol: | 217  692  667  152  798  28  6  126  231  915  201  224 |
| PCE 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 |
| Final Volume: | 217  692  667  152  798  28  6  126  231  915  201  224 |
| OvlAdj Vol: | 295 |

### Saturation Flow Module:

| Sat/Lane: | 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 |
| Adjustment: | 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00 |
| Lanes: | 1.00  2.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00 |
| Final Sat.: | 1600 3200 1600 1600 3092 108 1600 1600 3935 865 1600 |

### Capacity Analysis Module:

| Vol/Sat: | 0.14  0.22  0.42  0.10  0.26  0.26  0.00  0.08  0.14  0.23  0.23  0.14 |
| OvlAdjV/S: | 0.18 |
| Crit Moves: | ****  ****  ****  **** |

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND
### Level Of Service Computation Report

**Intersection #5 Rice Ave / Santa Clara Ave / Auto Center Dr**

<table>
<thead>
<tr>
<th>Cycle (sec):</th>
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<th>Critical Vol./Cap.(X):</th>
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<td>0</td>
<td>Average Delay (sec/veh):</td>
<td>xxxxxx</td>
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<td>Optimal Cycle:</td>
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**Street Name:** Rice Avenue / Santa Clara Avenue / Auto Center Drive

<table>
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<tr>
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<th>L - T - R</th>
<th>L - T - R</th>
<th>L - T - R</th>
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<tbody>
<tr>
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<td>Rights:</td>
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<td>Include</td>
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<td>Min. Green:</td>
<td>5 10 0 0 10 10 6 6 10 10 10</td>
<td>4.8 5.0 5.0 5.0 4.8 4.8 4.8 4.8 5.0 5.0 5.0</td>
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<td>Y+R:</td>
<td>4.8 5.0 4.0 5.0 5.0 4.8 4.8 4.8 4.8 5.0 5.0 5.0</td>
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<tr>
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<td>2 0 2 0 0 0 3 0 1 2 0 0 2 1 1 0 1 0</td>
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</table>

**Volume Module:**

| Base Vol: | 407 663 | Growth 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 |
|-----------|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Initial Base: | 407 663 | User 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 |
|               |         |              |             |             |         |              |             |             |             |

**Saturation Flow Module:**

| Sat/Lane: | 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 |
|-----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes: | 2.00 2.00 0.00 0.00 3.00 1.00 2.00 0.00 2.00 1.87 1.10 0.03 |
| Final Sat.: | 3200 3200 | Capacity Analysis Module: | 0.13 0.21 0.00 0.00 0.18 0.10 0.05 0.00 0.17 0.20 0.20 0.20 |
|                 | | | | | | | | | | | **Crit Moves:** | ******** |
### Intersection

**Int Delay, s/veh**

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<th>WBR</th>
<th>NBL</th>
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<th>NBR</th>
<th>SBL</th>
<th>SBT</th>
<th>SBR</th>
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</thead>
<tbody>
<tr>
<td>Traffic Vol, veh/h</td>
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<td>471</td>
<td>182</td>
<td>223</td>
<td>641</td>
<td>63</td>
<td>143</td>
<td>0</td>
<td>199</td>
<td>32</td>
<td>6</td>
<td>37</td>
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<tr>
<td>Future Vol, veh/h</td>
<td>36</td>
<td>471</td>
<td>182</td>
<td>223</td>
<td>641</td>
<td>63</td>
<td>143</td>
<td>0</td>
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<td>32</td>
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**Sign Control**

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<td>223</td>
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<td>6</td>
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**Major/Minor**

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<th>Minor1</th>
<th>Minor2</th>
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</tr>
<tr>
<td>Stage 2</td>
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<tr>
<td>Platoon blocked, %</td>
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<tr>
<td>Mov Cap-1 Maneuver</td>
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**Approach**

<table>
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<tr>
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<th>WB</th>
<th>NB</th>
<th>SB</th>
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<tbody>
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<td>115.7</td>
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<td>HCM LOS</td>
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**Minor Lane/Major Mvmt**

<table>
<thead>
<tr>
<th>Capacity (veh/h)</th>
<th>NBLn1</th>
<th>EBL</th>
<th>EBT</th>
<th>EBR</th>
<th>WBL</th>
<th>WBT</th>
<th>WBR</th>
<th>SBLn1</th>
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<tbody>
<tr>
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<td>B</td>
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<tr>
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<td>4.1</td>
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</table>

**Notes**

- Volume exceeds capacity
- Delay exceeds 300s
- Computation Not Defined
- All major volume in platoon
Appendix F
MUTCD Volume-Based
Signal Warrant Evaluation
Signal Warrant Assessment
Based on 2009 Edition of the MUTCD

Project #: 18042
Project Name: Oward Costco Preliminary Warrant Review
Analyst: JWB
Date: 4/18/2017
Intersection: Auto Center Drive/Eastern Costco Access
Scenario: Existing Plus Project Conditions

<table>
<thead>
<tr>
<th>Volume Adjustment Factor</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>North-South Approach</td>
<td>Minor</td>
</tr>
<tr>
<td>East-West Approach</td>
<td>2</td>
</tr>
<tr>
<td>Major Street Thru Lanes</td>
<td>No</td>
</tr>
<tr>
<td>Minor Street Thru Lanes</td>
<td>No</td>
</tr>
<tr>
<td>Speed &gt; 40 mph?</td>
<td>No</td>
</tr>
<tr>
<td>Population &lt; 10,000?</td>
<td>No</td>
</tr>
<tr>
<td>Warrant Factor</td>
<td>100%</td>
</tr>
<tr>
<td>Peak Hour or Daily Count?</td>
<td>Peak Hour</td>
</tr>
</tbody>
</table>

Note: Add data input on sheet "Warrant 3".

Warrant Summary

<table>
<thead>
<tr>
<th>#</th>
<th>Warrant Name</th>
<th>Analyzed?</th>
<th>Met?</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Eight-Highest</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>#2</td>
<td>Four-Hour</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>#3</td>
<td>Peak Hour</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

Select Type Of Major Street Approach From Dropdown Menu
Select Type Of Minor Street Approach From Dropdown Menu

Urban Minor Arterial
Urban Minor Arterial

Traffic Volumes

<table>
<thead>
<tr>
<th>Hour</th>
<th>Traffic Volumes</th>
<th>Major Street</th>
<th>Minor Street</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Begin</td>
<td>End</td>
<td>EB</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>6:00 PM</td>
<td>702</td>
<td>952</td>
</tr>
<tr>
<td>2nd Highest Hour</td>
<td>665</td>
<td>901</td>
<td>355</td>
</tr>
<tr>
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<td>655</td>
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</tr>
<tr>
<td>4th Highest Hour</td>
<td>627</td>
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<td>335</td>
</tr>
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<td>618</td>
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<td>800</td>
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<td>8th Highest Hour</td>
<td>580</td>
<td>787</td>
<td>310</td>
</tr>
<tr>
<td>9th Highest Hour</td>
<td>562</td>
<td>762</td>
<td>300</td>
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<td>10th Highest Hour</td>
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</tr>
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<tr>
<td>23rd Highest Hour</td>
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<td>24th Highest Hour</td>
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<td>10</td>
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Data Input
**Project #:** 18042  
**Project Name:** Oxnard Costco Preliminary Warrant Review  
**Analyst:** JWB  
**Date:** 4/18/2017  
**File:** \L:\_Send\Project\18042 - Oxnard Costco Gasoline Expansion\Excel\(Signal Warrant Analysis 9.15.2016.xlsx\)Data Input  
**Intersection:** Auto Center Drive/Eastern Costco Access  
**Scenario:** Existing Plus Project Conditions

### Warrant Summary

<table>
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<tr>
<th>Warrant</th>
<th>Name</th>
<th>Analyzed?</th>
<th>Met?</th>
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<tbody>
<tr>
<td>#1</td>
<td>Eight-Hour Vehicular Volume</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>#2</td>
<td>Four-Hour Vehicular Volume</td>
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</tr>
<tr>
<td>#3</td>
<td>Peak Hour</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>#4</td>
<td>Pedestrian Volume</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>#5</td>
<td>School Crossing</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>#6</td>
<td>Coordinated Signal System</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>#7</td>
<td>Crash Experience</td>
<td>No</td>
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</tr>
<tr>
<td>#8</td>
<td>Roadway Network</td>
<td>No</td>
<td>-</td>
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<tr>
<td>#9</td>
<td>Intersection Near a Grade Crossing</td>
<td>No</td>
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### Input Parameters

- **Volume Adjustment Factor:** 1.0
- **North-South Approach:** Minor  
- **East-West Approach:** Major  
- **Major Street Thru Lanes:** 2  
- **Minor Street Thru Lanes:** 1  
- **Speed > 40 mph?** No  
- **Population < 10,000?** No  
- **Warrant Factor:** 100%  
- **Peak Hour or Daily Count?** Peak Hour

**Major Street:** 4th-Highest Hour / Peak Hour 89%  
**Major Street:** 8th-Highest Hour / Peak Hour 83%  
**Minor Street:** 4th-Highest Hour / Peak Hour 89%  
**Minor Street:** 8th-Highest Hour / Peak Hour 83%

### Analysis Traffic Volumes

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<th>Time</th>
<th>Major Street</th>
<th>Minor Street</th>
<th>EB</th>
<th>WB</th>
<th>NB</th>
<th>SB</th>
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<tr>
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<td>702</td>
<td>952</td>
<td>375</td>
<td>75</td>
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</tr>
<tr>
<td>3rd Highest Hour</td>
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<td>889</td>
<td>350</td>
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<tr>
<td>4th Highest Hour</td>
<td>627</td>
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<tr>
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<td>477</td>
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<td></td>
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<tr>
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<td>241</td>
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<td>19</td>
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<td></td>
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### Warrant #1 - Eight Hour

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<th>Warrant Factor</th>
<th>Condition</th>
<th>Major Street Requirement</th>
<th>Minor Street Requirement</th>
<th>Hours That Condition Is Met</th>
<th>Condition for Warrant Factor Met?</th>
<th>Signal Warrant Met?</th>
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<tbody>
<tr>
<td>100%</td>
<td>A</td>
<td>600</td>
<td>150</td>
<td>16</td>
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<tr>
<td>80%</td>
<td>B</td>
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<tr>
<td>70%</td>
<td>A</td>
<td>420</td>
<td>105</td>
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<td>B</td>
<td>630</td>
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<td>16</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Warrant #2 - Four-Hour

**100% Warrant Factor**

#### 2 Major / 2 Minor  
#### 2 Major / 1 Minor  
#### 1 Major / 2 Minor  
#### 1 Major / 1 Minor  
#### Traffic Volumes

### Warrant #3 - Peak Hour

**100% Warrant Factor**

#### 2 Major / 2 Minor  
#### 2 Major / 1 Minor  
#### 1 Major / 2 Minor  
#### 1 Major / 1 Minor  
#### Traffic Volumes
Appendix G
Existing + Project Conditions
(Mitigated) Level-of-Service & Queuing Analysis Worksheets
Scenario Report

Scenario: Existing + Project Midday
Command: Existing + Project Midday
Volume: Existing + Project Midday
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: Default Trip Generation
Trip Distribution: Default Trip Distribution
Paths: Default Path
Routes: Default Route
Configuration: Default Configuration

Level Of Service Computation Report

ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 E Costco Dwy / Auto Center Dr

Cycle (sec): 100
Critical Vol./Cap.(X): 0.414
Loss Time (sec): 0
Average Delay (sec/veh): xxxxxx
Optimal Cycle: 39
Level Of Service: A

Street Name: Eastern Costco Driveway, Auto Center Drive
Approach: North Bound, South Bound, East Bound, West Bound
Control: Split Phase, Split Phase, Prot+Permit, Prot+Permit
Rights: Ovl, Include, Include, Include
Min. Green: 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
Y+R: 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0
Lanes: 1 1 0 0 1 0 1 0 1 0 1 1 0

Volume Module:
Base Vol: 146 2 194 26 1 27 24 363 193 284 404 34
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 146 2 194 26 1 27 24 363 193 284 404 34
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 146 2 194 26 1 27 24 363 193 284 404 34
Reduced Vol: 146 2 194 26 1 27 24 363 193 284 404 34
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Volume: 146 2 194 26 1 27 24 363 193 284 404 34
OvlAdjVol:

Saturation Flow Module:
Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Sat.: 3157 43 1600 1541 59 1600 1600 2089 1111 1600 2952 248

Capacity Analysis Module:
Vol/Sat: 0.05 0.05 0.12 0.02 0.02 0.02 0.17 0.17 0.18 0.14 0.14
OvlAdjV/S:
Crit Moves: **** **** **** ****

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND
### Intersection: 4: E. Costco Dwy/Los Olivos & Auto Center Dr

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
<th>EB</th>
<th>EB</th>
<th>WB</th>
<th>WB</th>
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<td>T</td>
<td>TR</td>
<td>L</td>
<td>T</td>
<td>TR</td>
<td>L</td>
<td>LT</td>
<td>R</td>
<td>L</td>
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<tr>
<td>Maximum Queue (ft)</td>
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<td>103</td>
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<td>34</td>
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<td>45</td>
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<td>95th Queue (ft)</td>
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<td>274</td>
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<td>Storage Bay Dist (ft)</td>
<td>200</td>
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### Intersection: 6: E. Costco Dwy

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<td>LTR</td>
<td>LTR</td>
<td>L</td>
<td>TR</td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
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<td>Average Queue (ft)</td>
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<tr>
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<td>409</td>
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<td>Upstream Blk Time (%)</td>
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</tbody>
</table>

### Zone Summary

- Zone wide Queuing Penalty: 7
### Scenario Report

#### Existing + Project PM

<table>
<thead>
<tr>
<th>Scenario:</th>
<th>Existing + Project PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command:</td>
<td>Existing + Project PM</td>
</tr>
<tr>
<td>Volume:</td>
<td>Existing + Project PM</td>
</tr>
<tr>
<td>Geometry:</td>
<td>Default Geometry</td>
</tr>
<tr>
<td>Impact Fee:</td>
<td>Default Impact Fee</td>
</tr>
<tr>
<td>Trip Generation:</td>
<td>Default Trip Generation</td>
</tr>
<tr>
<td>Trip Distribution:</td>
<td>Default Trip Distribution</td>
</tr>
<tr>
<td>Paths:</td>
<td>Default Path</td>
</tr>
<tr>
<td>Routes:</td>
<td>Default Route</td>
</tr>
<tr>
<td>Configuration:</td>
<td>Default Configuration</td>
</tr>
</tbody>
</table>

---

#### Level Of Service Computation Report

**Intersection #4 E Costco Dwy / Auto Center Dr**

**ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)**

<table>
<thead>
<tr>
<th>Cycle (sec):</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Vol./Cap. (X):</td>
<td>0.412</td>
</tr>
<tr>
<td>Loss Time (sec):</td>
<td>0</td>
</tr>
<tr>
<td>Average Delay (sec/veh):</td>
<td>xxxxxx</td>
</tr>
<tr>
<td>Optimal Cycle:</td>
<td>39</td>
</tr>
<tr>
<td>Level Of Service:</td>
<td>A</td>
</tr>
</tbody>
</table>

**Street Name:** Eastern Costco Driveway  Auto Center Drive

**Approach:** North Bound  South Bound  East Bound  West Bound

**Movement:** L - T - R  L - T - R  L - T - R  L - T - R

**Control:** Split Phase  Split Phase  Prot+Permit  Prot+Permit

**Rights:** Ovl  Include  Include  Include

**Min. Green:** 0 0 0 0 0 0 0 0 0 0 0 0

**Y+R:** 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

**Lanes:** 1 1 0 0 1 0 1 0 1 0 1 1 0

---

**Volume Module:**

| Base Vol: | 143 0 199 32 6 37 36 471 182 223 641 63 |
| Growth Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Initial Bse: | 143 0 199 32 6 37 36 471 182 223 641 63 |
| User 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 |
| PHF 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 |
| PHF Volume: | 143 0 199 32 6 37 36 471 182 223 641 63 |
| Reduced Vol: | 143 0 199 32 6 37 36 471 182 223 641 63 |
| PCE 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 |
| MLF 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 |
| FinalVolume: | 143 0 199 32 6 37 36 471 182 223 641 63 |
| OvlAdjVol: | 0 |

**Saturation Flow Module:**

| Sat/Lane: | 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 |
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes: | 1 1 0 0 1 0 1 0 1 0 1 1 |
| Final Sat.: | 3200 0 1600 1347 253 1600 1600 2308 892 1600 2914 286 |

**Capacity Analysis Module:**

| Vol/Sat: | 0.04 0.00 0.12 0.02 0.02 0.02 0.02 0.20 0.20 0.14 0.22 0.22 |
| OvlAdjV/S: | 0.00 |
| Crit Moves: | **** **** **** **** |
## Queuing and Blocking Report

### Oxnard Costco Gas Expansion

#### Weekday PM - Existing + Project Mitigated

---

**Intersection: 4: E. Costco Dwy/Los Olivos & Auto Center Dr**

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
<th>EB</th>
<th>EB</th>
<th>WB</th>
<th>WB</th>
<th>NB</th>
<th>NB</th>
<th>NB</th>
<th>SB</th>
<th>SB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions Served</td>
<td>L</td>
<td>T</td>
<td>TR</td>
<td>L</td>
<td>T</td>
<td>TR</td>
<td>L</td>
<td>LT</td>
<td>R</td>
<td>L</td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
<td>93</td>
<td>280</td>
<td>326</td>
<td>186</td>
<td>226</td>
<td>221</td>
<td>97</td>
<td>127</td>
<td>112</td>
<td>59</td>
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<tr>
<td>Average Queue (ft)</td>
<td>24</td>
<td>116</td>
<td>178</td>
<td>90</td>
<td>89</td>
<td>98</td>
<td>31</td>
<td>58</td>
<td>48</td>
<td>20</td>
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<tr>
<td>95th Queue (ft)</td>
<td>61</td>
<td>219</td>
<td>287</td>
<td>156</td>
<td>175</td>
<td>179</td>
<td>72</td>
<td>103</td>
<td>88</td>
<td>51</td>
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<tr>
<td>Link Distance (ft)</td>
<td>757</td>
<td>757</td>
<td>996</td>
<td>996</td>
<td>208</td>
<td>335</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upstream Blk Time (%)</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Bay Dist (ft)</td>
<td>200</td>
<td>190</td>
<td>100</td>
<td>165</td>
<td>100</td>
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<tr>
<td>Storage Blk Time (%)</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

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**Intersection: 6: E. Costco Dwy**

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
<th>WB</th>
<th>NB</th>
<th>SB</th>
<th>SB</th>
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<tbody>
<tr>
<td>Directions Served</td>
<td>LTR</td>
<td>LTR</td>
<td>LTR</td>
<td>L</td>
<td>TR</td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
<td>57</td>
<td>98</td>
<td>11</td>
<td>56</td>
<td>7</td>
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<tr>
<td>Average Queue (ft)</td>
<td>22</td>
<td>47</td>
<td>0</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>95th Queue (ft)</td>
<td>47</td>
<td>79</td>
<td>6</td>
<td>51</td>
<td>7</td>
</tr>
<tr>
<td>Link Distance (ft)</td>
<td>118</td>
<td>200</td>
<td>315</td>
<td>208</td>
<td></td>
</tr>
<tr>
<td>Upstream Blk Time (%)</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Storage Bay Dist (ft)</td>
<td>40</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Blk Time (%)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Zone Summary**

Zone wide Queuing Penalty: 9

---

*Oxnard Costco Gas Expansion*  
Weekday PM - Existing + Project Mitigated
Appendix H
Existing + Project Conditions
Alternative Lane Configuration
Level-of-Service &
Queuing Analysis Worksheets
## Scenario Report

**Scenario:** Existing + Project Midday  
**Command:** Existing + Project Midday  
**Volume:** Existing + Project Midday  
**Geometry:** Default Geometry  
**Impact Fee:** Default Impact Fee  
**Trip Generation:** Default Trip Generation  
**Trip Distribution:** Default Trip Distribution  
**Paths:** Default Path  
**Routes:** Default Route  
**Configuration:** Default Configuration

### Level Of Service Computation Report

**Intersection:** N Rose Ave / Auto Center Dr / E Ventura Blvd  
**Method:** ICU 1 (Loss as Cycle Length %)  
**Base Volume**  
**Growth Adjustment:** 1.00  
**Initial Base Volume:** 138  
**User Adjustment:** 1.00  
**PHF Adjustment:** 1.00  
**PHF Volume:** 138  
**Reduction Volume:** 0  
**PCE Adjustment:** 1.00  
**MLF Adjustment:** 1.00  
**Final Volume:** 138  

### Volume Module

**Saturation Flow Module**  
**Sat/Lane:** 1600  
**Lanes:** 2.00  
**Final Saturation:** 1600  

### Capacity Analysis Module

**Vol/Sat:** 0.09  
**OvlAdjVol:** 223  

---

**Existing + Project Midday  Mon Apr 17, 2017 14:11:19**

---

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**18042 Oxnard Costco Gas Expansion**

**Existing + Project Midday Peak Hour**

With Additional NBR lane at North Rose Ave./Auto Center Dr./E. Ventura Blvd.

---

**Level Of Service Computation Report**

**ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)**

---

**Intersection #2 Ventura Blvd / Auto Center Dr**

---

**Cycle (sec):** 130  
**Critical Vol./Cap.(X):** 0.481

**Loss Time (sec):** 0  
**Average Delay (sec/veh):** xxxxxx

**Optimal Cycle:** 50  
**Level Of Service:** A

---

**Street Name:** Ventura Boulevard  
**Approach:** North Bound

**Movement:** L  -  T  -  R

<table>
<thead>
<tr>
<th>Control</th>
<th>Include</th>
<th>Permit+Prot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Green</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Y+R</td>
<td>5.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

| Lanes | 2 0 1 0 1 0 0 1 0 2 0 1 1 0 1 0 |

---

**Saturation Flow Module:**

| Sat/Lane | 1600 1600 1600 1600 1600 1600 1600 1620 1600 1600 1600 1600 1600 1600 |

**Adjustment:** 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 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**Lanes:** 2.00 1.00 1.00 0.12 0.12 0.76 1.00 2.00 1.00 1.00 1.94 0.06

---

**Capacity Analysis Module:**

| Vol/Sat | 0.15 0.00 0.03 0.03 0.03 0.03 0.02 0.19 0.28 0.02 0.15 0.16 |

**Crit Moves:** ****  

---

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND
### Queuing and Blocking Report

#### Oxnard Costco Gas Expansion

**Weekday Midday - Existing + Project**

### Intersection: 1: N. Rose Ave & Ventura Blvd/Auto Center Dr

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
<th>EB</th>
<th>EB</th>
<th>WB</th>
<th>WB</th>
<th>WB</th>
<th>NB</th>
<th>NB</th>
<th>NB</th>
<th>NB</th>
<th>NB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions Served</td>
<td>L</td>
<td>T</td>
<td>R</td>
<td>L</td>
<td>LT</td>
<td>R</td>
<td>L</td>
<td>T</td>
<td>R</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
<td>58</td>
<td>271</td>
<td>170</td>
<td>260</td>
<td>361</td>
<td>371</td>
<td>255</td>
<td>222</td>
<td>291</td>
<td>250</td>
<td>185</td>
</tr>
<tr>
<td>Average Queue (ft)</td>
<td>6</td>
<td>106</td>
<td>50</td>
<td>190</td>
<td>244</td>
<td>280</td>
<td>130</td>
<td>109</td>
<td>131</td>
<td>90</td>
<td>73</td>
</tr>
<tr>
<td>95th Queue (ft)</td>
<td>33</td>
<td>205</td>
<td>109</td>
<td>275</td>
<td>349</td>
<td>384</td>
<td>315</td>
<td>203</td>
<td>233</td>
<td>196</td>
<td>148</td>
</tr>
<tr>
<td>Link Distance (ft)</td>
<td>427</td>
<td>335</td>
<td>335</td>
<td>700</td>
<td>700</td>
<td>700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upstream Blk Time (%)</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td>0</td>
<td>16</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Storage Bay Dist (ft) | 140 | 165 | 235 | 230 | 250 | 275 |
| Storage Blk Time (%) | 6 | 0 | 3 | 10 | 29 | 0 | 2 | 0 |
| Queuing Penalty (veh) | 8 | 0 | 6 | 26 | 39 | 0 | 4 | 0 |

### Intersection: 2: Ventura Boulevard/Ford Dwy & Auto Center Dr

<table>
<thead>
<tr>
<th>Movement</th>
<th>SB</th>
<th>SB</th>
<th>SB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions Served</td>
<td>L</td>
<td>T</td>
<td>TR</td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
<td>218</td>
<td>296</td>
<td>257</td>
</tr>
<tr>
<td>Average Queue (ft)</td>
<td>124</td>
<td>142</td>
<td>95</td>
</tr>
<tr>
<td>95th Queue (ft)</td>
<td>208</td>
<td>268</td>
<td>213</td>
</tr>
<tr>
<td>Link Distance (ft)</td>
<td>339</td>
<td>339</td>
<td></td>
</tr>
<tr>
<td>Upstream Blk Time (%)</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

| Storage Bay Dist (ft) | 195 |
| Storage Blk Time (%) | 4 | 2 |
| Queuing Penalty (veh) | 9 | 3 |

### Zone Summary

Zone wide Queuing Penalty: 235
### Scenario Report

**Scenario:** Existing + Project PM  
**Command:** Existing + Project PM  
**Volume:** Existing + Project PM  
**Geometry:** Default Geometry  
**Impact Fee:** Default Impact Fee  
**Trip Generation:** Default Trip Generation  
**Trip Distribution:** Default Trip Distribution  
**Paths:** Default Path  
**Routes:** Default Route  
**Configuration:** Default Configuration  

### Level Of Service Computation Report

**ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)**  
**Intersection #1 North Rose Ave / Auto Center Drive / East Ventura Blvd**

<table>
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<tr>
<th>Cycle (sec):</th>
<th>100</th>
<th>Critical Vol./Cap.(X):</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Loss Time (sec):</td>
<td>0</td>
<td>Average Delay (sec/veh):</td>
<td>xxxxxx</td>
</tr>
<tr>
<td>Observed Volume:</td>
<td>217 692 667 152 798</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume Module:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Vol:</td>
<td>217 692 667 152 798</td>
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<td></td>
</tr>
<tr>
<td>Growth Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Bse:</td>
<td>217 692 667 152 798</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHF Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00</td>
<td></td>
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</tr>
<tr>
<td>PHF Volume:</td>
<td>217 692 667 152 798</td>
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<tr>
<td>Reduct Vol:</td>
<td>0 0 0 0 0</td>
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<tr>
<td>Reduced Vol:</td>
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<td></td>
</tr>
<tr>
<td>PCE Adj:</td>
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<td></td>
</tr>
<tr>
<td>MLF Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>Final Volume:</td>
<td>217 692 667 152 798</td>
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<tr>
<td>Ovl Adj Vol:</td>
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<td></td>
</tr>
</tbody>
</table>

| Saturation Flow Module: | | |
| Sat/Lane: | 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 | |
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 | |
| Lanes: | 1.00 2.00 2.00 1.00 1.93 0.07 1.00 1.00 2.46 0.54 1.00 1.00 | |
| Final Sat.: | 1600 3200 3200 1600 3092 108 1600 1600 3935 865 1600 | |

| Capacity Analysis Module: | | |
| Vol/Sat: | 0.14 0.22 0.21 0.10 0.26 0.26 0.00 0.08 0.14 0.23 0.23 0.14 | |
| Ovl Adj Vol: | 0.00 | |

**Traffic Flow Module:**

**Saturation Flow Module:**

**Capacity Analysis Module:**

**Critical Moves:** **** **** ****
Existing + Project PM Peak Hour
With Additional NBR lane at North Rose Ave./Auto Center Dr./E. Ventura Blvd.

Level Of Service Computation Report
ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Ventura Blvd / Auto Center Dr

<table>
<thead>
<tr>
<th>Cycle (sec):</th>
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<th>Critical Vol./Cap.(X):</th>
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</tr>
</thead>
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<td>Average Delay (sec/veh):</td>
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</tr>
<tr>
<td>Optimal Cycle:</td>
<td>50</td>
<td>Level Of Service:</td>
<td>A</td>
</tr>
</tbody>
</table>

Street Name: Ventura Boulevard / Auto Center Drive
Approach: North Bound / South Bound / East Bound / West Bound
Movement: L - T - R / L - T - R / L - T - R / L - T - R

<table>
<thead>
<tr>
<th>Control:</th>
<th>Split Phase</th>
<th>Split Phase</th>
<th>Permit+Prot</th>
<th>Permit+Prot</th>
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<td>Rights:</td>
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<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green:</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Y+R:</td>
<td>5.0</td>
<td>5.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Lanes:</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Volume Module:

| Base Vol: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 512 | 408 | 46 | 801 | 8 |
| Growth 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 |
| Initial Base: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 512 | 408 | 46 | 801 | 8 |
| User 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 |
| PRF 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 |
| PRF Volume: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 512 | 408 | 46 | 801 | 8 |
| Rebut Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 512 | 408 | 46 | 801 | 8 |
| PCF 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 |
| MLF 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 |
| Final Volume: | 490 | 3 | 37 | 2 | 0 | 27 | 24 | 512 | 408 | 46 | 801 | 8 |

Saturation Flow Module:

| Sat/Lane: | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 2.00 | 1.00 | 1.00 | 0.07 | 0.00 | 0.93 | 1.00 | 2.00 | 1.00 | 1.00 | 1.98 | 0.02 |
| Final Sat.: | 3200 | 1600 | 1600 | 110 | 0 | 1490 | 1600 | 3200 | 1600 | 1600 | 3168 | 32 |

Capacity Analysis Module:

| Vol/Sat: | 0.15 | 0.00 | 0.02 | 0.02 | 0.00 | 0.02 | 0.02 | 0.16 | 0.26 | 0.03 | 0.25 | 0.25 |
| Crit Moves: | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** |

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND
### Intersection: 1: N. Rose Ave & Ventura Blvd/Auto Center Dr

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### Intersection: 1: N. Rose Ave & Ventura Blvd/Auto Center Dr

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### Interseciton: 2: Ventura Boulevard/Ford Dwy & Auto Center Dr

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### Zone Summary

Zone wide Queuing Penalty: 1349
Appendix I
Cumulative Conditions
Level-of-Service Worksheets
Scenario Report

---

**Scenario:** Cumulative Midday

**Command:** Cumulative Midday

**Volume:** Cumulative Midday

**Geometry:** Default Geometry

**Impact Fee:** Default Impact Fee

**Trip Generation:** Default Trip Generation

**Trip Distribution:** Default Trip Distribution

**Paths:** Default Path

**Routes:** Default Route

**Configuration:** Default Configuration

---

**Level Of Service Computation Report**

**ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)**

**Intersection #1 N Rose Ave / Auto Center Dr / E Ventura Blvd**

**Cycle (sec):** 100  
**Critical Vol./Cap.(X):** 0.702  
**Loss Time (sec):** 0  
**Average Delay (sec/veh):** xxxxxx  
**Optimal Cycle:** 77  
**Level Of Service:** C

---

**Street Name:** North Rose Avenue / Auto Center Drive / East Ventura  
**Approach:** North Bound / South Bound / East Bound / West Bound  
**Movement:** L - T - R / L - T - R / L - T - R / L - T - R

**Control:** Protected / Include / Include / Include  
**Rights:** Ovl / Include / Include / Include  
**Min. Green:** 0 / 0 / 0 / 0  
**Y+R:** 4.0 / 4.0 / 4.0 / 4.0  
**Lanes:** 1 / 0 / 2 / 0

**Volume Module:**

**Base Vol:** 138 / 443 / 843 / 146 / 413 / 7 / 99 / 135 / 799 / 104 / 135  
**Growth Adj:** 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00  
**Initial Bse:** 138 / 443 / 843 / 146 / 413 / 7 / 99 / 135 / 799 / 104 / 135  
**User Adj:** 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00  
**PHF Adj:** 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00  
**PHF Volume:** 138 / 443 / 843 / 146 / 413 / 7 / 99 / 135 / 799 / 104 / 135  
**Reduced Vol:** 0 / 0 / 0 / 0  
**Reduced Vol:** 138 / 443 / 843 / 146 / 413 / 7 / 99 / 135 / 799 / 104 / 135  
**PCE Adj:** 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00  
**MLF Adj:** 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00  
**Final Volume:** 138 / 443 / 843 / 146 / 413 / 7 / 99 / 135 / 799 / 104 / 135  
**OvlAdjVol:** 542

**Saturation Flow Module:**

**Sat/Lane:** 1600 / 1600 / 1600 / 1600 / 1600 / 1600 / 1600 / 1600 / 1600 / 1600 / 1600  
**Adjustment:** 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00  
**Final Sat:** 1600 / 3200 / 1600 / 3110 / 90 / 1600 / 1600 / 4247 / 553 / 1600

**Capacity Analysis Module:**

**Vol/Sat:** 0.09 / 0.14 / 0.53 / 0.09 / 0.13 / 0.00 / 0.06 / 0.08 / 0.19 / 0.19 / 0.08  
**OvlAdjV/S:** 0.34  
**Crit Moves:** **** / ****  
**** / ****
### Traffic Analysis Report

#### Intersection #2 Ventura Blvd / Auto Center Dr

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<td>East Bound</td>
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<td>Min. Green:</td>
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<td>5 20 20 20 20 20 5</td>
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#### Volume Module

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| Lanes:       | 2.00 1.00 0.34 0.33 0.33 1.00 2.00 1.00 1.00 1.00 |
| Final Sat.:  | 3200 1600 1600 533 533 533 1600 3200 1600 1600 3109 91 |

#### Capacity Analysis Module

| | Vol/Sat: | 0.16 0.00 0.03 0.01 0.01 0.01 0.02 0.18 0.30 0.02 0.15 0.15 |

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### Intersection #3 Paseo Mercado / Auto Center Dr

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<td>East Bound</td>
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<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
</tr>
<tr>
<td>Final Volume:</td>
<td>243 0 227 0 0 0 0 365 242 171 340 0</td>
</tr>
</tbody>
</table>

#### Saturation Flow Module

| Adjustment:  | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes:       | 1.00 0.00 0.00 0.00 0.00 0.00 1.20 0.80 1.00 2.00 0.00 |
| Final Sat.:  | 1600 0 1600 0 0 0 0 1924 1276 1600 3200 0 |

#### Capacity Analysis Module

| | Vol/Sat: | 0.15 0.00 0.14 0.00 0.00 0.00 0.00 0.19 0.19 0.11 0.11 0.00 |

---

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Level of Service Computation Report

Intersection #5 Rice Ave / Santa Clara Ave / Auto Center Dr

**Cycle (sec):** 105  
**Critical Vol./Cap.(X):** 0.371  
**Optimal Cycle:** 31  
**Level Of Service:** A

**Street Name:** Rice Avenue / Santa Clara Avenue / Auto Center Drive  
**Approach:** North Bound / South Bound / East Bound / West Bound  
**Movement:** L - T - R / L - T - R / L - T - R / L - T - R  
**Control:** Protected / Permitted / Protected / Permitted  
**Rights:** Include / Include / Include / Include  
**Y+R:** 4.8 / 5.0 / 4.0 / 5.0 / 5.0 / 4.8 / 4.8 / 4.8 / 5.0 / 5.0 / 5.0  
**Lanes:** 2 / 0 / 2 / 0 / 2 / 0 / 2 / 0 / 0 / 2 / 1 / 1 / 0 / 1

**Volume Module:**
**Base Vol:** 303 340 0 0 425 101 129 0 559 367 315 24  
**Growth 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  
**Initial Base:** 303 340 0 0 425 101 129 0 559 367 315 24  
**User 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  
**PHF 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  
**PHF Volume:** 303 340 0 0 425 101 129 0 559 367 315 24  
**Reduced Vol:** 0 0 0 0 0 0 0 0 0 0 0 0 0  
**Reduced Vol:** 303 340 0 0 425 101 129 0 559 367 315 24  
**PCE 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  
**MLF 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  
**Final Volume:** 303 340 0 0 425 101 129 0 559 367 315 24

**Saturation Flow Module:**
**Sat/Lane:** 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600  
**Adjustment:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
**Lanes:** 2.00 2.00 0.00 0.00 3.00 1.00 2.00 0.00 2.00 1.56 1.34 0.10  
**Final Sat.:** 3200 3200 0 0 4800 1600 3200 0 3200 2494 2143 163

**Capacity Analysis Module:**
**Vol/Sat:** 0.09 0.11 0.00 0.00 0.09 0.06 0.04 0.00 0.17 0.15 0.15 0.15  
**Crit Moves:** ****
## Intersection

| Int Delay, s/veh | 6.2 |

## Movement

| Traffic Vol, veh/h | 24 423 44 | 269 440 34 | 24 2 152 | 26 1 27 |
| Future Vol, veh/h | 24 423 44 | 269 440 34 | 24 2 152 | 26 1 27 |
| Conflicting Peds, #/hr | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 |

### Sign Control
- Free
- Free
- Free
- Free
- Free
- Stop
- Stop
- Stop
- Stop
- Stop
- Stop

### RT Channelized
- - None
- - None
- - None
- - None

### Storage Length
- 205

### Veh in Median Storage, #
- 0
- 0

### Grade, %
- 0

### Peak Hour Factor
- 100
- 100
- 100
- 100
- 100
- 100
- 100
- 100

### Heavy Vehicles, %
- 2
- 2
- 2
- 2
- 2
- 2

### Mvmt Flow
- 24 423 44 | 269 440 34 | 24 2 152 | 26 1 27

## Major/Minor

<table>
<thead>
<tr>
<th>Major/Minor</th>
<th>Major1</th>
<th>Major2</th>
<th>Minor1</th>
<th>Minor2</th>
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<tbody>
<tr>
<td>Conflicting Flow All</td>
<td>474</td>
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<td>0</td>
<td>467</td>
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<td>Stage 2</td>
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<td>Mov Cap-2 Maneuver</td>
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## Approach

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<th>NB</th>
<th>SB</th>
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<td>HCM Control Delay, s</td>
<td>0.4</td>
<td>3.4</td>
<td>22.4</td>
<td>43.9</td>
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<td>HCM LOS</td>
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<td>E</td>
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## Minor Lane/Major Mvmt

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<th>EBT</th>
<th>EBR</th>
<th>WBL</th>
<th>WBT</th>
<th>WBR</th>
<th>SBL SBl1</th>
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<td>Capacity (veh/h)</td>
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<td>145</td>
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<td>HCM Lane V/C Ratio</td>
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<td>-</td>
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<td>HCM Control Delay (s)</td>
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<td>8.4</td>
<td>-</td>
<td>-</td>
<td>9.4</td>
<td>-</td>
<td>-</td>
<td>43.9</td>
</tr>
<tr>
<td>HCM Lane LOS</td>
<td>C</td>
<td>A</td>
<td>-</td>
<td>-</td>
<td>A</td>
<td>-</td>
<td>-</td>
<td>E</td>
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<td>0.1</td>
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<td>-</td>
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### Scenario Report

#### Cumulative PM

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<td>Cumulative PM</td>
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<td>Trip Distribution:</td>
<td>Default Trip Distribution</td>
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<td>Paths:</td>
<td>Default Path</td>
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<td>Routes:</td>
<td>Default Route</td>
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<tr>
<td>Configuration:</td>
<td>Default Configuration</td>
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</tbody>
</table>

#### Level of Service Computation Report

**ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)**

<table>
<thead>
<tr>
<th>Intersection #1 N Rose Ave / Auto Center Dr / E Ventura Blvd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle (sec): 100</td>
</tr>
<tr>
<td>Loss Time (sec): 0</td>
</tr>
</tbody>
</table>

**Street Name:** North Rose Avenue / Auto Center Drive / East Ventura

**Approach:** North Bound / South Bound / East Bound / West Bound

**Movement:**
- L - T - R
- L - T - R
- L - T - R
- L - T - R

**Control:**
- Protected
- Ovl

**Rights:**
- Include
- Include

**Y+R:**
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0

**Lanes:**
- 1
- 0
- 2
- 0
- 1
- 1
- 0
- 0
- 0
- 0

**Volume Module:**

| Base Vol: | 217 693 683 152 797 28 7 96 232 956 186 226 |
| Growth Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Initial Bse: | 217 693 683 152 797 28 7 96 232 956 186 226 |
| User Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PHF Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PHF Volume: | 217 693 683 152 797 28 7 96 232 956 186 226 |
| Reduct Vol: | 0 0 0 0 0 0 0 0 0 0 0 |
| Reduced Vol: | 217 693 683 152 797 28 7 96 232 956 186 226 |
| PCE Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Final Volume: | 217 693 683 152 797 28 7 96 232 956 186 226 |
| OvlAdjVol: | 302 |

**Saturation Flow Module:**

| Sat/Lane: | 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 |
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes: | 1.00 2.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Final Sat.: | 1600 3200 1600 1600 3091 109 1600 1600 1600 4018 782 1600 |

**Capacity Analysis Module:**

| Vol/Sat: | 0.14 0.22 0.43 0.10 0.26 0.26 0.00 0.06 0.15 0.24 0.24 0.14 |
| OvlAdjVol: | 0.19 |
| Crit Moves: | **** **** **** |

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### Traffic Analysis

#### Level Of Service Computation Report

**Intersection #2 Ventura Blvd / Auto Center Dr**

**Capacity Analysis Module:**

<table>
<thead>
<tr>
<th>Lanes</th>
<th>2.00</th>
<th>1.00</th>
<th>1.00</th>
<th>0.07</th>
<th>0.00</th>
<th>0.93</th>
<th>1.00</th>
<th>2.00</th>
<th>1.00</th>
<th>1.00</th>
<th>1.98</th>
<th>0.02</th>
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<tbody>
<tr>
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<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
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<td>1600</td>
<td>1600</td>
<td>1600</td>
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<td>Adjustment</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Lanes</td>
<td>0.10</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Saturation Flow Module:**

| Final Volume | 534 | 37 | 43 | 2 | 0 | 27 | 24 | 469 | 436 | 50 | 784 | 8 |
| MLF 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 |
| PCE 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 |
| PHF Volume | 534 | 37 | 43 | 2 | 0 | 27 | 24 | 469 | 436 | 50 | 784 | 8 |
| Reduced Vol. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Volume | 534 | 37 | 43 | 2 | 0 | 27 | 24 | 469 | 436 | 50 | 784 | 8 |

**Satisfaction Flow Module:**

| Vol/Sat: | 0.07 | 0.15 | 0.25 | 0.25 | 0.27 | 0.25 | 0.03 | 0.02 | 0.02 | 0.03 | 0.03 | 0.00 |

**Optimal Cycle:**

- **Cycle (sec):** 130
- **Critical Vol./Cap.(X):** 0.489

**Street Name:** Ventura Boulevard

**Approach:** North Bound

<table>
<thead>
<tr>
<th>Movement</th>
<th>L</th>
<th>T</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
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<tbody>
<tr>
<td>Control</td>
<td>Split Phase</td>
<td>Split Phase</td>
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<td>Permit+Prot</td>
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<tr>
<td>Rights</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
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<td></td>
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<tr>
<td>Min. Green</td>
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<td>5</td>
<td>5</td>
<td>5</td>
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<td>20</td>
<td>20</td>
<td>20</td>
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<td>0</td>
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</tbody>
</table>

**Optimal Cycle:**

- **Cycle (sec):** 130
- **Critical Vol./Cap.(X):** 0.489

**Intersection #3 Paseo Mercado / Auto Center Dr**

**Capacity Analysis Module:**

<table>
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<th>1.00</th>
<th>0.00</th>
<th>1.00</th>
<th>0.00</th>
<th>1.00</th>
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<td>****</td>
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<td>****</td>
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<td>****</td>
<td>****</td>
<td>****</td>
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<td>****</td>
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</table>

**Saturation Flow Module:**

| Final Volume | 269 | 0 | 179 | 0 | 0 | 0 | 0 | 390 | 212 | 154 | 600 | 0 |
| MLF 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 |
| PCE 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 |
| PHF Volume | 269 | 0 | 179 | 0 | 0 | 0 | 0 | 390 | 212 | 154 | 600 | 0 |
| Reduced Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Volume | 269 | 0 | 179 | 0 | 0 | 0 | 0 | 390 | 212 | 154 | 600 | 0 |

**Satisfaction Flow Module:**

| Vol/Sat: | 0.17 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Optimal Cycle:**

- **Cycle (sec):** 100
- **Critical Vol./Cap.(X):** 0.453

**Street Name:** Paseo Mercado

**Approach:** North Bound

<table>
<thead>
<tr>
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<th>L</th>
<th>T</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
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<td>Permit+Prot</td>
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**Optimal Cycle:**

- **Cycle (sec):** 130
- **Critical Vol./Cap.(X):** 0.489
Level Of Service Computation Report

ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 Rice Ave / Santa Clara Ave / Auto Center Dr

Cycle (sec): 105
Loss Time (sec): 0
Critical Vol./Cap. (X): 0.561
Average Delay (sec/veh): xxxxxx
Optimal Cycle: 42
Level Of Service: A

Street Name: Rice Avenue / Santa Clara Avenue / Auto Center Drive
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Protected Permitted Protected Permitted
Rights: Include Include Include Include
Min. Green: 5.0 10.0 0.0 0.0 10.0 10.0 6.0 6.0 10.0 10.0
Y+R: 4.8 5.0 4.0 5.0 5.0 5.0 4.8 4.8 4.8 5.0 5.0 5.0
Lanes: 2 0 2 0 0 0 3 0 1 2 0 0 2 1 1 0 1 0

Volume Module:
Base Vol: 413 665 0 0 876 163 155 0 572 596 354 13
Growth 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
Initial Base: 413 665 0 0 876 163 155 0 572 596 354 13
User 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
PHF 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
PHF Volume: 413 665 0 0 876 163 155 0 572 596 354 13
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 413 665 0 0 876 163 155 0 572 596 354 13
PCE 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
MLF 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
Final Volume: 413 665 0 0 876 163 155 0 572 596 354 13

Saturation Flow Module:
Sat./Lane: 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 2.00 2.00 0.00 0.00 3.00 1.00 2.00 0.00 2.00 1.86 1.10 0.04
Final Sat.: 3200 3200 0 0 4800 1600 3200 0 3200 2971 1765 65

Capacity Analysis Module:
Vol./Sat: 0.13 0.21 0.00 0.00 0.18 0.10 0.05 0.00 0.18 0.20 0.20 0.20
Crit. Move: ****
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Appendix J
Cumulative + Project Conditions
Level-of-Service Worksheets
Scenario Report

Scenario: Cumulative + Project Midday
Command: Cumulative + Project Midday
Volume: Cumulative + Project Midday
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: Default Trip Generation
Trip Distribution: Default Trip Distribution
Paths: Default Path
Routes: Default Route
Configuration: Default Configuration

Level Of Service Computation Report

Intersection #1 N Rose Ave / Auto Center Dr / E Ventura Blvd

Cycle (sec): 100
Critical Vol./Cap.(X): 0.719
Loss Time (sec): 0
Average Delay (sec/veh): xxxxxx
Optimal Cycle: 81
Level Of Service: C

Street Name: North Rose Avenue / Auto Center Drive / East Ventura
Approach: North Bound / South Bound / East Bound / West Bound
Movement: L - T - R / L - T - R / L - T - R / L - T - R
Control: Protected / Protected / Protected / Protected
Rights: Ovl / Include / Include / Include
Min. Green: 0 / 0 / 0 / 0
Y+R: 4.0 / 4.0 / 4.0 / 4.0
Lanes: 1 / 0 / 2 / 0 / 1

Volume Module:
Base Vol: 138 / 442 / 869 / 151 / 414 / 12 / 6 / 131 / 134 / 814 / 121 / 141
Growth Adj: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
Initial Bse: 138 / 442 / 869 / 151 / 414 / 12 / 6 / 131 / 134 / 814 / 121 / 141
User Adj: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
PHF Adj: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
PHF Volume: 138 / 442 / 869 / 151 / 414 / 12 / 6 / 131 / 134 / 814 / 121 / 141
Reduced Vol: 0 / 0 / 0 / 0
Reduced Vol: 138 / 442 / 869 / 151 / 414 / 12 / 6 / 131 / 134 / 814 / 121 / 141
PCE Adj: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
Final Volume: 138 / 442 / 869 / 151 / 414 / 12 / 6 / 131 / 134 / 814 / 121 / 141
OvlAdjVol: 557

Saturation Flow Module:
Sat/Lane: 1600 / 1600 / 1600 / 1600 / 1600 / 1600 / 1600 / 1600 / 1600
Adjustment: 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00 / 1.00
Final Sat.: 1600 / 3200 / 1600 / 3110 / 90 / 1600 / 1600 / 4179 / 621

Capacity Analysis Module:
Vol/Sat: 0.09 / 0.14 / 0.54 / 0.09 / 0.13 / 0.13 / 0.00 / 0.08 / 0.08 / 0.19 / 0.19 / 0.09
OvlAdjV/S: 0.35
Crit Moves: **** **** **** ****
| Street Name: Ventura Boulevard                    | Auto Center Drive |
| Movement: | L - T - R | L - T - R | L - T - R | L - T - R |
| Control: Lanes: | 2 0 1 0 1 0 0 1 0 0 1 0 2 0 1 0 1 1 0 |
| Rights: Min. Green: | 5 5 5 5 5 20 20 20 20 5 5 5 5 5 5 5 5 5 5 5 |
| Y+R: | 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 |
| Volume Module: Base Vol: | 510 3 49 6 6 36 30 642 483 32 515 14 |
| Growth 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 |
| Initial Base: | 510 3 49 6 6 36 30 642 483 32 515 14 |
| User 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 |
| PHE 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 |
| PHE Volume: | 510 3 49 6 6 36 30 642 483 32 515 14 |
| Reduced Vol: | 0 0 0 0 0 0 0 0 0 0 0 0 |
| Reduct Vol: | 510 3 49 6 6 36 30 642 483 32 515 14 |
| PCE 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 |
| PCE Volume: | 510 3 49 6 6 36 30 642 483 32 515 14 |
| FinalVolume: | 510 3 49 6 6 36 30 642 483 32 515 14 |
| Saturation Flow Module: | |
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes: | 2.00 2.00 0.12 0.12 0.76 1.00 2.00 1.00 1.00 1.00 1.00 0.05 |
| Final Sat.: | 3200 1600 1600 200 200 1200 1600 3200 1600 3115 85 |
| Capacity Analysis Module: Vol/Sat: | 0.16 0.00 0.03 0.03 0.03 0.03 0.02 0.20 0.30 0.02 0.17 0.17 |

Crit Moves: ****

---

| Street Name: Paseo Mercado | Auto Center Drive |
| Movement: | L - T - R | L - T - R | L - T - R | L - T - R |
| Control: Lanes: | 2 0 1 0 1 0 0 1 0 0 1 0 2 0 1 0 1 1 0 |
| Rights: Min. Green: | 5 5 5 5 5 20 20 20 20 5 5 5 5 5 5 5 5 5 5 |
| Y+R: | 5.0 4.0 5.0 4.0 4.0 4.0 4.0 6.0 6.0 4.0 6.0 4.0 |
| Volume Module: Base Vol: | 162 0 202 0 0 0 0 509 161 171 459 0 |
| Growth 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 |
| Initial Base: | 162 0 202 0 0 0 0 509 161 171 459 0 |
| User 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 |
| PHE 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 |
| PHE Volume: | 162 0 202 0 0 0 0 509 161 171 459 0 |
| Reduced Vol: | 0 0 0 0 0 0 0 0 0 0 0 0 |
| Reduct Vol: | 162 0 202 0 0 0 0 509 161 171 459 0 |
| PCE 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 |
| PCE Volume: | 162 0 202 0 0 0 0 509 161 171 459 0 |
| FinalVolume: | 162 0 202 0 0 0 0 509 161 171 459 0 |
| Saturation Flow Module: | |
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Lanes: | 1.00 0.00 0.00 0.00 0.00 0.00 15 15 15 15 15 0 |
| Final Sat.: | 1600 0 1600 0 0 0 0 2431 769 1600 3200 0 |
| Capacity Analysis Module: Vol/Sat: | 0.10 0.00 0.13 0.00 0.00 0.00 0.00 0.21 0.21 0.11 0.14 0.00 |

Crit Moves: ****
# Level of Service Computation Report

## Intersection #5 Rice Ave / Santa Clara Ave / Auto Center Dr

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<td>Average Delay (sec/veh):</td>
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**Optimal Cycle:** 31

**Level Of Service:** A

### Street Name: Rice Avenue / Santa Clara Avenue / Auto Center Drive

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### Volume Module:

| Base Vol: | 307 338 0 0 424 103 134 0 568 364 321 |
| Growth Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Initial Base: | 307 338 0 0 424 103 134 0 568 364 321 |
| User Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PHF Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PHF Volume: | 307 338 0 0 424 103 134 0 568 364 321 |
| Reduct Vol: | 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| Reduced Vol: | 307 338 0 0 424 103 134 0 568 364 321 |
| PCE 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 |
| MLP Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Final Volume: | 307 338 0 0 424 103 134 0 568 364 321 |

### Saturation Flow Module:

| Sat/Lane: | 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 |
| Adjustment: | 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 |
| Lanes: | 2.00 2.00 0.00 0.00 3.00 1.00 2.00 0.00 2.00 1.55 1.36 0.09 |
| Final Sat.: | 3200 3200 0 0 4800 1600 3200 0 3200 2479 2173 148 |

### Capacity Analysis Module:

| Vol/Sat: | 0.10 0.11 0.00 0.00 0.09 0.06 0.04 0.00 0.18 0.15 0.15 0.15 |
| Crit Moves: | **** |

**Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to KITTELSON, PORTLAND**
### Intersection

**Int Delay, s/veh** 108.8

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#### Major/Minor

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<td>Mov Cap-2 Maneuver</td>
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#### Approach

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#### Minor Lane/Major Mvmt

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<th>EBR</th>
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<td>F</td>
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**Notes**

- Volume exceeds capacity
- Delay exceeds 300s
- Computation Not Defined
- All major volume in platoon
18042 Oxnard Costco Gasoline Expansion
Cumulative + Project PM Peak Hour

Scenario Report

Scenario: Cumulative + Project PM
Command: Cumulative + Project PM
Volume: Cumulative + Project PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: Default Trip Generation
Trip Distribution: Default Trip Distribution
Paths: Default Path
Routes: Default Route
Configuration: Default Configuration

Level Of Service Computation Report

ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 N Rose Ave / Auto Center Dr / E Ventura Blvd

Cycle (sec): 100
Critical Vol./Cap. (X): 0.782
Loss Time (sec): 0
Average Delay (sec/veh): xxxxxx
Optimal Cycle: 105
Level Of Service: C

Street Name: North Rose Avenue / Auto Center Drive / East Ventura
Approach: North Bound / South Bound / East Bound / West Bound
Movement: L - T - R / L - T - R / L - T - R / L - T - R
Control: Protected / Include / Include / Include
Rights: Ovl / Include / Include / Include
Min. Green: 0 / 0 / 0 / 0
Y+R: 4.0 / 4.0 / 4.0 / 4.0 / 4.0 / 4.0 / 4.0 / 4.0 / 4.0 / 4.0 / 4.0 / 4.0
Lanes: 1 / 0 / 2 / 0 / 1 / 1 / 0 / 1 / 0 / 1 / 0 / 1 / 0 / 0 / 1

Volume Module:
Base Vol: 217 692 708 156 798 28 6 127 231 969 202 231
Growth 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
Initial Bse: 217 692 708 156 798 28 6 127 231 969 202 231
User 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
PHF 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
PHF Volume: 217 692 708 156 798 28 6 127 231 969 202 231
Reduced Vol: 217 692 708 156 798 28 6 127 231 969 202 231
PCE 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
Final Volume: 217 692 708 156 798 28 6 127 231 969 202 231
OvlAdjVol: 318

Saturation Flow Module:
Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 3092 1600 3972 828 1600
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Sat.: 1600 3092 1600 3092 1600 3972 828 1600

Capacity Analysis Module:
Vol/Sat: 0.14 0.22 0.44 0.10 0.26 0.26 0.00 0.08 0.14 0.24 0.24 0.14
OvlAdjV/S: 0.20
Crit Moves: **** ***** ****

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### ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

#### Intersection #2 Ventura Blvd / Auto Center Dr

<table>
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<tr>
<th>Street Name:</th>
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<th>Auto Center Drive</th>
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<tbody>
<tr>
<td>Approach:</td>
<td>North Bound</td>
<td>South Bound</td>
</tr>
<tr>
<td>Movement:</td>
<td>1 - R L T - R L T</td>
<td>1 - R L T - R L T</td>
</tr>
<tr>
<td>Sat/Lane:</td>
<td>1600 1600 1600 1600</td>
<td>1600 1600 1600 1600</td>
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<tr>
<td>Min. Green:</td>
<td>5 5 5 5 5 5 5 20 20 20 20</td>
<td></td>
</tr>
<tr>
<td>Y+R:</td>
<td>5.0 5.0 4.0 4.0 4.0 6.0 6.0</td>
<td></td>
</tr>
<tr>
<td>Lanes:</td>
<td>2 0 1 0 1 0 0</td>
<td></td>
</tr>
<tr>
<td>Initial Bse:</td>
<td>534 3 43 2 0 27 24 530 436 50 819 8</td>
<td></td>
</tr>
<tr>
<td>Growth Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td></td>
</tr>
<tr>
<td>User Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td></td>
</tr>
<tr>
<td>PFE Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>PFE Volume:</td>
<td>534 3 43 2 0 27 24 530 436 50 819 8</td>
<td></td>
</tr>
<tr>
<td>Reduced Vol:</td>
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<tr>
<td>FinalVol:</td>
<td>534 3 43 2 0 27 24 530 436 50 819 8</td>
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<tr>
<td>Saturation Flow:</td>
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<tr>
<td>Adjustment:</td>
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<td>Lanes:</td>
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<td>Final Sat.:</td>
<td>3200 1600 1600 110 0 1490 1600 3200 1600 1600 3169 31</td>
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#### Volume Module:

| Base Vol: | 534 3 43 2 0 27 24 530 436 50 819 8 |
| Growth Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| User Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PFE Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PFE Volume: | 534 3 43 2 0 27 24 530 436 50 819 8 |
| Reduced Vol: | 0 0 0 0 0 0 0 0 0 |
| FinalVol: | 534 3 43 2 0 27 24 530 436 50 819 8 |

#### Capacity Analysis Module:

| Vol/Sat: | 0.17 0.00 0.03 0.02 0.00 0.02 0.02 0.17 0.27 0.03 0.26 0.26 |
| Crit Moves: | **** | **** | **** | **** |

---

### ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)

#### Intersection #3 Paseo Mercado / Auto Center Dr

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<th>Street Name:</th>
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<td>L T R L T R L T</td>
<td>L T R L T R L T</td>
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<td>Sat/Lane:</td>
<td>1600 1600 1600 1600</td>
<td>1600 1600 1600 1600</td>
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<td>Min. Green:</td>
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<tr>
<td>Y+R:</td>
<td>5.0 4.0 5.0 4.0 4.0 6.0 6.0</td>
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</tr>
<tr>
<td>Lanes:</td>
<td>1 0 0 1 0 0 0</td>
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</tr>
<tr>
<td>Initial Bse:</td>
<td>189 0 154 0 0 0 0 0 531 132 154 715 0</td>
<td></td>
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<tr>
<td>Growth Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>User Adj:</td>
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<tr>
<td>PFE Volume:</td>
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<td>Reduced Vol:</td>
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<td>FinalVol:</td>
<td>189 0 154 0 0 0 0 0 531 132 154 715 0</td>
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<tr>
<td>Final Sat.:</td>
<td>189 0 154 0 0 0 0 0 531 132 154 715 0</td>
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#### Volume Module:

| Base Vol: | 189 0 154 0 0 0 0 0 531 132 154 715 0 |
| Growth 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 |
| User 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 |
| PFE 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 |
| PFE Volume: | 189 0 154 0 0 0 0 0 531 132 154 715 0 |
| Reduced Vol: | 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| FinalVol: | 189 0 154 0 0 0 0 0 531 132 154 715 0 |

#### Saturatation Flow Module:

| Base Vol: | 189 0 154 0 0 0 0 0 531 132 154 715 0 |
| Growth 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 |
| User 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 |
| PFE 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 |
| PFE Volume: | 189 0 154 0 0 0 0 0 531 132 154 715 0 |
| Reduced Vol: | 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| FinalVol: | 189 0 154 0 0 0 0 0 531 132 154 715 0 |

#### Capacity Analysis Module:

| Vol/Sat: | 0.12 0.00 0.10 0.00 0.00 0.00 0.00 0.21 0.21 0.10 0.22 0.00 |
| Crit Moves: | **** | **** | **** | **** |
**Level Of Service Computation Report**

**Intersection #5 Rice Ave / Santa Clara Ave / Auto Cetter Dr**

Cycle (sec): 105  
Critical Vol./Cap.(X): 0.563  
Loss Time (sec): 0  
Average Delay (sec/veh): xxxxxx  
Optimal Cycle: 43

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<td>Approach: North Bound</td>
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<tr>
<td>Movement: L - T - R</td>
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<tr>
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<td>Rights: Include</td>
<td>Include</td>
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<td>Min. Green: 5 10 0 10</td>
<td>6 6 6 10</td>
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<tr>
<td>Y+R: 4.8 5.0 4.0 5.0</td>
<td>5.0 5.0 4.8 4.8</td>
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<td>Lanes: 2 0 2 0</td>
<td>0 0 3 0 1</td>
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<table>
<thead>
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<tr>
<td>Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>Initial Base: 416 663 0 0 875 164 159 0 578 593 358 11</td>
</tr>
<tr>
<td>User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<td>PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<tr>
<td>PHF Volume: 416 663 0 0 875 164 159 0 578 593 358 11</td>
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<tr>
<td>Reduced Vol: 0 0 0 0 0 0 0 0 0</td>
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<tr>
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<tr>
<td>Lanes: 2.00 2.00 0.00 0.00 3.00 1.00 2.00 0.00 2.00</td>
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<table>
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<tr>
<td>Vol/Sat: 0.13 0.21 0.00 0.00 0.18 0.10 0.05 0.00 0.18 0.20 0.20 0.20</td>
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<tr>
<td>Crit Moves: ****</td>
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### Intersection

| Int Delay, s/veh | 127.1 |

#### Movement

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<th>WBT</th>
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<th>NBL</th>
<th>NBT</th>
<th>NBR</th>
<th>SBL</th>
<th>SBT</th>
<th>SBR</th>
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<tbody>
<tr>
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<td>482</td>
<td>182</td>
<td>223</td>
<td>653</td>
<td>63</td>
<td>143</td>
<td>0</td>
<td>199</td>
<td>32</td>
<td>6</td>
<td>37</td>
</tr>
<tr>
<td>Future Vol, veh/h</td>
<td>36</td>
<td>482</td>
<td>182</td>
<td>223</td>
<td>653</td>
<td>63</td>
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#### Major/Minor

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<td>2.4</td>
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<td>123.6</td>
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<td>HCM LOS</td>
<td>F</td>
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#### Minor Lane/Major Mvmt

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<th>EBT</th>
<th>EBR</th>
<th>WBL</th>
<th>WBT</th>
<th>WBR</th>
<th>SBLn1</th>
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<td>880</td>
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<td>-</td>
<td>921</td>
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<td>-</td>
<td>94</td>
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<td>HCM Lane V/C Ratio</td>
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<td>0.041</td>
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<td>-</td>
<td>0.242</td>
<td>-</td>
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<td>-</td>
<td>10.2</td>
<td>-</td>
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<td>F</td>
<td>A</td>
<td>-</td>
<td>-</td>
<td>B</td>
<td>-</td>
<td>-</td>
<td>F</td>
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#### Notes

- Volume exceeds capacity
- Delay exceeds 300s
- Computation Not Defined
- All major volume in platoon
Appendix K
Cumulative + Project Conditions (Mitigated) Level-of-Service & Queuing Analysis Worksheets
### Scenario Report

**Scenario:** Cumulative + Project Midday

**Command:** Cumulative + Project Midday

**Volume:** Cumulative + Project Midday

**Geometry:** Default Geometry

**Impact Fee:** Default Impact Fee

**Trip Generation:** Default Trip Generation

**Trip Distribution:** Default Trip Distribution

**Paths:** Default Path

**Routes:** Default Route

**Configuration:** Default Configuration

---

### Level Of Service Computation Report

**Intersection #4 E Costco Dwy / Auto Center Dr**

- **Cycle (sec):** 100
- **Critical Vol./Cap. (X):** 0.424
- **Loss Time (sec):** 0
- **Average Delay (sec/veh):** xxxxxx
- **Optimal Cycle:** 40
- **Level of Service:** A

### Street Name: Eastern Costco Driveway Auto Center Drive

#### Approach: North Bound | South Bound | East Bound | West Bound

<table>
<thead>
<tr>
<th>Movement</th>
<th>L  -  T  -  R</th>
<th>L  -  T  -  R</th>
<th>L  -  T  -  R</th>
<th>L  -  T  -  R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Split Phase</td>
<td>Split Phase</td>
<td>Prot+Permit</td>
<td>Prot+Permit</td>
</tr>
<tr>
<td>Rights</td>
<td>Ovl</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
</tr>
<tr>
<td>Y+R:</td>
<td>4.0 4.0 4.0 4.0</td>
<td>4.0 4.0 4.0 4.0</td>
<td>4.0 4.0 4.0 4.0</td>
<td></td>
</tr>
<tr>
<td>Lanes:</td>
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<td>1 1 0 0</td>
<td>1 1 0 0</td>
<td>1 1 0 0</td>
</tr>
</tbody>
</table>

### Volume Module:

| Base Vol: | 146 | 2 | 194 | 26 | 1 | 27 | 24 | 393 | 193 | 284 | 437 | 34 |
| Growth Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 146 | 2 | 194 | 26 | 1 | 27 | 24 | 393 | 193 | 284 | 437 | 34 |
| Reduced Vol: | 146 | 2 | 194 | 26 | 1 | 27 | 24 | 393 | 193 | 284 | 437 | 34 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume: | 146 | 2 | 194 | 26 | 1 | 27 | 24 | 393 | 193 | 284 | 437 | 34 |
| OvlAdjVol: | 0 |

### Saturation Flow Module:

| Sat/Lane: | 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 1600 |
| Adjustment: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Initial Bse: | 3157 43 1541 59 1600 1600 2146 1054 1600 2969 231 |
| Final Sat.: | 3157 43 1541 59 1600 1600 2146 1054 1600 2969 231 |

### Capacity Analysis Module:

| VoI/Sat: | 0.05 0.05 0.12 0.02 0.02 0.02 0.02 0.18 0.18 0.18 0.15 0.15 |
| OvlAdjVol: | 0.00 |
| Crit Moves: | **** **** **** **** |

---

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### Intersection: 4: E. Costco Dwy/Los Olivos & Auto Center Dr

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<th>EB</th>
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<th>EB</th>
<th>WB</th>
<th>WB</th>
<th>NB</th>
<th>NB</th>
<th>NB</th>
<th>SB</th>
<th>SB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions Served</td>
<td>L</td>
<td>T</td>
<td>TR</td>
<td>L</td>
<td>T</td>
<td>TR</td>
<td>L</td>
<td>LT</td>
<td>R</td>
<td>L</td>
</tr>
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<td>Maximum Queue (ft)</td>
<td>54</td>
<td>257</td>
<td>298</td>
<td>210</td>
<td>191</td>
<td>157</td>
<td>99</td>
<td>122</td>
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<td>63</td>
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<td>Average Queue (ft)</td>
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<td>104</td>
<td>165</td>
<td>101</td>
<td>60</td>
<td>59</td>
<td>36</td>
<td>54</td>
<td>46</td>
<td>18</td>
</tr>
<tr>
<td>95th Queue (ft)</td>
<td>46</td>
<td>204</td>
<td>269</td>
<td>178</td>
<td>131</td>
<td>126</td>
<td>80</td>
<td>100</td>
<td>80</td>
<td>48</td>
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<td>Link Distance (ft)</td>
<td>757</td>
<td>757</td>
<td>997</td>
<td>997</td>
<td>218</td>
<td>218</td>
<td>0</td>
<td>335</td>
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<tr>
<td>Upstream Blk Time (%)</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Queuing Penalty (veh)</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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### Intersection: 6: E. Costco Dwy

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<th>NB</th>
<th>SB</th>
<th>SB</th>
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<tbody>
<tr>
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<td>LTR</td>
<td>LTR</td>
<td>L</td>
<td>TR</td>
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<td>Maximum Queue (ft)</td>
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<td>28</td>
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<td>53</td>
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<td>Average Queue (ft)</td>
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<td>53</td>
<td>2</td>
<td>25</td>
<td>2</td>
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<tr>
<td>95th Queue (ft)</td>
<td>52</td>
<td>93</td>
<td>15</td>
<td>55</td>
<td>29</td>
</tr>
<tr>
<td>Link Distance (ft)</td>
<td>111</td>
<td>201</td>
<td>409</td>
<td>218</td>
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<td>Upstream Blk Time (%)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Queuing Penalty (veh)</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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</table>

### Zone Summary

| Zone wide Queuing Penalty: 10 |
### Scenario Report

**Scenario:** Cumulative + Project PM  
**Command:** Cumulative + Project PM  
**Volume:** Cumulative + Project PM  
**Geometry:** Default Geometry  
**Impact Fee:** Default Impact Fee  
**Trip Generation:** Default Trip Generation  
**Trip Distribution:** Default Trip Distribution  
**Paths:** Default Path  
**Routes:** Default Route  
**Configuration:** Default Configuration

### Level Of Service Computation Report

**ICU 1 (Loss as Cycle Length %) Method (Base Volume Alternative)**

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<td><strong>Critical Vol./Cap. (X):</strong> 0.415</td>
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<tr>
<td><strong>Loss Time (sec):</strong> 0</td>
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<tr>
<td><strong>Average Delay (sec/veh):</strong> xxxxxx</td>
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**Optimal Cycle:** 39  
**Level Of Service:** A

---

**Street Name:** Eastern Costco Driveway, Auto Center Drive  
**Approach:** North Bound, South Bound, East Bound, West Bound  
**Movement:** L - T - R, L - T - R, L - T - R, L - T - R

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<th>Split Phase</th>
<th>Split Phase</th>
<th>Prot+Permit</th>
<th>Prot+Permit</th>
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<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green</td>
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<td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0</td>
<td>4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lanes:</td>
<td>1 1 0 0 0 1 0 1 0 1 1 0 1 1 1 0 1 1 1 0</td>
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</tr>
</tbody>
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**Volume Module:**

| Base Vol: | 143 | 0 | 199 | 32 | 6 | 37 | 36482 | 182 | 223653 | 63 |
| Growth 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 |
| User 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 | 1.00 |
| PHF 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 | 1.00 |
| PHF Volume: | 143 | 0 | 199 | 32 | 6 | 37 | 36482 | 182 | 223653 | 63 |
| Reduced Vol: | 143 | 0 | 199 | 32 | 6 | 37 | 36482 | 182 | 223653 | 63 |
| PCE 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 | 1.00 |
| Final Volume: | 143 | 0 | 199 | 32 | 6 | 37 | 36482 | 182 | 223653 | 63 |
| Ovl Adj Vol: | 0 |

---

**Saturation Flow Module:**

| Sat/Lane: | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 2.00 | 0.00 | 1.00 | 0.84 | 0.16 | 1.00 | 1.00 | 1.45 | 0.55 | 1.00 | 1.82 | 0.18 |
| Final Sat.: | 3200 | 0 | 1600 | 1347 | 253 | 1600 | 1600 | 2323 | 877 | 1600 | 2918 | 282 |

---

**Capacity Analysis Module:**

| Vol/Sat: | 0.04 | 0.00 | 0.12 | 0.02 | 0.02 | 0.02 | 0.21 | 0.21 | 0.14 | 0.22 | 0.22 |
| Ovl Adj/S: | 0.00 |
| Crit Moves: | **** | **** | **** | **** |

---

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### Intersection: 4: E. Costco Dwy/Los Olivos & Auto Center Dr

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<th>NB</th>
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<th>NB</th>
<th>SB</th>
<th>SB</th>
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<td>T</td>
<td>TR</td>
<td>L</td>
<td>T</td>
<td>TR</td>
<td>L</td>
<td>LT</td>
<td>R</td>
<td>L</td>
</tr>
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<td>Maximum Queue (ft)</td>
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<td>385</td>
<td>195</td>
<td>212</td>
<td>225</td>
<td>88</td>
<td>124</td>
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<tr>
<td>Average Queue (ft)</td>
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<td>84</td>
<td>87</td>
<td>103</td>
<td>27</td>
<td>58</td>
<td>48</td>
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</tr>
<tr>
<td>95th Queue (ft)</td>
<td>67</td>
<td>252</td>
<td>317</td>
<td>157</td>
<td>166</td>
<td>191</td>
<td>66</td>
<td>101</td>
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<tr>
<td>Link Distance (ft)</td>
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<td>224</td>
<td>224</td>
<td>335</td>
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</tr>
<tr>
<td>Upstream Blk Time (%)</td>
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<tr>
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<td>165</td>
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<td>1</td>
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<tr>
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### Intersection: 6: E. Costco Dwy

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<td>Directions Served</td>
<td>LTR</td>
<td>LTR</td>
<td>LTR</td>
<td>L</td>
<td>TR</td>
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<tr>
<td>Maximum Queue (ft)</td>
<td>58</td>
<td>99</td>
<td>16</td>
<td>60</td>
<td>43</td>
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<tr>
<td>Average Queue (ft)</td>
<td>22</td>
<td>47</td>
<td>1</td>
<td>23</td>
<td>2</td>
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<tr>
<td>95th Queue (ft)</td>
<td>48</td>
<td>78</td>
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<td>55</td>
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<td>Link Distance (ft)</td>
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<td>176</td>
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<td>Upstream Blk Time (%)</td>
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<td>Queuing Penalty (veh)</td>
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<tr>
<td>Storage Bay Dist (ft)</td>
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<td>40</td>
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<tr>
<td>Storage Blk Time (%)</td>
<td>2</td>
<td>0</td>
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<tr>
<td>Queuing Penalty (veh)</td>
<td>4</td>
<td>0</td>
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</tbody>
</table>

### Zone Summary

Zone wide Queuing Penalty: 9
City of Oxnard
Costco MND 17-3
Attachment C
Arborist Report
UPDATED TREE REPORT (REV. 3)
GAS STATION RELOCATION
COSTCO WHOLESALE
2001 EAST VENTURA BOULEVARD
OXNARD, CALIFORNIA

SUBMITTED TO:
COSTCO WHOLESALE
C/O TERRY ODLE
MULVANYG2 ARCHITECTURE
18200 VON KARMAN AVENUE, SUITE 910
IRVINE, CALIFORNIA 92612

PREPARED BY:
CHRISTY CUBA
ASCA REGISTERED CONSULTING ARBORIST #502
ISA CERTIFIED ARBORIST #WE 1982A
ISA QUALIFIED TREE RISK ASSESSOR

CY CARLBERG
ASCA REGISTERED CONSULTING ARBORIST #405
ISA CERTIFIED ARBORIST #WE 0575A
ISA QUALIFIED TREE RISK ASSESSOR
CERTIFIED URBAN FORESTER #013

SEPTEMBER 8, 2017
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September 8, 2017

Costco Wholesale

c/o MulvannyG2 Architecture
18200 Von Karman Ave., Suite 910
Irvine, California 92612
Attention: Terry Odle

RE: UPDATED TREE REPORT – GAS STATION RELOCATION (REV. 3)
COSTCO WHOLESALE – 2001 E. VENTURA BOULEVARD, OXNARD, CALIFORNIA

EXECUTIVE SUMMARY

Proposed is the demolition of the current gas station and construction of a new gas station at the Costco Wholesale property located at 2001 East Ventura Boulevard in Oxnard, California. Adjacent parking lots will be reconfigured in association with the gas station changes. Demolition, construction, and new landscape configurations will result in removal of 51 landscape trees. Forty-nine (49) other ornamental trees in the area identified for potential impact will remain unaffected by construction. Protective fencing is recommended for trees to remain in the immediate vicinity of the work and construction as it pertains to encroachment trees should be monitored by a professional consulting arborist.

BACKGROUND AND ASSIGNMENT

Costco Wholesale is in the design phase for the relocation of the gas station on their property located at 2001 East Ventura Boulevard in Oxnard, California. The existing gas station and associated parking areas will be demolished, along with a number of landscape islands. The new gas station, parking, and landscape planters will be constructed on an adjacent parcel of land located to the northeast of the current store. New parking areas and landscape planters will be constructed in the old gas station footprint.

Carlberg Associates (Carlberg) was retained to prepare a tree report and value assessments in accordance with guidelines set forth by the City of Oxnard. This report is based on our site visit of September 21, 2016 and supersedes our previous report dated July 26, 2017.
Tree numbers, common names, and approximate tree locations are graphically represented on the enclosed 'Tree Location Exhibits'. Photographs accompanying this report illustrate site context, branch architecture, and tree vigor. Appraisal values for the proposed removal trees are required by the city. Appraisals are based on Trunk Formula Method outlined in the International Society of Arboriculture's Guide for Plant Appraisal, 9th Edition.

**OBSERVATIONS**

The site is currently occupied by a Costco Wholesale store, Costco gas station, and a fast food restaurant. A vacant parcel of land to the northeast of the current Costco property has been acquired for the purpose of relocating the gas station. Relocation of the station will allow for reconfiguration of those portions of the parking lot adjacent to the new gas station and increased parking near the front entrance to the store. The limits of the tree inventory are illustrated on the enclosed aerial and plan-view exhibits. The areas of potential impact are located in the southern portion of the site near the Costco gas station, immediately north of Ventura Boulevard, and at the northeast end of the parking lot adjacent to Via Del Norte.

We located 103\(^1\) trees within the landscaped planters arranged around the existing gas station, adjacent parking areas, and the main driveways. All 103 trees were mapped and inventoried. The tree numbers correspond to the approximate locations on the enclosed exhibits. We used Site Plan and Demolition Plans, dated 10.29.15, provided by MG2 to locate the trees. The trees were generally mapped based on field landmarks and configuration of the existing parking lots and planters.

All of the inventoried trees are ornamental species common to Southern California landscapes. The majority of the trees are in good to very good health. A few, especially the eucalyptus trees, are suffering from transient pests, improper pruning, sunburn, or weed-whipping around their trunk bases. Several trees that were noted as diseased in our 2013 inventory have been removed (Trees 37, 55 and 56). Those trees are noted in Table 1.

Table 1 lists the trees and their dispositions based on the 'Proposed Landscape Concept Plan' by Cummings Curley and Associates, Inc., dated August 8, 2017. A reduced copy of that plan is enclosed. Table 2 summarizes the trees proposed for removal and lists their appraisal values.

<table>
<thead>
<tr>
<th>Tree No.</th>
<th>Common Name</th>
<th>Botanical Name</th>
<th>Diameter at 4.5 feet (dbh)</th>
<th>Height (in feet)</th>
<th>Spread (in diameter feet)</th>
<th>Physiological Condition (A-F)</th>
<th>Structural Condition (A-F)</th>
<th>Comments</th>
<th>Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>American sweetgum</td>
<td>Liquidambar styraciflua</td>
<td>12.6&quot; @ 3'</td>
<td>35</td>
<td>25</td>
<td>A</td>
<td>B</td>
<td>remain</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>American sweetgum</td>
<td>Liquidambar styraciflua</td>
<td>10.7&quot; @ 4'</td>
<td>25</td>
<td>18</td>
<td>B</td>
<td>C</td>
<td>remain</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>American sweetgum</td>
<td>Liquidambar styraciflua</td>
<td>15.5&quot; @ 3.5'</td>
<td>20</td>
<td>20</td>
<td>A</td>
<td>B</td>
<td>remain</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Tulip tree</td>
<td>Liriodendron tulipifera</td>
<td>5 &amp; 6</td>
<td>22</td>
<td>18</td>
<td>D</td>
<td>C</td>
<td>90% dieback</td>
<td>remain</td>
</tr>
<tr>
<td>5</td>
<td>Tulip tree</td>
<td>Liriodendron tulipifera</td>
<td>11.4</td>
<td>25</td>
<td>20</td>
<td>B</td>
<td>C</td>
<td>20% top-down dieback</td>
<td>remain</td>
</tr>
</tbody>
</table>

\(^1\) That number includes both the 2013 and 2016 inventories. Three trees have been removed due to poor health since 2013.
<table>
<thead>
<tr>
<th>Tree No.</th>
<th>Common Name</th>
<th>Botanical Name</th>
<th>Diameter at 4.5 feet (dbh) in inches</th>
<th>Height (in feet)</th>
<th>Spread (in diameter feet)</th>
<th>Physiological Condition (A-F)</th>
<th>Structural Condition (A-F)</th>
<th>Comments</th>
<th>Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Fern pine</td>
<td><em>Afrocarpus gracilis</em></td>
<td>13</td>
<td>18</td>
<td>15</td>
<td>A</td>
<td>A</td>
<td></td>
<td>remove</td>
</tr>
<tr>
<td>7</td>
<td>Fern pine</td>
<td><em>Afrocarpus gracilis</em></td>
<td>13&quot; @ 4'</td>
<td>22</td>
<td>20</td>
<td>A</td>
<td>B</td>
<td>old tear @ multiple branch attachments</td>
<td>remove</td>
</tr>
<tr>
<td>8</td>
<td>Fern pine</td>
<td><em>Afrocarpus gracilis</em></td>
<td>19</td>
<td>25</td>
<td>25</td>
<td>A</td>
<td>A</td>
<td>girdling root on west</td>
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</tr>
<tr>
<td>9</td>
<td>Fern pine</td>
<td><em>Afrocarpus gracilis</em></td>
<td>13.7</td>
<td>24</td>
<td>20</td>
<td>A</td>
<td>B</td>
<td>remain</td>
<td>remain</td>
</tr>
<tr>
<td>10</td>
<td>Fern pine</td>
<td><em>Afrocarpus gracilis</em></td>
<td>11.7</td>
<td>18</td>
<td>18</td>
<td>A-</td>
<td>B+</td>
<td>history of breakage; good callus</td>
<td>remain</td>
</tr>
<tr>
<td>11</td>
<td>Fern pine</td>
<td><em>Afrocarpus gracilis</em></td>
<td>13.7</td>
<td>16</td>
<td>18</td>
<td>A</td>
<td>B+</td>
<td>remain</td>
<td>remain</td>
</tr>
<tr>
<td>12</td>
<td>Fern pine</td>
<td><em>Afrocarpus gracilis</em></td>
<td>9.8</td>
<td>16</td>
<td>16</td>
<td>A</td>
<td>B+</td>
<td>history of breakage; cracked limb over parking (N side) should be pruned multiple branch attachments/history of breakage</td>
<td>remove</td>
</tr>
<tr>
<td>13</td>
<td>Carrotwood</td>
<td><em>Cupaniopsis anacardoides</em></td>
<td>8</td>
<td>18</td>
<td>16</td>
<td>B</td>
<td>B</td>
<td>remove</td>
<td>remove</td>
</tr>
<tr>
<td>14</td>
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<td><em>Cupaniopsis anacardoides</em></td>
<td>6.8</td>
<td>14</td>
<td>12</td>
<td>B-</td>
<td>B-</td>
<td>remove</td>
<td>remove</td>
</tr>
<tr>
<td>15</td>
<td>Carrotwood</td>
<td><em>Cupaniopsis anacardoides</em></td>
<td>11.2 @ 4'</td>
<td>22</td>
<td>22</td>
<td>A</td>
<td>B</td>
<td>remove</td>
<td>remove</td>
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<td>16</td>
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<td>13</td>
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<td>C</td>
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<td>12</td>
<td>10</td>
<td>B</td>
<td>B</td>
<td>multiple branch attachments</td>
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<td><em>Afrocarpus gracilis</em></td>
<td>18&quot; @ 4'</td>
<td>22</td>
<td>18</td>
<td>A</td>
<td>A</td>
<td>Multiple pruning events; good vigor</td>
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<tr>
<td>19</td>
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<td><em>Afrocarpus gracilis</em></td>
<td>15</td>
<td>22</td>
<td>18</td>
<td>A</td>
<td>A</td>
<td>Multiple pruning events, good vigor</td>
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<td>10</td>
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<td>B</td>
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<td>12</td>
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<td>B+</td>
<td>remain</td>
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</tr>
<tr>
<td>22</td>
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<td><em>Afrocarpus gracilis</em></td>
<td>9.7</td>
<td>12</td>
<td>10</td>
<td>A</td>
<td>B+</td>
<td>remove</td>
<td>remove</td>
</tr>
<tr>
<td>23</td>
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<td><em>Afrocarpus gracilis</em></td>
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<td>15</td>
<td>8</td>
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<td>remove</td>
<td>remove</td>
</tr>
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<td><em>Cupaniopsis anacardoides</em></td>
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<td>14</td>
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<td>A</td>
<td>remove</td>
<td>remove</td>
</tr>
<tr>
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<td><em>Eucalyptus rudis</em></td>
<td>24</td>
<td>25</td>
<td>20</td>
<td>B-</td>
<td>B</td>
<td>lerp psyllid</td>
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<td>16</td>
<td>18</td>
<td>A</td>
<td>B</td>
<td>root pruned (N side)</td>
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</tr>
<tr>
<td>27</td>
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<td><em>Eucalyptus rudis</em></td>
<td>~22</td>
<td>28</td>
<td>22</td>
<td>C-</td>
<td>C-</td>
<td>lerp psyllid</td>
<td>remove</td>
</tr>
<tr>
<td>Tree No.</td>
<td>Common Name</td>
<td>Botanical Name</td>
<td>Diameter at 4.5 feet (dbh) in inches</td>
<td>Height (in feet)</td>
<td>Spread (in diameter feet)</td>
<td>Physiological Condition (A-F)</td>
<td>Structural Condition (A-F)</td>
<td>Comments</td>
<td>Disposition</td>
</tr>
<tr>
<td>---------</td>
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<td>-------------------------------------</td>
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<td>-------------------------------</td>
<td>-----------------------------</td>
<td>---------------------------------------------</td>
<td>-------------</td>
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<tr>
<td>28</td>
<td>Flooded gum</td>
<td>Eucalyptus rudis</td>
<td>~20</td>
<td>28</td>
<td>20</td>
<td>C-</td>
<td>D</td>
<td>Lerp psyllid; significant deadwood; unbalanced</td>
<td>remove</td>
</tr>
<tr>
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<td>8.5</td>
<td>14</td>
<td>10</td>
<td>C</td>
<td>B</td>
<td>Lerp psyllid</td>
<td>remove</td>
</tr>
<tr>
<td>30</td>
<td>Queen palm</td>
<td>Syagrus romanzoffiana</td>
<td>7' BT</td>
<td>12</td>
<td>8</td>
<td>A-</td>
<td>A</td>
<td></td>
<td>remove</td>
</tr>
<tr>
<td>31</td>
<td>Flooded gum</td>
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<td>21</td>
<td>30</td>
<td>20</td>
<td>A-</td>
<td>B</td>
<td>Multiple branch attachments; heavy, over extended to N</td>
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</tr>
<tr>
<td>32</td>
<td>Queen palm</td>
<td>Syagrus romanzoffiana</td>
<td>5' BT</td>
<td>8</td>
<td>6</td>
<td>B</td>
<td>B</td>
<td>outside API</td>
<td>remain</td>
</tr>
<tr>
<td>33</td>
<td>Queen palm</td>
<td>Syagrus romanzoffiana</td>
<td>7' BT</td>
<td>10</td>
<td>6</td>
<td>B</td>
<td>B</td>
<td>outside API</td>
<td>remain</td>
</tr>
<tr>
<td>34</td>
<td>Fern pine</td>
<td>Afrocarpus gracilis</td>
<td>10.2</td>
<td>16</td>
<td>12</td>
<td>A-</td>
<td>A</td>
<td>outside API</td>
<td>remain</td>
</tr>
<tr>
<td>35</td>
<td>Queen palm</td>
<td>Syagrus romanzoffiana</td>
<td>8' BT</td>
<td>16</td>
<td>12</td>
<td>A</td>
<td>A</td>
<td>outside API</td>
<td>remain</td>
</tr>
<tr>
<td>36</td>
<td>Fern pine</td>
<td>Afrocarpus gracilis</td>
<td>10.5</td>
<td>16</td>
<td>16</td>
<td>A</td>
<td>A</td>
<td>outside API</td>
<td>remain</td>
</tr>
<tr>
<td>37</td>
<td>Queen palm</td>
<td>Syagrus romanzoffiana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>outside API; gone</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Queen palm</td>
<td>Syagrus romanzoffiana</td>
<td>13' BT</td>
<td>25</td>
<td>20</td>
<td>A</td>
<td>A</td>
<td>outside API</td>
<td>remain</td>
</tr>
<tr>
<td>39</td>
<td>Flooded gum</td>
<td>Eucalyptus rudis</td>
<td>~13</td>
<td>30</td>
<td>20</td>
<td>B</td>
<td>B</td>
<td>outside API</td>
<td>remain</td>
</tr>
<tr>
<td>40</td>
<td>Flooded gum</td>
<td>Eucalyptus rudis</td>
<td>~17</td>
<td>40</td>
<td>25</td>
<td>B</td>
<td>B</td>
<td>outside API</td>
<td>remain</td>
</tr>
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<td>Spread (in diameter feet)</td>
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**TABLE 2 – APPRAISAL VALUES FOR 51 REMOVAL TREES**

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<th>Individual Trunk Diameter</th>
<th>Species Rating (Per Guide)</th>
<th>Condition Factor</th>
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<td>0.9</td>
<td>0.9</td>
<td>$9,200</td>
</tr>
<tr>
<td>7</td>
<td>Fern pine</td>
<td>13</td>
<td>0.9</td>
<td>0.9</td>
<td>0.9</td>
<td>$9,200</td>
</tr>
<tr>
<td>8</td>
<td>Fern pine</td>
<td>19</td>
<td>0.9</td>
<td>0.9</td>
<td>0.5</td>
<td>$7,700</td>
</tr>
<tr>
<td>12</td>
<td>Fern pine</td>
<td>9.8</td>
<td>0.9</td>
<td>0.7</td>
<td>0.77</td>
<td>$3,800</td>
</tr>
<tr>
<td>13</td>
<td>Carrotwood</td>
<td>8</td>
<td>0.5</td>
<td>0.7</td>
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<td>$1,250</td>
</tr>
<tr>
<td>14</td>
<td>Carrotwood</td>
<td>6.8</td>
<td>0.5</td>
<td>0.7</td>
<td>0.77</td>
<td>$1,010</td>
</tr>
<tr>
<td>15</td>
<td>Carrotwood</td>
<td>11.2</td>
<td>0.5</td>
<td>0.8</td>
<td>0.87</td>
<td>$2,650</td>
</tr>
<tr>
<td>16</td>
<td>Carrotwood</td>
<td>3.6</td>
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<td>0.25</td>
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<td>$160</td>
</tr>
<tr>
<td>17</td>
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<td>0.8</td>
<td>0.87</td>
<td>$1,200</td>
</tr>
<tr>
<td>19</td>
<td>Fern pine</td>
<td>15</td>
<td>0.9</td>
<td>0.9</td>
<td>0.9</td>
<td>$11,900</td>
</tr>
<tr>
<td>22</td>
<td>Fern pine</td>
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<td>0.9</td>
<td>0.9</td>
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</tr>
<tr>
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<td>0.9</td>
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</tr>
<tr>
<td>24</td>
<td>Carrotwood</td>
<td>11.1</td>
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<td>0.9</td>
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</tr>
<tr>
<td>26</td>
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<td>0.9</td>
<td>0.7</td>
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<td>$7,900</td>
</tr>
<tr>
<td>27</td>
<td>Flooded gum</td>
<td>22</td>
<td>0.01</td>
<td>0.5</td>
<td>0.6</td>
<td>$100</td>
</tr>
<tr>
<td>28</td>
<td>Flooded gum</td>
<td>20</td>
<td>0.01</td>
<td>0.01</td>
<td>0.6</td>
<td>$0</td>
</tr>
<tr>
<td>Tree No.</td>
<td>Common Name</td>
<td>Individual Trunk diameter</td>
<td>Species Rating (Per Guide)</td>
<td>Condition Factor</td>
<td>Location Factor</td>
<td>Rounded Appraisal Value</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------</td>
<td>---------------------------</td>
<td>---------------------------</td>
<td>------------------</td>
<td>----------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>29</td>
<td>Flooded gum</td>
<td>8.5</td>
<td>0.01</td>
<td>0.01</td>
<td>0.6</td>
<td>$0</td>
</tr>
<tr>
<td>30</td>
<td>Queen palm</td>
<td>7' BT</td>
<td></td>
<td></td>
<td></td>
<td>$600</td>
</tr>
<tr>
<td>31</td>
<td>Flooded gum</td>
<td>21</td>
<td>0.01</td>
<td>0.8</td>
<td>0.87</td>
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</tr>
<tr>
<td>64</td>
<td>Fern pine</td>
<td>18.7</td>
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<td>0.9</td>
<td>0.9</td>
<td>$17,900</td>
</tr>
<tr>
<td>65</td>
<td>Fern pine</td>
<td>14.8</td>
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<td>0.9</td>
<td>0.9</td>
<td>$11,500</td>
</tr>
<tr>
<td>66</td>
<td>Fern pine</td>
<td>2</td>
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</tr>
<tr>
<td>67</td>
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<td>16.4</td>
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<td>0.9</td>
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</tr>
<tr>
<td>68</td>
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<td>0.9</td>
<td>0.9</td>
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</tr>
<tr>
<td>69</td>
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<td>0.9</td>
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</tr>
<tr>
<td>70</td>
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<td>0.01</td>
<td>0.7</td>
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</tr>
<tr>
<td>71</td>
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<td>0.01</td>
<td>0.7</td>
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</tr>
<tr>
<td>72</td>
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<td>0.7</td>
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</tr>
<tr>
<td>73</td>
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<td>17.3</td>
<td>0.01</td>
<td>0.7</td>
<td>0.83</td>
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</tr>
<tr>
<td>74</td>
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<td>0.7</td>
<td>0.83</td>
<td>$130</td>
</tr>
<tr>
<td>75</td>
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<td>24</td>
<td>0.01</td>
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</tr>
<tr>
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<td>Tulip tree</td>
<td>3</td>
<td>0.7</td>
<td>0.75</td>
<td>0.83</td>
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</tr>
<tr>
<td>85</td>
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<td>17</td>
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<td>0.75</td>
<td>0.83</td>
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</tr>
<tr>
<td>86</td>
<td>Tulip tree</td>
<td>9</td>
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<td>0.75</td>
<td>0.83</td>
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<tr>
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<td>Tulip tree</td>
<td>6.7</td>
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<td>0.75</td>
<td>0.83</td>
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</tr>
<tr>
<td>88</td>
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<td>7.1</td>
<td>0.7</td>
<td>0.8</td>
<td>0.87</td>
<td>$2,100</td>
</tr>
<tr>
<td>89</td>
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<td>12.5</td>
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<td>0.8</td>
<td>0.87</td>
<td>$5,500</td>
</tr>
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<td>Tulip tree</td>
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<td>0.7</td>
<td>0.8</td>
<td>0.87</td>
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</tr>
<tr>
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<td>0.8</td>
<td>0.87</td>
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<tr>
<td>92</td>
<td>Bradford pear</td>
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<td>0.8</td>
<td>0.87</td>
<td>$2,060</td>
</tr>
<tr>
<td>93</td>
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<td>9.9</td>
<td>0.5</td>
<td>0.8</td>
<td>0.87</td>
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</tr>
<tr>
<td>94</td>
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<td>0.8</td>
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</tr>
<tr>
<td>95</td>
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<td>0.8</td>
<td>0.87</td>
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</tr>
<tr>
<td>96</td>
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<td>0.8</td>
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</tr>
<tr>
<td>97</td>
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<td>0.8</td>
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<tr>
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<td>0.8</td>
<td>0.87</td>
<td>$2,570</td>
</tr>
<tr>
<td>99</td>
<td>Fern pine</td>
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<td>0.9</td>
<td>0.8</td>
<td>0.87</td>
<td>$4,740</td>
</tr>
<tr>
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<td>Fern pine</td>
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<td>0.9</td>
<td>0.9</td>
<td>0.9</td>
<td>$5,500</td>
</tr>
<tr>
<td>101</td>
<td>Fern pine</td>
<td>14</td>
<td>0.9</td>
<td>0.9</td>
<td>0.9</td>
<td>$5,500</td>
</tr>
<tr>
<td>102</td>
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<td>9.3</td>
<td>0.5</td>
<td>0.8</td>
<td>0.87</td>
<td>$2,500</td>
</tr>
<tr>
<td>103</td>
<td>Bradford pear</td>
<td>12.8</td>
<td>0.5</td>
<td>0.8</td>
<td>0.87</td>
<td>$4,280</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$205,830</strong></td>
</tr>
</tbody>
</table>
DISCUSSION

The landscape plan illustrates the reconfiguration of existing landscape islands in the northern and southern parking areas of the site. Proposed demolition and reconstruction of the landscape islands will result in removal of 51 of the remaining 100 ornamental trees that are located in the areas of potential impact. Other landscape trees in the non-impacted areas of the parking lot will not be effected. Minor twigs and branches, and some roots may need to be pruned for equipment access, fine grading, trenching, or other work associated with the demolition and reconstruction process in areas where trees are to remain in the areas of impact.

CONCLUSION AND RECOMMENDATIONS

In my professional opinion the project may proceed if the following conditions are met:

- Any demolition, digging, excavating, trenching, compaction, or placement of greater than six inches of fill material within the Tree Protection Zones\(^2\) of any tree to remain is monitored by a qualified arborist.
- If canopy pruning is found to be necessary for trees to remain, it should only be performed by a qualified ISA Certified Arborist or ISA Certified Tree Worker.
- Equipment, materials, and vehicles shall not be stored, parked, or operated within the protected zone of trees to remain.
- Equipment with overhead exhaust shall not be placed in such a manner as to scorch overhanging branches or foliage. Smaller equipment shall be used in such areas as deemed necessary by the monitoring arborist.
- Protective fencing should be installed for the trees to remain immediately adjacent to the area of impact prior to commencement of demolition or construction activities.
- All fencing should remain in place until the City approves its removal.
- A 'Warning' sign is prominently displayed on each protective enclosure. The sign will be a minimum of 8.5 inches x 11 inches and clearly state the following:

  TREE PROTECTION ZONE
  THIS FENCE SHALL NOT BE REMOVED

\(^2\) In this case, the outer edge of a tree’s natural dripline (canopy).
EXHIBIT 1 - Approximate boundaries of the tree inventory update from 2013 to 2016 as designated by M.G.Z.
(Source - Bing Maps, Not to Scale)
EXHIBIT 2 - Close-up of approximate boundaries of the tree inventory area for the gas station demo and new parking lot area as designated by WZ2 and CCA.
(Source – Bing Maps, Not to Scale)
Source: Bing Maps, Not to Scale
Lot areas as depicted by MEG and CCA.

EXHIBIT 3 - Close-up of approximate boundaries of the tree inventory area for the parking lot demo, new gas station, and new parking.
12- Fern pine

13- Carrotwood

14- Carrotwood

15- Carrotwood
16 - Carrotwood

17 - Carrotwood

17 - Fern pine

18 - Fern pine
Queen palm

36- Fern pine

37 (was diseased and has been removed)

38

40

Flooded gum

39

40

41

42
Callery pear

46- Mexican fan palm

48-52 Mexican fan palms (right to left)
54- London plane tree

53- London plane tree

55- London plane tree (Has been removed)
61-63 - Fern pines

64 - 65 - Fern pines
70 - Desert gum

71-73 - Desert gums
79 - 80 - Desert gums

81 - 83 - Callery pears
84 - 85 - Tulip trees

86 - Tulip tree
87 - 88 – Tulip trees

89 – Tulip tree

90 - 91 – Callery pear trees

90 – Tulip tree
97 – Carrotwood tree

98 – Carrotwood; 99 – Fern pine
CERTIFICATION OF PERFORMANCE

I, Christine Cuba, certify:

- That I have personally inspected the tree(s) and/or the property referred to in this report, and have stated my findings accurately. The extent of the evaluation and appraisal is stated in the attached report and the Terms of Assignment;

- That I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;

- That the analysis, opinions, and conclusions stated herein are my own;

- That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices;

- That no one provided significant professional assistance to the consultant, except as indicated within the report;

- That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party.

I further certify that I am a member of the American Society of Consulting Arborists, and that I acknowledge, accept, and adhere to the ASCA Standards of Professional Practice. I am an International Society of Arboriculture Certified Arborist and Qualified Tree Risk Assessor, and have been involved in the practice of arboriculture and the study of trees for over twenty-five years.

Signed:

Christine Cuba

Date: September 8, 2017

Christy Cuba
Registered Consulting Arborist, #502
Certified Arborist, WE-1982A
Qualified Tree Risk Assessor

Sierra Madre Office
christy@cycarlberg.com
HEALTH AND STRUCTURE GRADE DEFINITIONS

Health and structure ratings of the trees are based on the archetype tree of the same species through a subjective evaluation of its physiological health, aesthetic quality, and structural integrity.

Overall physiological condition (health) and structural condition were rated A-F:

**Health**

A) Outstanding – Exceptional trees of good growth form and vigor for their age class; exhibiting very good to excellent health as evidenced by normal to exceptional shoot growth during current season, good bud development and leaf color, lack of leaf, twig or branch dieback throughout the crown, and the absence of decay, bleeding, or cankers. Common leaf and/or twig pests may be noted at very minor levels.

B) Above average – Good to very good trees that exhibit minor necrotic or physiological symptoms of stress and/or disease; shoot growth is less than reasonably expected, leaf color is less than optimal in some areas, the crown may be thinning, minor levels of leaf, twig, and branch dieback may be present, and minor areas of decay, bleeding, or cankers may be manifesting. Minor amounts of epicormic growth may be present. Minor amounts of fire damage or mechanical damage may be present. Still healthy, but with moderately diminished vigor and vitality. No significant decline noted.

C) Average – Average, moderately good trees whose growth habit and physiological or fire-induced symptoms indicate an equal chance to either decline or continue with good health into the near future. Most of these trees exhibit moderate to significant small deadwood in outer crown areas, decreased shoot growth and diminished leaf color and mass. Some stem and branch dieback is usually present and epicormic growth may be moderate to extensive. Cavities, pockets of decay, relatively significant fire damage, bark exfoliation, or cracks may be present. Moderate to significant amounts of insect or disease symptoms may be present; the tree may be shaded or crowded in such a way that it is expected to negatively impact the lifespan of the tree. Tree may be in early decline.

D) Below Average/Poor - trees whose growth habit and physiological or fire-induced symptoms indicate significant, irreversible decline. Most of these trees exhibit significant dieback of wood in the crown, possibly accompanied by significant epicormic sprouting. Shoot growth and leaf color and mass is either significantly diminished or nonexistent throughout the crown. Cavities, pockets of decay, significant fire damage, bark exfoliation, and/or cracks may be present. Significant amounts of insect or disease symptoms may be present; the tree may be shaded or crowded in such a way that it has negatively impacted the lifespan of the tree. Tree appears to be in irreversible decline.

F) Dead or in spiral of decline – this tree exhibits very little to no signs of life.

**Structure**

A) Outstanding – Trees with outstanding structure for their species exhibit trunk and branch arrangement and orientation that result in a sturdy form or architecture that resists failure under normal circumstances. The spacing, orientation, and size of the branches relative to the trunk are quintessential for the species and free from defects. No outward sign of decay or pathological disease is present. Some trees exhibit naturally inherent branching defects, like multiple, narrow points of attachment from one point on the trunk, which would preclude them from achieving an “A” grade.
B) Above average - Trees with good to very good structure for their species. They exhibit trunk and branch arrangement and orientation that result in a relatively sturdy form or architecture that resists failure under normal circumstances, but may have some mechanical damage, over-pruning, or other minor structural defects. The spacing, orientation, and size of the branches relative to the trunk are still in the normal range for the species, but they exhibit a minor degree of defects. Minor, sub-critical levels of decay or pathological disease may be present, but the degree of damage is not yet structurally significant. Trees that exhibit naturally inherent branching defects, like multiple, narrow points of attachment from one point on the trunk, would generally fall in to this category. A small percentage of the canopy may be shaded or crowded, but not in such a way that it is expected to negatively impact the structural integrity or lifespan of the tree.

C) Average - Trees with moderately good structure for their species, but with obvious defects. They exhibit trunk and branch arrangement and orientation that result in a less than sturdy form or architecture, which reduces their resistance to failure under normal circumstances. Moderate levels of mechanical damage, over-pruning, or other structural defects may be present. The spacing, orientation, and size of some of the branches relative to the trunk are not in the normal range for the species. Moderate to significant levels of decay or pathological disease may be present that increase the likelihood of structural instability. Influences such as an excessive trunk lean, slope erosion, root pruning, or other growth-inhibiting factors may be present. A moderate to significant percentage of the canopy may be shaded or crowded in such a way that it is expected to negatively impact the structural integrity or lifespan of the tree. Risk of full or partial failure in the near future appears to be moderately elevated.

D) Well Below Average/Poor - Trees poor structure for their species and with obvious defects. They exhibit trunk and branch arrangement and orientation that result in a significantly less than sturdy form or architecture, significantly reducing their resistance to failure under normal circumstances. Significant levels of mechanical damage, over-pruning, or other structural defects may be present. The spacing, orientation, and size of many of the branches relative to the trunk are not in the normal range for the species. Significant levels of decay or pathological disease may be present that increase the likelihood of structural instability. Influences such as an excessive trunk lean, slope erosion, root pruning, or other growth-inhibiting factors may be present. A significant percentage of the canopy may be shaded or crowded in such a way that it is expected to negatively impact the structural integrity or lifespan of the tree. Risk of full or partial failure in the near future appears to be advanced.

F) Severely Compromised – trees with very poor structure and numerous or severe defects due to growing conditions, historical or recent pruning, mechanical damage, history of limb or trunk failures, advanced and irreparable decay, disease, or severe fire damage. Trees with this rating are in severe, irreparable decline, or are barely alive. Risk of full or partial failures in the near future may be severe.
Arborist Disclosure Statement

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatment, pruning and removal of trees may involve considerations beyond the scope of the arborist’s services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

Trees contribute greatly to our enjoyment and appreciation of life. Nonetheless, they are subject to the laws of gravity and physiological decline. Therefore, neither arborists nor tree owners can be reasonably expected to warrant unfailing predictability or elimination of risk.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

Risk assessments were not requested nor performed on the trees in this report.
CHRISTINE CUBA

CARLBERG ASSOCIATES
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828 Fifth Street, Ste. 3 • Santa Monica • California • 90403
christy@cycarlberg.com • cm: 626.428.5072

Education
B.A., Environmental Analysis & Design, University of California, Irvine, 1993
Graduate, International Society of Arboriculture Certification Study Program, April 1998
Graduate, Consulting Academy, American Society of Consulting Arborists, February 2008

Experience
Director of Environmental Services & Senior Arborist, Land Design Consultants, Inc.
Pasadena, 1994 – 2011
Park Specialist/ Naturalist, City of Monrovia, 1988-1996

Certificates
Registered Consulting Arborist, #502, American Society of Consulting Arborists, 2011
Certified Tree Risk Assessor, #1529

AREAS OF EXPERTISE

Ms. Cuba is experienced in the following areas of tree management and preservation:

- Tree health & risk assessments
- Inventories & reports for native and non-native trees
- Master planning
- Evaluation of trees for preservation, encroachment, relocation, restoration, and hazards
- Value assessments (appraisals) for native and non-native trees
- Post-fire inventories, assessments, and valuations for native and non-native trees
- Guidelines for tree preservation, planting, pruning and maintenance specifications
- Pest and disease identification
- Tree and landscape resource mapping – GPS, GIS, and AutoCAD
- Planning Commission, City Council, and community meetings representation
- Review of landscape plans for mitigation compliance & fire fuel modification planning
- Preparation of native habitat and woodland management plans
- Performance of long-term mitigation compliance monitoring & reporting
- Expert testimony

PREVIOUS CONSULTING EXPERIENCE

Ms. Cuba has performed hundreds of tree inventories, health evaluations, impact analyses, hazard, and value assessments for counties, cities, sanitation districts, and water districts, as well as private developers, architects, engineers, and homeowners. She has over 23 of experience in arboriculture and is trained in environmental planning, state and federal regulatory permitting, preparation of CEQA analyses, and habitat mitigation planning and implementation. Representative clients include:

City of Pasadena                     San Diego Gas & Electric
City of Monrovia                     Quinn, Emanuel, Urquhart and Sullivan (attorneys at law)
City of Santa Clarita               Figure 8 Group
City of Glendora                    City of South Gate
Los Angeles County Fire Department  City of Sierra Madre
Los Angeles County Sanitation Districts D2 Development
Newhall County Water District       Burtec, Inc.
Pulte/Centex Homes                  City of West Hollywood
Newhall Land and Farming             Corky McMillin Companies

AFFILIATIONS

Ms. Cuba serves with the following national and regional professional organizations:

- Member, American Society of Consulting Arborists
- Member, International Society of Arboriculture, Western Chapter
- Member, ASCA Education Task Force
- Member, Los Angeles Oak Woodland Habitat Conservation Strategic Alliance
- Past President, Street Tree Seminar, Inc.
CY CARLBERG

CARLBERG ASSOCIATES
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Education
B.S., Landscape Architecture, California State Polytechnic University, Pomona, 1985
Graduate, Arboricultural Consulting Academy, American Society of Consulting Arborists, Chicago, Illinois, February 2002
Graduate, Municipal Forestry Institute, Lied, Nebraska, 2012

Experience
Consulting Arborist, Carlberg Associates, 1998-present
Manager of Grounds Services, California Institute of Technology, Pasadena, 1992-1998
Director of Grounds, Scripps College, Claremont, 1988-1992

Certificates
Certified Arborist (#WE-0575A), International Society of Arboriculture, 1990
Registered Consulting Arborist (#405), American Society of Consulting Arborists, 2002
Certified Urban Forester (#013), California Urban Forests Council, 2004
Certified Tree Risk Assessor (#1028), International Society of Arboriculture, 2011

Areas of Expertise
Ms. Carberg is experienced in the following areas of tree management and preservation:

- Tree health and risk assessment
- Master Planning
- Tree inventories and reports to satisfy jurisdictional requirements
- Expert Testimony
- Post-fire assessment, valuation, and mitigation for trees and native plant communities
- Value assessments for native and non-native trees
- Pest and disease identification
- Guidelines for oak preservation
- Selection of appropriate tree species
- Planting, pruning, and maintenance specifications
- Tree and landscape resource mapping – GPS, GIS, and AutoCAD
- Planning Commission, City Council, and community meetings representation

Previous Consulting Experience
Ms. Carberg has overseen residential and commercial construction projects to prevent damage to protected and specimen trees. She has thirty-five years of experience in arboriculture and horticulture and has performed tree health evaluation, value and risk assessment, and expert testimony for private clients, government agencies, cities, school districts, and colleges. Representative clients include:

- The Huntington Library and Botanical Gardens
- The Los Angeles Zoo and Botanical Gardens
- Walt Disney Concert Hall and Gardens
- The Art Center College of Design, Pasadena
- Pepperdine University
- Loyola Marymount University
- The Claremont Colleges (Pomona, Scripps, CMC, Harvey Mudd, Claremont Graduate University, Pitzer, Claremont University Center)
- Quinn, Emanuel, Urquhart and Sullivan (attorneys at law)
- The City of Claremont
- The City of Beverly Hills
- The City of Pasadena
- The City of Los Angeles
- The City of Santa Monica
- Santa Monica/Malibu Unified School District
- San Diego Gas & Electric
- Los Angeles Department of Water and Power
- Rancho Santa Ana Botanic Garden, Claremont
- Latham & Watkins, LLP (attorneys at law)

Ms. Carberg serves with the following national, state, and community professional organizations:

- California Urban Forests Council, Board Member, 1995-2006
- Street Tree Seminar, Past President, 2000-present
- American Society of Consulting Arborists Academy, Faculty Member, 2003-2005
- Member, Los Angeles Oak Woodland Habitat Conservation Strategic Alliance, 2010-present
City of Oxnard
Costco MND 17-3
Attachment D
CSU Fullerton
Quick-Check
Project Review / Quick Check**
Date: December 22, 2016

Lead Agency (Name & billing address): City of Oxnard, 214 South C Street, Oxnard, Calif. 93030

Case Planner: James Combs, Assistant Planner
Phone (805) 385-7952

Email address to send results and invoice: james.combs@oxnard.org

USGS 7.5’ Quad: Oxnard Quadrangle 1967, Permit/Project #: PZ Nos. 16-630-01, 16-310-01, 16-140-01

Project Address: 2001 Ventura Boulevard, Oxnard Calif. 93036

Always attach a map (either a 7.5’ USGS Topographic Quadrangle or similar map) that clearly indicates project area location. APN and aerial maps may be added in addition to – but not in place of - a required map. Please describe the current project area conditions in addition to providing a brief project description. If any buildings or structures (45 years and older) are within the project area, please note the age of the resource and how it will be affected. How has the project area been utilized in the past? If more space is needed, add an additional sheet. Please do not delete any of the information or instructions from this form.

A specific plan amendment for a change of zone and lot merger to allow construction of a new fuel facility at a site adjacent to the existing Costco Wholesale site. The new fuel facility consists of a 7,700 square foot canopy and installation of 12 dispensers, three 30,000 gallon gasoline underground storage tanks (UST) one 20,000 gallon diesel UST, one 3,500 split fuel additive UST and associated parking and landscaping on a parcel to be merged with the existing Costco parcel located to the northeast of the existing driveway from Auto Center Drive. The existing fuel facility at the Costco site will be demolished and converted to parking. All USTs at the existing fuel facility will be removed.

There are no building permits or other records available to indicate that any structures or uses have ever been permitted at the proposed site. The southern corner of the lot is paved with a portion of a cul-de-sac and private road providing access to the subject lot and neighboring industrial uses.

Project Review / Quick Check Summary

\[1723\] 320

- The project area has been surveyed by a qualified cultural resource consultant and cultural resources were found / were not found.

- The project area was last surveyed \[\text{in} \]\[\text{unknown}\].

- The project area has not been surveyed by a qualified cultural resource consultant.

- The archaeological sensitivity of the project site is known / unknown.

- Based upon the known archaeological sensitivity of the surrounding area, prehistoric or historic cultural resources may be present within the project site.

- Current surface conditions appear / do not appear to allow for an adequate survey of potential surface or sub-surface cultural artifacts.

- The project area appears to contain built-environment resources that are 45 years old or older.

- Other findings:
RECOMMENDATIONS for Permit/Project #

/ / A Phase I * archaeological survey should be done by a professional archaeologist prior to approval of project plans.
/ / An architectural historian should evaluate the built-environment of the project site for local, state, or national significance prior to the approval of project plans.
/ / The effects of this project on recorded resources needs to be further evaluated by a qualified cultural resource consultant prior to the approval of project plans.
/ / A professional archaeologist should be retained to monitor* any ground disturbing activities.

X No archaeological work is needed prior to approval of the project plans. However, customary caution and a halt-work condition should be in place for all ground disturbing activities. In the event that cultural resources are encountered, all work within the vicinity of the find should stop until a professional archaeologist can be retained to assess such finds and make recommendations. Project personnel should not attempt to excavate any finds.

/ / Other recommendation (see below)

ADDITIONAL RECOMMENDATIONS OR COMMENTS:

* Phase I survey, and archaeological monitoring should include a complete records search, field evaluation, and a final report with results and recommendations.
** Quick Checks do not review built-environment resources adjacent to the project site or in the area-of-potential-effect (APE). Only a complete records search would satisfy this requirement and is billed at a different rate. Call the office for a current rate schedule.

Date completed: 1.31.17
Signature: [Signature]
Stacy St. James, Coordinator

Invoice # 1731 3261

PROJECT REVIEWS / QUICK CHECKS

By Memorandum of Agreement (MOU) only

These reviews were developed as a way for city and county planners to assess the potential for cultural resources in their preliminary planning or permit process while providing land-owners and/or developers with the earliest possible notice of the potential presence of cultural remains that may have special considerations as required by local, state, and federal laws. These reviews were never intended to replace a complete Records Search where the cultural resource sensitivity of the project site and the area of potential effect is reviewed. Projects directed by cities or counties that require Federal permits or Federal funding by other government agencies (such as HUD, FHA, OHP, Army Corps of Engineers, etc.) are not included in the Quick Check review process and require a full records search. The fee for the Quick Check is $75.00. The review is limited to the project boundaries only and does not provide information or recommendations for any property beyond the boundaries of the area being reviewed. Projects with non-contiguous boundaries or multiple locations may result in separate summaries and recommendations and may be processed and billed as separate searches. Failure to pay for services rendered under this agreement may result in denial of service for this and all other services provided by this office.