PUBLIC REVIEW DRAFT

INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

FOR THE

PILLSBURY NEIGHBORHOOD SHOPPING CENTER

1840 Pillsbury Road, Manteca, CA

April 2025

Prepared for:

City of Manteca
Community Development Department
1001 W. Center Street
Manteca, CA 95337

Prepared by:

BaseCamp Environmental, Inc.
802 W. Lodi Avenue
Lodi, CA 95240

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LIST OF ACRONYMS AND ABBREVIATONS USED IN THIS DOCUMENT

AB	Assembly Bill
APN	Assessor's Parcel Number
ARB	California Air Resources Board
BMP	Best Management Practice
CalEEMod	California Emissions Estimator Model
CalEnviroScreen	California Communities Environmental Health Screening Tool
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CMU	Commercial Mixed Use
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
dB	decibel
dBA	decibel, A-weighted
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
IS/MND	Initial Study/Mitigated Negative Declaration
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
LOS	Level of Service
mgd	million gallons per day
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
MUSD	Manteca Unified School District
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OPR	Governor's Office of Planning and Research
PG&E	Pacific Gas and Electric Company
PM_{10}	particulate matter 10 microns or less in diameter
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
ROG	reactive organic gases

RTP	Regional Transportation Plan
SB	Senate Bill
SJCOG	San Joaquin Council of Governments
SJMSCP	San Joaquin County Multi-Species Open Space and Habitat Conservation Plan
SJRTD	San Joaquin Regional Transit District
SJVAPCD	San Joaquin Valley Air Pollution Control District
SR	State Route
SSJID	South San Joaquin Irrigation District
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
USFWS	U.S. Fish and Wildlife Service
VMT	vehicle miles traveled
WQCF	Wastewater Quality Control Facility

NEGATIVE DECLARATION

A. General Project Information

Project Title:	Pillsbury Neighborhood Shopping Center
Lead Agency Name and Address:	City of Manteca Community Development Department 1001 West Center Street Manteca, CA 95337
Contact Person and Phone Number:	Toben Barnum, Associate Planner (209) 456-8517
Project Location:	1840 Pillsbury Road, Manteca, California
Project Sponsor Name and Address:	Suisun City Fat, Inc. 1951 Walters Road Suisun City, CA 94585
General Plan Designation:	Commercial Mixed Use
Zoning:	CMU – Commercial Mixed Use
Project Description:	The project proposes to subdivide a 4.67-acre parcel at the southeast corner of Pillsbury Road and Woodward Avenue in southern Manteca into three parcels. Commercial development is proposed on two of parcels, consisting of a fueling station with a convenience store and quick-serve restaurant in a 7,600-square foot building. On a second parcel, a commercial/retail building of approximately 9,045 square feet is proposed. Two outdoor pavilion areas and additional landscaping are included in these improvements. The third parcel is proposed for future unspecified commercial development; potential development of this parcel is considered in this document based on relevant assumptions regarding its future use. Utility services would be obtained from existing City lines in the adjoining streets. An existing left-turn pocket on Woodward Avenue at its intersection with Pillsbury Road would be improved. The project would require approval of a Tentative Parcel Map, a Conditional

	Use Permit for proposed development, and demolition of an existing single-family residence.
Surrounding Land Uses and Setting:	The project site is adjacent to existing residential subdivisions to the west, south, and east. Woodward Avenue, adjacent to the northern boundary of the project site, is a four-lane collector street. Beyond Woodward Avenue to the north is additional existing residential development.
Other Public Agencies Whose Approval is Required:	County Environmental Health Department (fuel tanks)
Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?	No consultation requested by invited tribes.

B. 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" prior to mitigation, as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture/Forestry Resources	✓	Air Quality
✓	Biological Resources	✓	Cultural Resources	☐	Energy
✓	Geology/Soils	☐	Greenhouse Gas Emissions	✓	Hazards/Hazardous Materials
☐	Hydrology/Water Quality	☐	Land Use	☐	Mineral Resources
✓	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	✓	Transportation	✓	Tribal Cultural Resources
☐	Utilities/Service Systems	☐	Wildfire	✓	Mandatory Findings of Significance

C. Lead Agency Determination

On the basis of this initial evaluation:

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

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

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

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

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier 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.

CITY OF MANTECA

____________________________________ ____________________

Toben Barnum, Associate Planner
Community Development Department

Date

1.0 INTRODUCTION

1.1 Project Brief

This document is an Initial Study/Mitigated Negative Declaration (IS/MND) for the Pillsbury Neighborhood Shopping Center Project (project). The project site is located at 1840 Pillsbury Road in southern Manteca (Figures 1-1 to 1-5). This IS/MND has been prepared in compliance with the requirements of the California Environmental Quality Act (CEQA). For the purposes of CEQA, the City of Manteca (City) is the Lead Agency for the project.

The project proposes to subdivide an existing 4.67-acre parcel into three parcels, one of which would be set aside for future unspecified commercial development. The other two parcels would be used for the construction of a commercial center, which would consist of a fueling station with a convenience store and quick-serve restaurant in a 7,600-square foot building and a commercial/retail building of approximately 9,045 square feet. Two outdoor pavilion areas and additional landscaping are proposed. Access would be provided off Pillsbury Road and Woodward Avenue, with improvements made to an existing left-turn pocket on Woodward Avenue at its intersection with Pillsbury Road. The project would connect to existing water, sewer, and storm drainage facilities, but it would also have on-site bioretention facilities. The project would require approval of a Tentative Parcel Map, along with a Minor Use Permit and Site Plan/Design Review from the City for the proposed development.

For the purposes of this environmental impact analysis, the City has assumed development of a remainder parcel is included in the project will occur in conjunction with the proposed development described above. These assumptions are discussed in Chapter 2.0 Project Description.

1.2 Purpose of Initial Study

CEQA requires that public agencies consider and document the potential environmental effects of the agency's actions that meet CEQA's definition of a "project." Briefly summarized, a "project" is an action that has the potential to result in direct or indirect physical changes in the environment. A project includes the agency's direct activities as well as activities that involve public agency approvals or funding. Guidelines for an agency's implementation of CEQA are found in the CEQA Guidelines (Title 14, Chapter 3 of the California Code of Regulations).

Provided that a project is not exempt from CEQA, the first step in the agency's consideration of its potential environmental effects is the preparation of an Initial Study. The Initial Study evaluates whether the project would involve "significant" environmental effects as defined by CEQA and identifies feasible mitigation measures that would avoid significant effects or reduce them to a level that would be less than significant. If the Initial

Study does not identify significant effects, or if it identifies mitigation measures that would reduce all the significant effects of the project to a less-than-significant level, then the agency prepares a Negative Declaration or Mitigated Negative Declaration. If the project would involve significant effects that cannot be readily mitigated, then the agency must prepare an Environmental Impact Report (EIR). The agency may also decide to proceed directly with the preparation of an EIR without preparation of an Initial Study.

The proposed project is a "project" as defined by CEQA and is not exempt from CEQA consideration. The City has determined that the project involves the potential for significant environmental effects and requires preparation of this Initial Study. The IS/MND describes the proposed project and its environmental setting, it discusses the potentially significant environmental effects of the project, and it identifies feasible mitigation measures that would avoid the potentially significant environmental effects of the project or reduce them to a level that would be less than significant. It considers the project's potential for significant environmental effects in the following subject areas:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Mandatory Findings of Significance

The IS/MND concluded that the project would have potentially significant environmental impacts, but that recommended mitigation measures would reduce all these impacts to a level that would be less than significant. As of the public review date, the applicant has accepted all the recommended mitigation measures. As a result, the City has prepared a Mitigated Negative Declaration and notified the public of the City's intent to adopt the Initial Study/Mitigated Negative Declaration. A copy of the City's Notice of Intent, which indicates the time available for comment, is inside the cover of this document.

1.3 Project Background

Development began in Manteca between 1914 and 1920; residential neighborhoods were beginning to fill in by 1918. The City of Manteca was incorporated on May 28, 1918. Residential development constructed from before 1940 until 1959 is located near the downtown area. From 1960 to 1999, residential development expanded to the north and west in the area south of Lathrop Road, west of Austin Road, north of State Route (SR) 120, and east of Airport Way.

In the latter 1990s, following the approval of the South Area Plan, Manteca began to grow south of SR 120. Large scale residential development south of SR 120 began in 2003. Over the past two decades, subdivisions and multifamily development have continued to develop south of SR 120. Between Main Street and Union Road, the Promenade at Orchard Valley Shopping Center, a regional commercial use, was recently developed. The center is anchored by Bass Pro Shops, AMC Theaters, and Living Spaces (City of Manteca 2022).

The current version of the Manteca General Plan was adopted in July 2023. The current General Plan has designated the project site for Commercial Mixed Use land uses (City of Manteca 2023a). This was the same designation the project site received in the previous General Plan, which had been adopted in 2003 (City of Manteca 2003). The Commercial Mixed Use designation allows for high-density residential units, employment centers, retail commercial activities, and professional offices.

1.4 Environmental Checklist Terminology

The project's potential environmental effects are evaluated in the Environmental Checklist presented in Chapter 3.0, which follows the format of issues and questions presented in the Environmental Checklist in CEQA Guidelines Appendix G. The checklist includes a list of environmental considerations against which the project is evaluated. For each question, the City determines whether the project would involve: 1) a Potentially Significant Impact, 2) a Less Than Significant Impact with Mitigation Incorporated, 3) a Less Than Significant Impact, or 4) No Impact.

> A Potentially Significant Impact occurs when there is substantial evidence that the project could involve a substantial adverse change to the physical environment, i.e., that the environmental effect may be significant, and mitigation measures have not been defined that would reduce the impact to a less than significant level. If there are one or more Potentially Significant Impact identified in the Initial Study, an EIR is required.
>
> An environmental effect that is Less Than Significant with Mitigation Incorporated is a Potentially Significant Impact that can be avoided or reduced to a level that is less than significant with the application of mitigation measures.
>
> A Less Than Significant Impact occurs when the project would involve effects on an area of environmental concern, but the project would not involve a substantial adverse change to the physical environment and no mitigation measures are required.
>
> A determination of No Impact is self-explanatory.

Some existing regulatory requirements, established by the City and other agencies with jurisdiction, are routinely implemented in conjunction with new development function as measures that mitigate environmental impacts. These requirements are described in this IS/MND as a part of the existing regulatory setting, along with how these requirements would tend to reduce or avoid the project's environmental effects.

Where existing regulatory requirements are not adequate to reduce the project's environmental impacts to a level that would be less than significant, this IS/MND describes additional non-regulatory mitigation measures that could feasibly avoid or reduce potential environmental impacts. These mitigation measures are described in the appropriate technical section of Chapter 3.0 and are summarized in Table 1-1. As of the publication of the Notice of Intent for this project, these measures have been accepted by the project applicant. In all cases for this project, these mitigation measures would avoid potentially significant impacts of the project or reduce them to a level that would be less than significant.

1.5 Summary of Environmental Impacts and Mitigation Measures

Table 1-1 summarizes the results of the analysis of the project's potential environmental impacts conducted in Chapter 3.0 of this IS/MND. The potential environmental impacts of the project are listed in the left-most column of this table. The projected level of significance of each impact without mitigation is indicated in the second column. Mitigation measures proposed to avoid or minimize identified significant environmental effects are shown in the third column. The significance of the impact after mitigation measures are applied is shown in the fourth column.

If no mitigation measures are required for an impact listed in the summary table, then the notation "None required" is entered in the third column, and the fourth column would have no notation. The second column notes the level of significance of the impact.

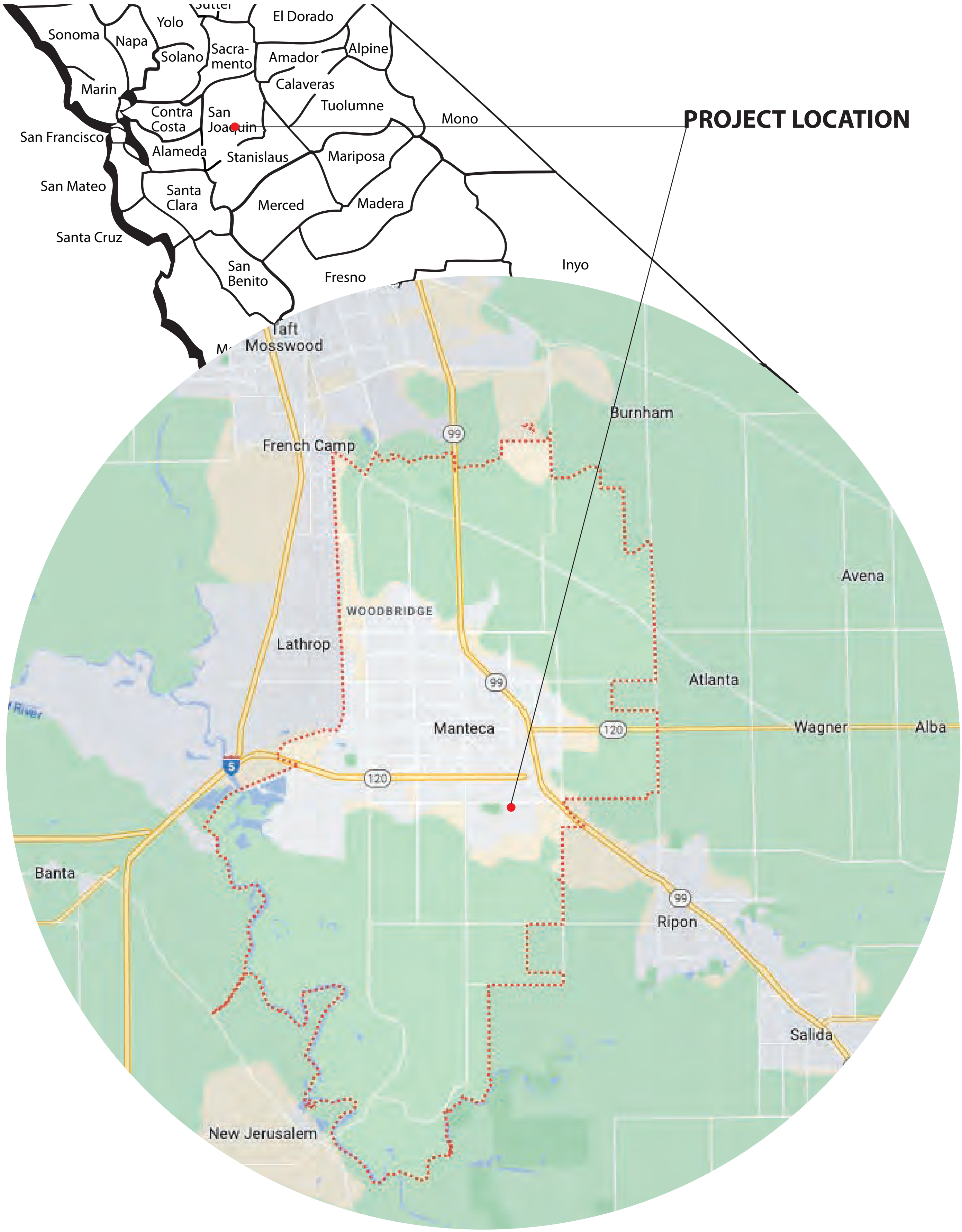

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Figure 1-1
REGIONAL LOCATION MAP

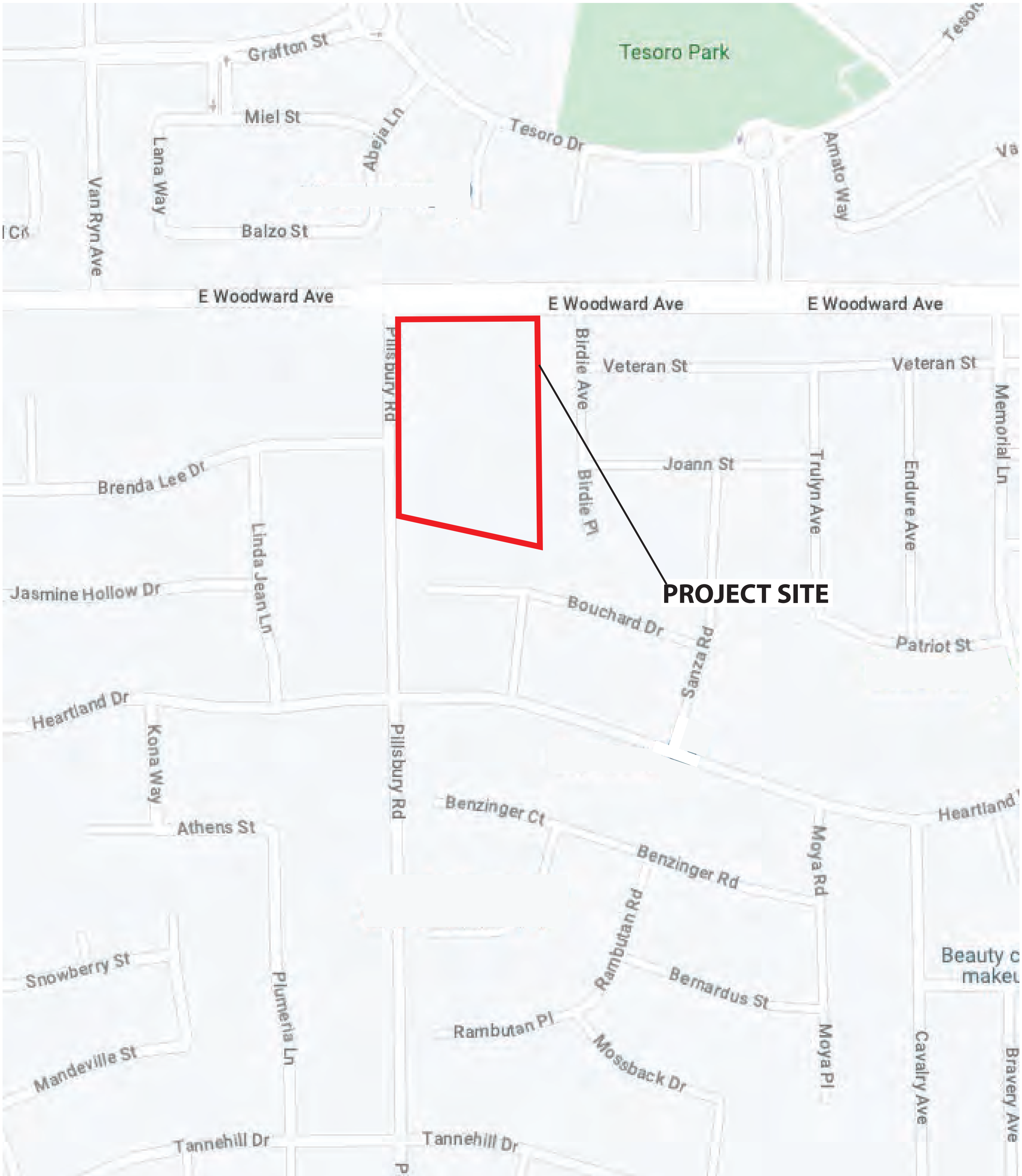

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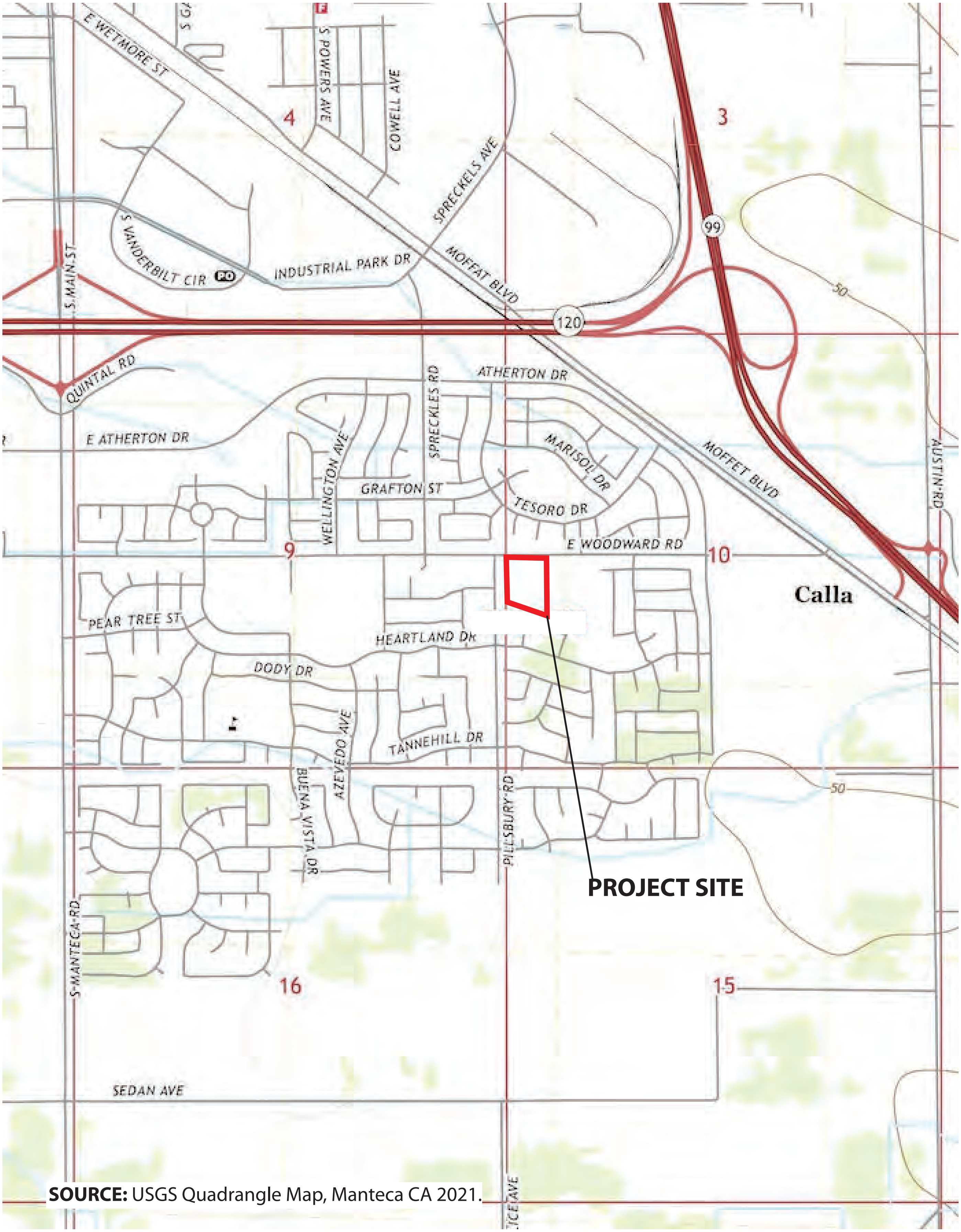
Figure 1-2
STREET MAP



SOURCE: USGS Quadrangle Map, Manteca CA 2021.

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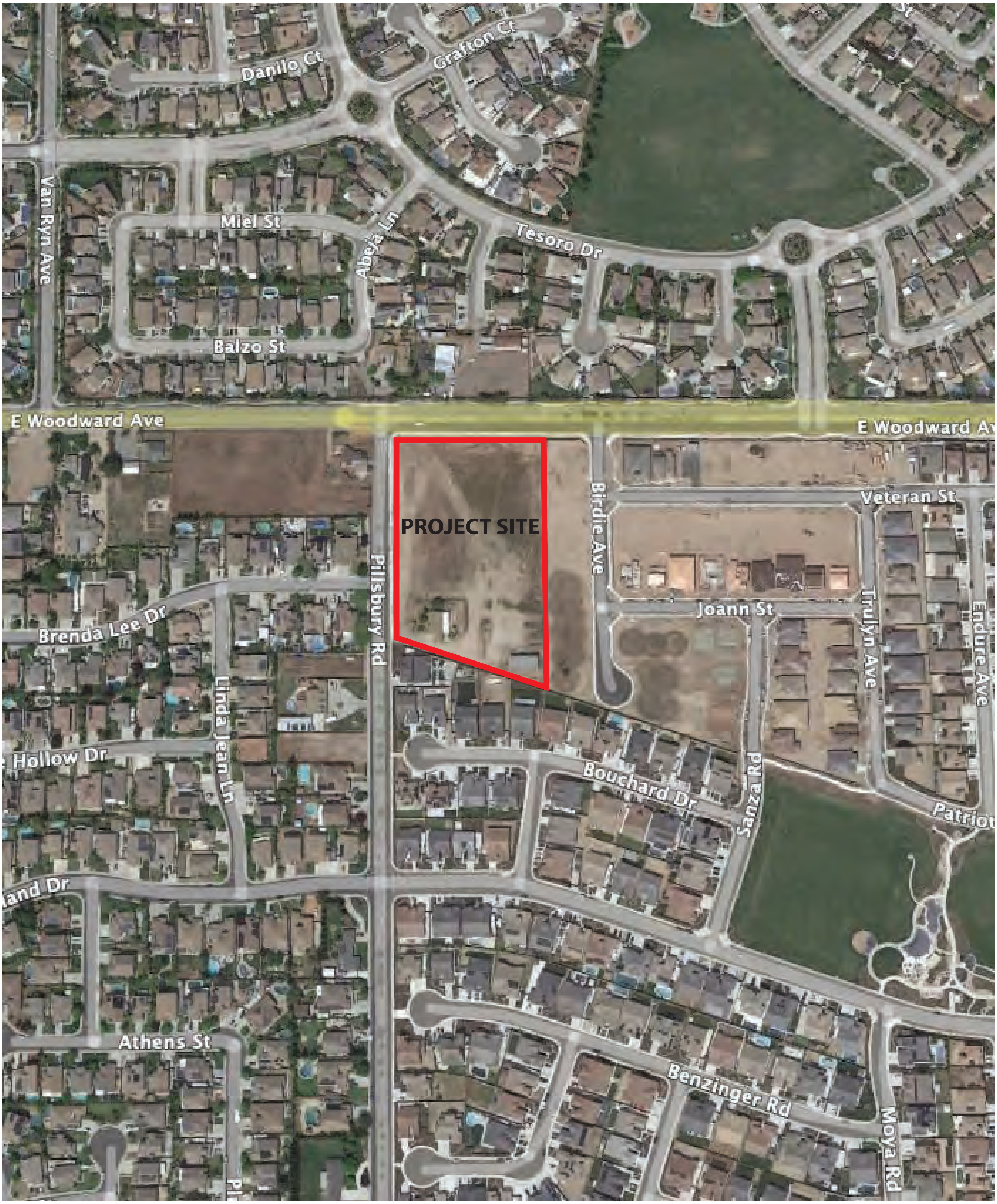
Figure 1-3
USGS MAP



SOURCE: Google Earth

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Figure 1-4
AERIAL PHOTO

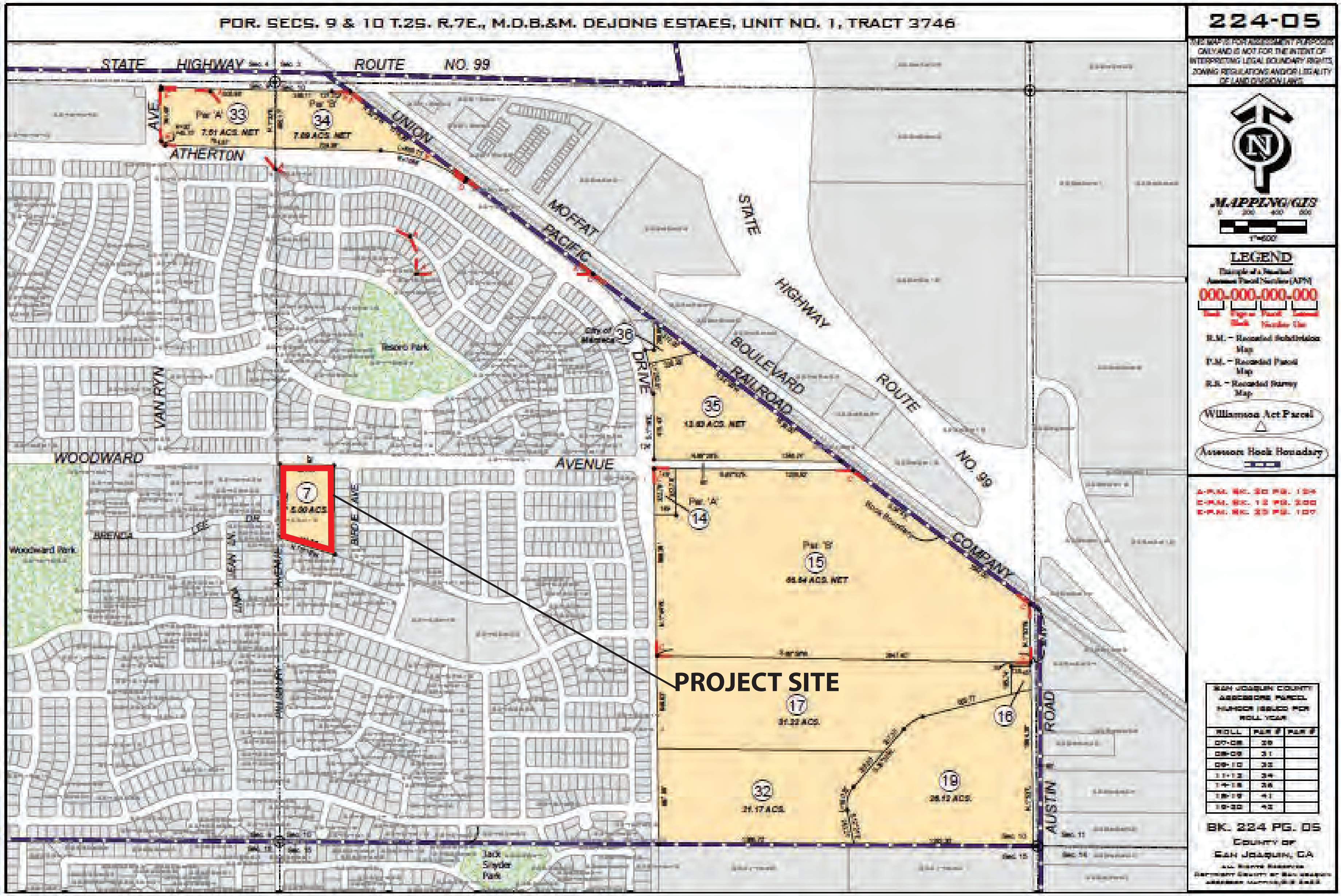

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Figure 1-5
ASSESSOR PARCEL MAP

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
3.1 AESTHETICS			
a) Scenic Vistas	LS	None required	-
b) Scenic Resources and Highways	NI	None required	-
c) Visual Character and Quality	LS	None required	-
d) Light and Glare	LS	None required	-
3.2 AGRICULTURE AND FORESTRY RESOURCES			
a) Agricultural Land Conversion	NI	None required	-
b) Agricultural Zoning and Williamson Act Contracts	NI	None required	-
c, d) Forest Land Conversion and Zoning	NI	None required	-
e) Indirect Conversion of Farmland of Forest Land	NI	None required	-
3.3 AIR QUALITY			
a) Air Quality Plan Consistency	LS	None required	-
b) Cumulative Emissions	LS	None required	-
c) Exposure of Sensitive Receptors to Pollutants	PS	AQ-1: To avoid potential violation of CO standards, the project shall contribute fair share costs, as estimated in the *Pillsbury Site Plan Traffic Impact Analysis* prepared by TJW Engineering on August 30, 2024, to the installation of traffic signal improvements at the intersection of South Main Street and East Woodward Avenue. The improvements shall be installed prior to full buildout of the project site.	LS
d) Odors and Other Emissions	LS	None required	

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
3.4 BIOLOGICAL RESOURCES			
a) Special-Status Species	LS	None required	-
b) Riparian and Other Sensitive Habitats	NI	None required	-
c) State and Federal Jurisdictional Wetlands	NI	None required	-
d) Fish and Wildlife Movement	LS	None required	-
e) Local Biological Requirements	NI	None required	-
f) Conflict with Habitat Conservation Plans	NI	None required	-
3.5 CULTURAL RESOURCES			
a) Historical Resources	LS	None required	-
b) Archaeological Resources	PS	CULT-1: If any subsurface cultural resources are encountered during construction of the project, the City of Manteca Development Services Department shall be notified and all construction activities within 50 feet of the encounter shall be halted until a qualified archaeologist can examine these materials and determine their significance. If the find is determined to be significant, then the archaeologist shall recommend further mitigation measures that would reduce potential effects on the find to a level that is less than significant. Recommended measures may include, but are not limited to, 1) preservation in place, or 2) excavation, recovery, and curation by qualified professionals. The project developer shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in a written report to the City's Development Services	LS

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		Department, consistent with the requirements of the CEQA Guidelines.	
c) Human Burials	LS	None required	-
3.6 ENERGY			
a) Project Energy Consumption	LS	None required	-
b) Consistency with Energy Plans.	LS	None required	-
3.7 GEOLOGY AND SOILS			
a-i) Fault Rupture Hazards	NI	None required	-
a-ii, iii) Seismic Hazards	LS	None required	-
a-iv) Landslides	NI	None required	-
b) Soil Erosion	PS	GEO-1: Prior to commencement of construction activity, the developer shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project and file a Notice of Intent with the State Water Resources Control Board (SWRCB) in compliance with the Construction General Permit and City of Manteca storm water requirements. The SWPPP shall be available on the construction site at all times. The developer shall incorporate an Erosion Control Plan consistent with all applicable provisions of the SWPPP within the site improvement and building plans. The developer also shall submit the SWRCB Waste Discharger's Identification Number to the City prior to approval of development or grading plans.	LS
c) Geologic Instability	PS	GEO-2: Prior to issuance of building permits, the project applicant shall submit a design-level geotechnical study	LS

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		and building plans to the City of Manteca for review and approval. The building plans shall demonstrate that they incorporate all applicable recommendations of the design-level geotechnical study and comply with all applicable requirements of the most recent version of the California Building Standards Code. A licensed professional shall prepare the plans, including those that pertain to soil engineering, structural foundations, pipeline excavation, and installation. The approved plans shall be incorporated into the proposed project. All on-site soil engineering activities shall be conducted under the supervision of a licensed Geotechnical Engineer or Certified Engineering Geologist.	
d) Expansive Soils	LS	None required	-
e) Adequacy of Soils for Wastewater Disposal	NI	None required	-
f) Paleontological Resources and Unique Geological Features	LS	None required.	-
3.8 GREENHOUSE GAS EMISSIONS			
a, b) Project GHG Emissions and Consistency with GHG Reduction Plans	LS	None required	-
3.9 HAZARDS AND HAZARDOUS MATERIALS			
a) Hazardous Material Transport, Use, and Storage	LS	None required	-
b) Release of Hazardous Materials	LS	None required	-
c) Hazardous Materials Releases near Schools	NI	None required	-
d) Hazardous Materials Sites	LS	None required	-

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
e) Public Airport Operations	NI	None required	-
f) Emergency Response and Evacuations	PS	HAZ-1: Prior to the start of project construction, the developer shall prepare and implement a Traffic Control Plan, which shall include such items as traffic control requirements, resident notification of access closure, and daily access restoration. The contractor shall specify dates and times of road closures or restrictions, if any, and shall ensure that adequate access will be provided for emergency vehicles. The Traffic Control Plan shall be reviewed and approved by the City Department of Public Works and shall be coordinated with the Manteca Police Department and the Manteca Fire Department if construction requires road closures or lane restrictions.	LS
g) Wildland Fire Hazards	NI	None required	-
3.10 HYDROLOGY AND WATER QUALITY			
a) Surface Water Quality	LS	None required	-
b) Groundwater Supplies and Recharge	LS	None required	-
c-i, ii) Drainage Patterns	LS	None required	-
c-iii) Runoff	LS	None required	-
c-iv) Flood Flows	LS	None required	-
d) Other Flooding Hazards	LS	None required	-
e) Conflict with Water Quality or Groundwater Plans	NI	None required	-
3.11 LAND USE AND PLANNING			
a) Division of Established Communities	NI	None required	-

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
b) Conflicts with Plans, Policies and Regulations Mitigating Environmental Effects	LS	None required	-
3.12 MINERAL RESOURCES			
a, b) Availability of Mineral Resources	NI	None required	-
3.13 NOISE			
a) Exposure to Noise Exceeding Local Standards	PS	NOISE-1: The City shall require the construction contractor to implement the following measures during project construction: • In accordance with the Manteca Municipal Code, construction activities shall be limited to between 7:00 a.m. and 7:00 p.m. Monday through Saturday to avoid noise-sensitive hours of the evenings and nights. Construction activities shall be prohibited on Sundays and federally recognized holidays, unless the contractor obtains prior approval from the City. • Project contractors shall use newer equipment with improved muffling and ensure that all equipment items have intact and operational the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators. All construction equipment shall be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers, shrouding, etc.). • In accordance with the California Air Resources Board's Regulation for In-Use Off-Road Diesel-Fueled Fleets, idling of construction equipment for more	LS

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		than five minutes shall be prohibited unless an activity is specifically exempted by the Regulation.	
b) Exposure to Groundborne Vibration or Noise	LS	None required	-
c) Public Airport and Private Airstrip Noise	NI	None required	-
3.14 POPULATION AND HOUSING			
a) Unplanned Population Growth	NI	None required	-
b) Displacement of Housing or People	LS	None required	-
3.15 PUBLIC SERVICES			
a) Fire Protection	LS	None required	-
b) Police Protection	LS	None required	-
c) Schools	NI	None required	-
d, e) Parks and Other Public Facilities	NI	None required	-
3.16 RECREATION			
a, b) Recreational Facilities	NI	None required	-
3.17 TRANSPORTATION			
a) Conflict with Transportation Plans, Ordinances and Policies	PS	TRANS-1: The project shall provide bicycle racks in accordance with Section 4.106.9 of the California Green Building Standards Code adopted by the City at time of final site plan review. The bicycle racks shall be identified on the final site plan prior to City approval. TRANS-2: The project shall designate spaces for electric vehicle charging stations in accordance with Section	LS

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		4.106.4.2 of the California Green Building Standards Code adopted by the City at time of final site plan review. The electric vehicle spaces shall be identified on the final site plan prior to City approval. Also, Mitigation Measure AQ-1.	
b) Conflict with CEQA Guidelines Section 15064.3(b)	LS	None required	-
c) Traffic Hazards	LS	None required	-
d) Emergency Access	LS	None required	-
3.18 TRIBAL CULTURAL RESOURCES			
a, b) Tribal Cultural Resources	PS	TCR-1: If tribal cultural resources are encountered, the Community Development Department shall be immediately notified of the find, and work shall stop within 50 feet of the find. The Community Development Department shall notify the appropriate Native American representatives. A qualified archaeologist and the Native American representative shall examine the materials and determine their “uniqueness” or significance as tribal cultural resources and shall recommend mitigation measures needed to reduce potential cultural resource effects to a level that is less than significant in a written report to the Community Development Department, with a copy to the Native American representatives involved with the resource. The Community Development Department will be responsible for implementing the report recommendations. Avoidance is the preferred means of disposition of tribal cultural resources. Work shall resume in the vicinity only when the disposition of the remains is agreed to and implemented. If human remains are encountered and determined to be Native	LS

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		American in origin, then the provisions of Public Resources Code Section 5097.98 shall be implemented.	
3.19 UTILITIES AND SERVICE SYSTEMS			
a) Relocation or Construction of New Facilities	LS	None required	-
b) Water Systems and Supply	LS	None required	-
c) Wastewater Treatment Capacity	LS	None required	-
d) Solid Waste Services	LS	None required	-
e) Solid Waste Regulations	NI	None required	-
3.20 WILDFIRE			
a) Emergency Response Plans and Emergency Evacuation Plans	NI	None required	-
b) Exposure of Project Occupants to Wildfire Hazards	NI	None required	-
c) Installation and Maintenance of Infrastructure	NI	None required	-
d) Risks from Runoff, Post-Fire Slope Instability, or Drainage Changes	NI	None required	-
3.21 MANDATORY FINDINGS OF SIGNIFICANCE			
a) Findings on Biological and Cultural Resources	PS	Mitigation measures in Sections 3.4, 3.5, and 3.18.	LS
b) Findings on Individually Limited but Cumulatively Considerable Impacts	PS	Mitigation Measure AQ-1.	LS
c) Findings on Adverse Effects on Human Beings	LS	None required	-

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

2.0 PROJECT DESCRIPTION

2.1 Project Location

The project address is 1840 Pillsbury Road, at the intersection of Pillsbury Road and Woodward Avenue in southern Manteca (see Figures 1-1 to 1-5). The site consists of one parcel, Assessor's Parcel Number (APN) 224-050-07. The project site is shown on the U.S. Geological Survey's Manteca, California, 7.5-minute quadrangle map within Sections 9 and 10, Township 2 South, Range 7 East, Mt. Diablo Base and Meridian. The latitude of the project site is approximately 37° 46′ 30″ North, and the longitude is approximately 121° 11′ 48″ West.

2.2 Project Details

Tentative Parcel Map

The project applicant proposes to submit a Tentative Parcel Map to the City to subdivide APN 224-050-07, a parcel of 4.67 acres, into three parcels (Figure 2-1):

Parcel 1 – 1.51 acres

Parcel 2 – 1.87 acres

Parcel 3 – 1.29 acres

Parcel 3 would not be developed immediately, but it would be available for future commercial development. For the purposes of this CEQA analysis, and as suggested by the project manager, it is assumed that this future commercial development would consist of one one-story building of approximately 12,000 square feet of floor area. This would cover approximately 21 percent of the parcel area, which would be consistent with the maximum allowable site coverage under the Commercial Mixed Use designation, which is 50 percent. Half of the building square footage (6,000 square feet) is assumed to be used for general retail; the other half is assumed to have quick-serve restaurant(s) with a drive-thru lane(s).

Parcels 1 and 2 would be developed as described in the Proposed Development section below. The Tentative Parcel Map would include an access easement, approximately 30 feet in width, around the eastern and southern boundaries of the proposed Parcel 1.

Proposed Development

On proposed Parcels 1 and 2, totaling 3.38 acres, the project involves development of a commercial center that would consist of two land uses: a fueling station with a convenience store and quick-serve restaurant, and a commercial/retail building (Figure 2-2). A more detailed description of these land uses is provided below.

Fueling Station/Convenience Store

The fueling station would have eight multi-product dispensers installed in the northwestern section of the project site. Each dispenser would have a fueling position on each side, for a total of 16 fueling positions. Fuel for the dispensers would come from two underground fuel tanks, each with a capacity of 20,000 gallons of fuel. One tank would store gasoline only; the other would hold 12,000 gallons of gasoline and 8,000 gallons of diesel fuel. The dispensers would be covered by a canopy, set on poles, that would be approximately 116 feet long by 36 feet wide and the top of which would be approximately 18.5 feet above ground surface. LED lights would be installed beneath the canopy to illuminate the fueling area at night.

A frame building surfaced with stucco, aluminum composite material and clear anodized aluminum trim would be constructed south of the fueling area. The building would have approximately 7,600 square feet of floor area. Approximately 5,000 square feet of this building would be occupied by a convenience store. The other 2,600 square feet would be occupied by a quick-serve restaurant, which would have indoor seating and a drive-thru lane at the back of the building. The building in general would be approximately 19.5 feet tall with a maximum height of approximately 26 feet. Figure 2-3 shows the building elevations.

Commercial/Retail Building

In the southeastern corner of the project site, the project proposes the construction of an additional stucco building with siding and aluminum and wood trim. The building would have approximately 9,045 square feet floor area that would accommodate commercial or retail uses. The potential uses of the building are expected to be consistent with the CMU zoning for the project site. The building in general would be approximately 20 feet tall with a maximum height of approximately 28 feet. Figure 2-4 shows the planned building elevations.

Other Features

Landscaping would be installed on approximately 30,137 square feet of the project site – approximately 17 percent of the total site acreage. Trees would be planted along the site boundaries and in parking areas. Shrubs and hedges also would be planted along site boundaries and other landscaped areas, such as the outdoor pavilion areas.

The project would have two outdoor pavilion areas totaling approximately 0.65 acres. Both pavilion areas would be located along the western boundary of the project site, one on each side of the proposed main driveway from Pillsbury Road. The one area north of the driveway would be approximately 0.39 acres in size; the one south of the driveway would be approximately 0.26 acres. Each outdoor pavilion area would have a paved amenity space with rectangular score pattern. It would also include bike parking and seating/picnic facilities, shade trees and open turf for casual recreation and gathering. Flowering accent trees would be planted at the edges of each pavilion area.

Enclosures would be provided for trash bins for each building, both located east of the buildings. Each enclosure would be made of concrete masonry units and would be approximately 6 feet, 8 inches high. Each enclosure would have a wooden roof, making the total height of the enclosures approximately 7 feet, 9 inches high.

Access and Parking

Access to the project site would be provided off Pillsbury Road and Woodward Avenue (see Figure 2-2). One driveway would be provided off Woodward Avenue. Two driveways would be provided off Pillsbury Road: one leading directly to the fueling station, the other, further south, leading to the commercial/retail building. The Woodward Avenue driveway and the driveway to the fueling station would be "right turn in/right turn out" driveways. The other Pillsbury Road driveway would allow all turns.

Two internal access roads would be constructed on the project site. One would extend south from the Woodward Avenue driveway; the other would extend east from the southernmost Pillsbury Road driveway. Both roads would be constructed within the access easement designated on the proposed Tentative Parcel Map. These two internal roads would meet east of the Pillsbury Road driveway, and a roundabout would be installed at that intersection. The roundabout would have decorative paving around its edge and ground cover landscaping in its center.

The project proposes the installation of a raised median adjacent to the left-turn pocket on westbound Woodward Avenue at the intersection with Pillsbury Road. This new median would be an extension of an existing landscaped median on Woodward Avenue, although the new median itself would not be landscaped. Existing pavement would be sawcut, and the nose of the existing landscaped median would be demolished to accommodate the new median.

The project proposes the installation of 89 parking spaces: 87 standard spaces (18 feet by 9 feet) and two spaces for drivers with disabilities. Most of the parking spaces would be in the vicinity of the commercial/retail building; only 23 spaces are planned for the fueling station area, including one accessible space.

Utilities

The project proposes to connect to existing utility lines operated by the City (Figure 2-5). Two-inch diameter water lines would be installed throughout the project site to provide drinking and landscape irrigation water. The on-site water system would connect with existing City water lines beneath Pillsbury Road and Woodward Avenue. Six-inch diameter water lines would be installed throughout the site to provide water for fire protection. Two fire hydrants are proposed, one near each of the two buildings.

The project proposes to install sewer lines six inches in diameter throughout the project site. The on-site system would connect to the City's wastewater collection system by an existing sewer stub beneath Pillsbury Road and by an existing sewer manhole on Woodward Avenue.

The project proposes a storm drainage system that includes both on-site facilities and connections to the City's storm drainage system. The project proposes the installation of several bioretention facilities – basins or swales containing landscape features that remove pollutants in stormwater before it is discharged to other facilities. These bioretention facilities would be located throughout the project site. Storm drainage that is treated in these bioretention facilities would then be discharged into on-site storm drainage lines 12 inches in diameter. The on-site storm drainage line system would connect to the City's system through an existing 18-inch diameter storm drain stub within an existing 20-foot-wide easement in the southeastern corner of the project site.

Project Construction

Project construction would require the demolition of an existing single-family residence in the southern portion of the project site, along with a shop building in the southeastern corner. Existing fencing surrounding the residence would be removed. An existing water well and septic tank would be abandoned in accordance with the standards of the San Joaquin County Environmental Health Department. The project also would require the sawcutting and removal of approximately 2,488 linear feet of existing curb and sidewalk to accommodate the proposed driveways.

2.3 Permits and Approvals

The proposed subdivision of the project site would require the approval of a Tentative Parcel Map in accordance with Manteca Municipal Code Chapter 16.15. Upon acceptance of the application for a map as complete, and after review by other City departments and public agencies, the Community Development Department shall submit the map to the Manteca Planning Commission for its decision during a public hearing.

The City shall determine if the project is consistent with the current CMU zoning, which accommodates a variety of uses that include high-density residential, employment centers, retail commercial, and professional offices. If the project is determined to be consistent with zoning, then the proposed retail, convenience store, and possible restaurant land uses are allowed by right in the CMU zoning. Under these circumstances, the project would require only Site Plan/Design Review approval. The approval would be for a Major Site Plan and Design Review, as the project is a new development that is not exempt from CEQA review. The approving authority is the Manteca Planning Commission; however, decisions by the Planning Commission may be appealed to the City Council.

However, in the CMU zone, the proposed fueling station would be required to obtain a Minor Use Permit in accordance with Manteca Municipal Code Section 17.10.070. A Minor Use Permit may be approved by the Community Development Director with no public hearing required. However, the Community Development Director must find that the project would be consistent with General Plan and zoning designations and that it will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity.

Should the project be approved, building and grading permits from the City would be required, along with an encroachment permit for any work in City streets. The landscaping plan would be reviewed by the City for conformance to the City's landscaping requirements, as specified in Manteca Municipal Code Chapter 17.48, and the City would approve a Landscape Certificate of Completion prior to issuance of a Certificate of Occupancy.

Installation and use of fuel tanks and dispensing equipment would require San Joaquin Valley Air Pollution Control District approval of an Authority to Construct/Permit to Operate pursuant to the SJVAPCD regulations. Installation and use of underground storage tanks would require approval from the San Joaquin County Environmental Health Department, which is the Certified Unified Program Agency for the county.

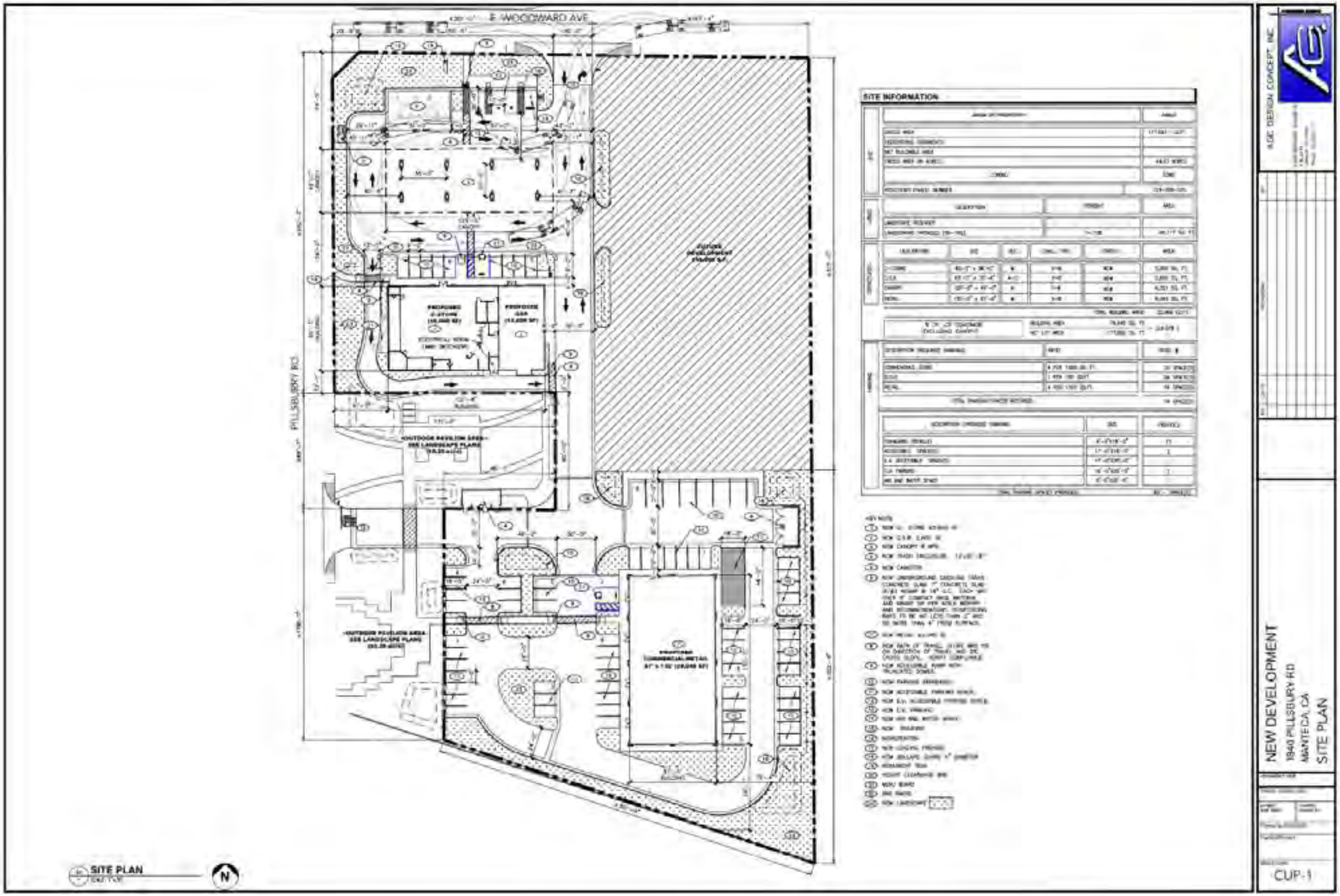
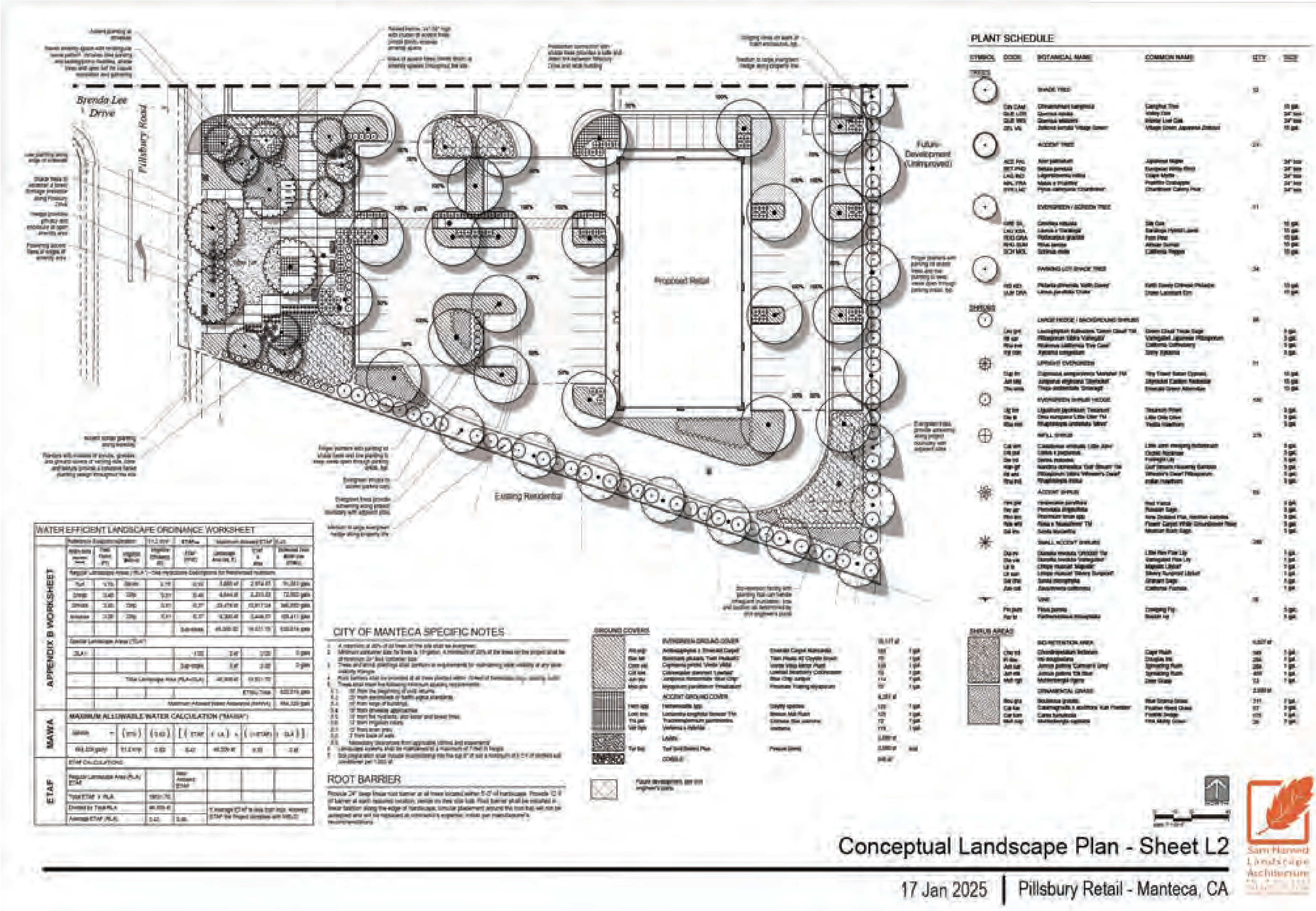


Figure 2-1
SITE PLAN



BaseCamp Environmental

Figure 2-2a
RETAIL BUILDING LANDSCAPE PLAN

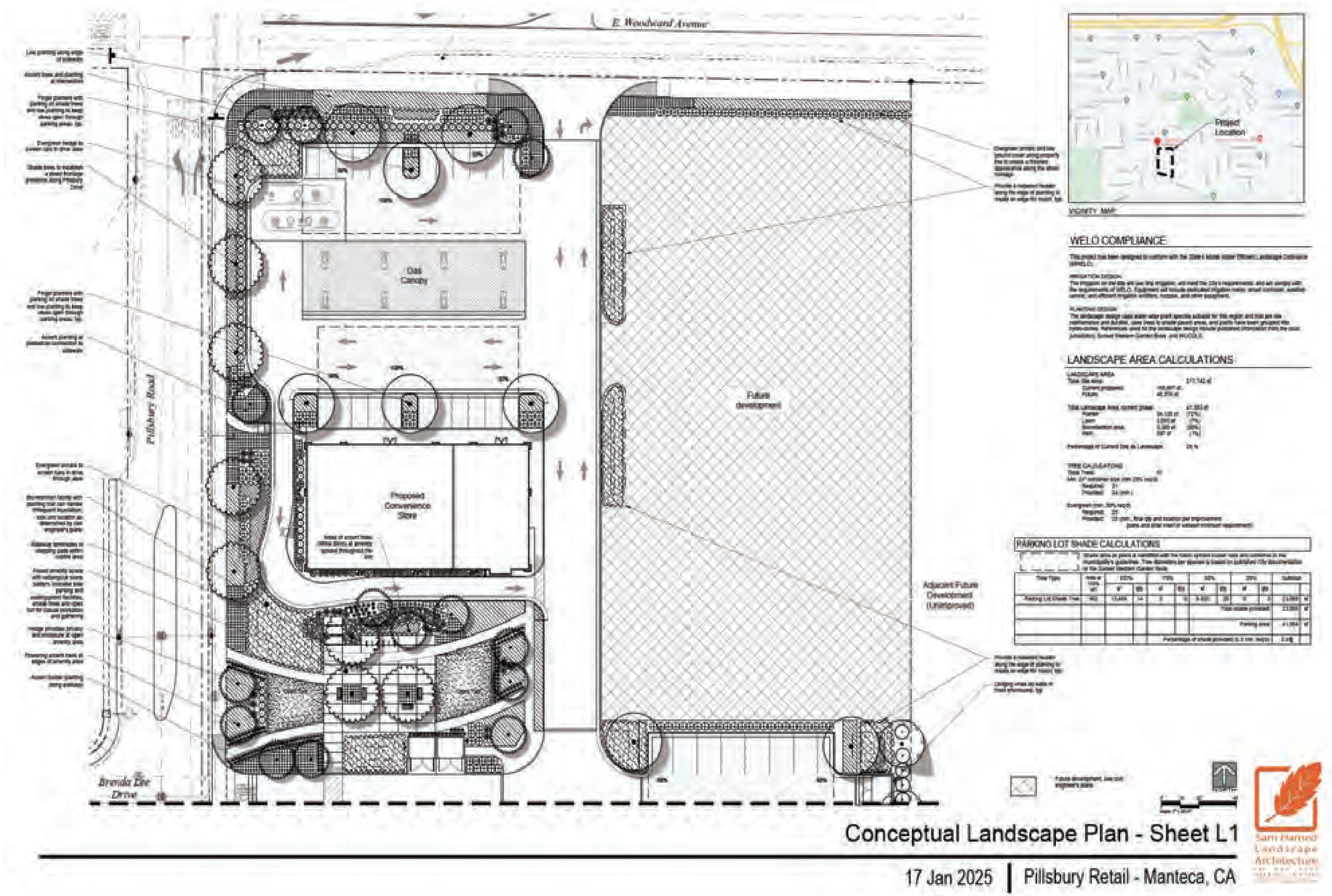
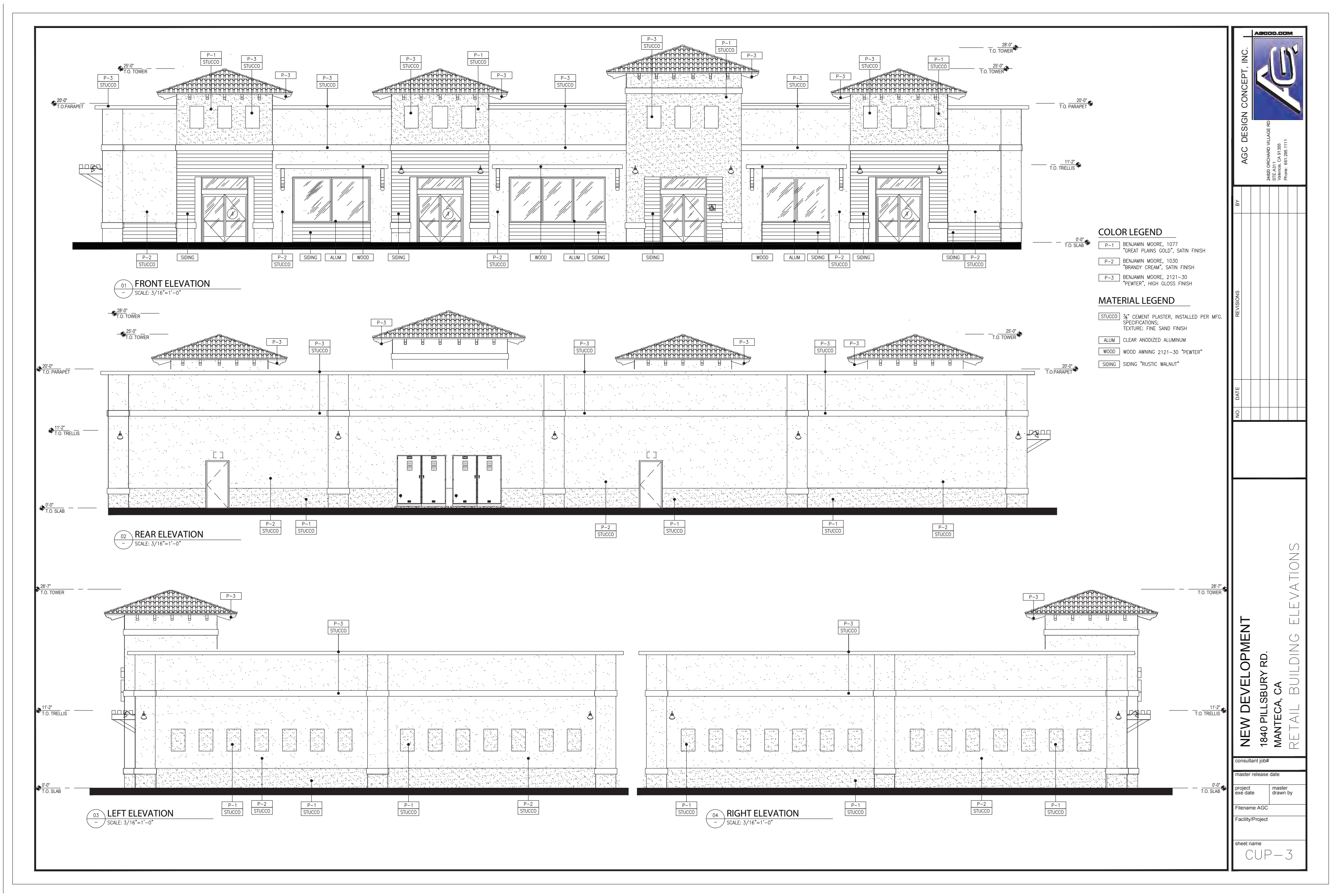
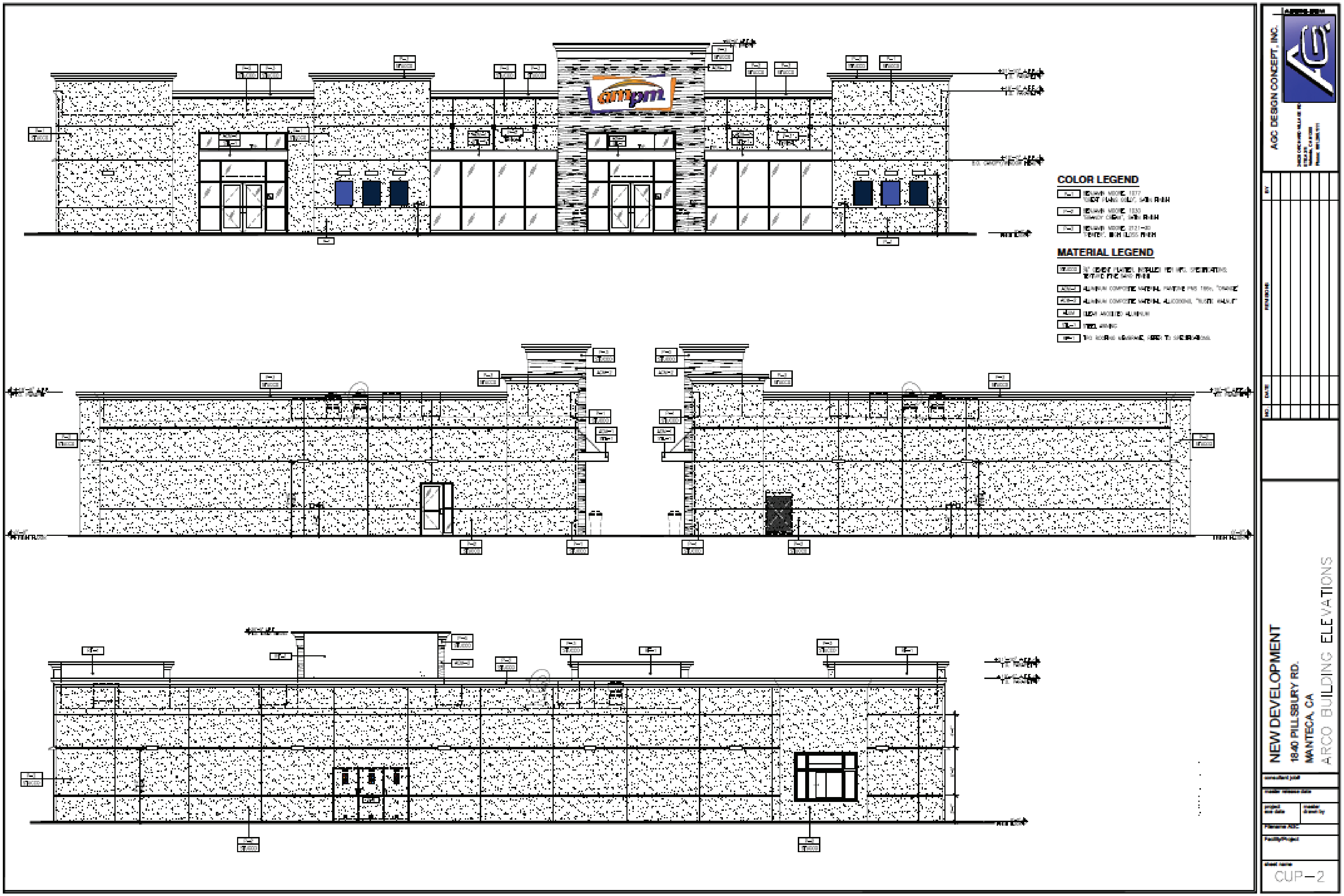


Figure 2-2b
CONVENIENCE STORE LANDSCAPE PLAN



BaseCamp Environmental

Figure 2-3
RETAIL BUILDING ELEVATIONS



BaseCamp Environmental

Figure 2-4
CONVENIENCE STORE ELEVATIONS

3.0 ENVIRONMENTAL CHECKLIST FORM

The following environmental evaluation considers the potential environmental effects of City approval of the proposed project, as described in Chapter 2.0, Project Description. The format of this evaluation is based on the Environmental Checklist presented in CEQA Guidelines Appendix G.

3.1 AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			✓	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				✓
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			✓	
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?			✓	

Environmental Setting

The project site consists of vacant, level land covered by grasses and weeds. No trees or other distinctive visual or scenic features are on the project site. Views from the project site are of residential areas surrounding the site.

The recently revised Appendix G of the CEQA Guidelines mentions California Public Resources Code Section 21099, which states that the aesthetic and parking impacts of residential, mixed-use residential, or employment center projects on an infill site within a transit priority area shall not be considered significant effects under CEQA. The project may be considered an employment center project, and the project site may be considered an infill site. However, the project is not within a transit priority area; therefore, the aesthetic impacts of the project are analyzed in this document.

Environmental Impacts and Mitigation Measures

a) Scenic Vistas.

Distant views from Manteca mainly consist of the Coast Ranges to the west and the Sierra Nevada mountains to the east. However, due to existing development in the area, views of these mountain ranges are not available from the project site. The project involves the construction of buildings and related site improvements, which have the potential to contribute to obstruction of distant views. However, given their location and existing obstruction in the area, project structures would not substantially affect views of scenic vistas. Project impacts on scenic vistas would be less than significant.

b) Scenic Resources and Highways.

The project site is topographically flat and contains mostly grasses and weeds. There are no outstanding scenic features such as trees or rock outcroppings on the project site. The single-family residence currently on the project site is not considered visually distinctive.

According to the California Department of Transportation (Caltrans) list of designated scenic highways under the California Scenic Highway Program, there are only two officially designated state scenic highways within San Joaquin County, both in its southwestern portion: Interstate 5 from the Stanislaus County Line to Interstate 580, and Interstate 580 from I-5 to the Alameda County Line (Caltrans 2019). None of these designated State routes are in the project vicinity.

San Joaquin County has designated several local scenic routes; the closest to the project site is Austin Road south of State Route 99, southeast of the project site (San Joaquin County 2016a). None of these designated local scenic routes are in the project vicinity. The project would have no impact on scenic resources or scenic routes.

c) Visual Character and Quality.

As noted, the project site is a vacant parcel covered with grasses and weeds. The visual quality of the project site is considered low, as it lacks any distinctive visual features. The project, with its design and landscaping, may be considered an improvement to the existing on-site aesthetics as viewed from Woodward Avenue and Pillsbury Road, which are the main public viewing areas in the vicinity.

Both the proposed development and future development would be subject to Site Plan and Design Review by the City, which is intended to promote harmony in appearance in neighborhoods and to reduce negative aesthetic impacts. Under Chapter 17.48, landscaping shall be installed in setbacks, parking areas, and unused areas. A landscaping plan shall be submitted for new development. Compliance with the provisions of the Manteca Municipal Code regarding setbacks and landscaping would make for a more visually pleasing development. In particular, the outdoor pavilion areas would make for a less jarring transition in the landscape from residential to commercial. Project impacts on visual character and quality would be less than significant.

d) Light and Glare.

There is currently no lighting or features that may produce glare on the project site, as it is vacant. Project construction would involve the installation of lighting, mainly in the parking areas and exterior lights on the buildings. This would increase the amount of indirect illumination on adjacent properties, most notably the residences surrounding the project site.

Manteca Municipal Code Chapter 17.50 sets forth requirements for the installation of lighting. All outdoor lighting shall be designed, located, installed, directed downward or toward structures, shielded, and maintained to prevent glare, light trespass, and light pollution. The maximum height of freestanding outdoor light fixtures shall be 20 feet. To minimize light trespass on abutting residential property, illumination measured at the nearest residential structure or rear yard setback line shall not exceed the moon's potential ambient illumination of one-tenth footcandle.

Under Chapter 17.50, an outdoor lighting plan is required for all new outdoor lighting installations on commercial, mixed-use, multi-unit residential, industrial, and institutional properties. The lighting plan shall include manufacturer specifications sheets, cut sheets, and other manufacturer-provided information for all proposed outdoor light fixtures to show fixture diagrams and outdoor light output levels. It also shall include photometric data including a computer-generated photometric grid showing foot-candle readings every 10 feet within the property or site and 10 feet beyond the property lines. The project applicant will be required to prepare a photometric plan in accordance with these requirements. Given the requirements of Municipal Code Chapter 17.50, it is unlikely that the project would result in an indirect illumination of nearby residences that exceeds City standards.

The City's Site Plan and Design Review requires a project to identify potentially reflective exterior building materials and their location in relation to motorists and other persons within sight of the project. Also, site plans must identify any exterior light sources and areas subject to potential off-site illumination areas. Potential off-site lighting impacts would be considered during City site plan review, which may lead to the imposition of additional measures as conditions of approval. Project impacts on light and glare would be less than significant.

3.2 AGRICULTURE AND FORESTRY RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	✓

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				✓
d) Result in the loss of forest land or conversion of forest land to non-forest use?				✓
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use, or conversion of forest land to non-forest use?				✓

Environmental Setting

The project site is vacant land. A review of site photographs available on Google Earth indicates that orchard trees existed on the project site in 1993, but no agricultural activity has occurred in the last 20 years.

The Important Farmland Maps, prepared by the California Department of Conservation as part of its Farmland Mapping and Monitoring Program, designate the viability of lands for farmland use, based on the physical and chemical properties of the soils and other factors. The maps categorize farmland, in decreasing order of soil quality, as "Prime Farmland," "Unique Farmland," and "Farmland of Statewide Importance." Collectively, these categories are referred to as “Farmland” in the CEQA Checklist in Appendix G of the CEQA Guidelines and in this document. There are also designations for grazing land and for urban/built-up areas, among others. According to the 2018 Important Farmland Map of San Joaquin County, the most recent map available, the project site contains land designated as Farmland of Local Importance (FMMP 2018).

Manteca Municipal Code Chapter 13.42 establishes the City's Agricultural Mitigation Fee Program, which authorizes the collection of development impact fees to offset costs associated with the loss of productive agricultural lands converted for urban uses within the City. Agricultural mitigation fees are required to be paid prior to issuance of any building permit. Fees are used to protect agricultural lands planned for agricultural use. Fees collected under Chapter 13.42 may be used as fair compensation for farmland conservation easements or farmland deed restrictions that conserve existing agricultural land. For example, fees collected by the City are distributed to the California Farmland Trust on a quarterly basis. The Trust then acquires conservation easements from the funds collected.

Agricultural land subject to the Agricultural Mitigation Fee Program consists of land containing Class I, II, III or IV soils, as defined by the United States Department of Agriculture Natural Resource Conservation Service. As described in Section 3.9, Geology and Soils, the project site has two soil types, both of which are Class IV soils when not irrigated and Class III soils when irrigated.

Environmental Impacts and Mitigation Measures

a) Farmland Conversion.

The project site is designated as Farmland of Local Importance, which is not Farmland as defined by CEQA Guidelines Appendix G. Therefore, the project would not convert Farmland to non-agricultural uses. The project would have no impact on Farmland conversion.

Given the soil types on the project site, the project would be required to pay fees under the City's Agricultural Mitigation Fee Program, the proceeds from which would be used to support programs that conserve agricultural lands. This would contribute to the conservation of agricultural lands elsewhere, which may include Farmland.

b) Agricultural Zoning and Williamson Act Contracts.

The project site is zoned CMU – Commercial Mixed Use. It is not an agricultural zone, and the Manteca General Plan has not designated the project site for agricultural use. The Williamson Act is State legislation that seeks to preserve farmland by offering property tax breaks to farmers who sign a contract pledging to keep their land in agricultural use. The project site is not under a Williamson Act contract. The project would have no impact on agricultural zoning or Williamson Act lands.

c, d) Forest Land Zoning and Conversion.

The project site is not used, zoned, or otherwise designated for forestry use. The project site does not support any trees, so no forest land potentially available for commercial use exists. The project would have no impact on forest land zoning or forest land conversion.

e) Indirect Conversion of Farmland and Forest Land.

As noted in c, d) above, there are no forest lands in the vicinity. Therefore, the project would have no impact related to indirect conversion of forest land. Land surrounding the project site has been developed for primarily residential uses. There is no adjacent agricultural land to project site. The project would utilize existing infrastructure in the area; no new infrastructure that could be used for potential development of agricultural land would be constructed. The project would have no impact related to the indirect conversion of Farmland or forest land.

3.3 AIR QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable Air Quality Attainment Plan?	☐	☐	✓	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	✓	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	✓	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	✓	☐

Environmental Setting

Air Quality Status

The project site is within the San Joaquin Valley Air Basin. The San Joaquin Valley Air Pollution Control District (SJVAPCD), which includes the City of Manteca, has jurisdiction over most air quality matters in the Air Basin. The SJVAPCD is tasked with implementing programs and regulations required by both the federal and California Clean Air Acts. Under their respective Clean Air Acts, both the federal government and the State of California have established ambient air quality standards for six criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. California has four additional criteria pollutants under its Clean Air Act.

Table 3-1 shows the current attainment status of the Air Basin relative to the federal and State ambient air quality standards for criteria pollutants. Except for ozone and particulate matter, which are discussed below, the Air Basin is in attainment of, or unclassified for, all federal and State ambient air quality standards.

Air Pollutants of Concern

The San Joaquin Valley Air Basin is designated a non-attainment area for ozone. Ozone is not emitted directly into the air. It is formed when reactive organic gases (ROG) and nitrogen oxides (NO_x), referred to as “ozone precursors,” react in the atmosphere in the presence of sunlight. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. The SJVAPCD currently has a 2022 Plan for the 2015 8-Hour Ozone Standard and the 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard to attain federal ambient air quality standards for ozone.

TABLE 3-1
SAN JOAQUIN VALLEY AIR BASIN ATTAINMENT STATUS

	Designation/Classification	
Criteria Pollutant	**Federal Primary Standards**	**State Standards**
Ozone - One hour	No Federal Standard	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide (NO_x)	Attainment/Unclassified	Attainment
Sulfur Dioxide (SO_x)	Attainment/Unclassified	Attainment
Lead	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: SJVAPCD 2023.

The Air Basin is also designated a non-attainment area for respirable particulate matter, a mixture of solid and liquid particles suspended in air, including dust, pollen, soot, smoke, and liquid droplets. In the San Joaquin Valley, particulate matter is generated by a mix of rural and urban sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere.

Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled; consequently, both the federal and state air quality standards for particulate matter apply to particulates 10 micrometers or less in diameter (PM_{10}) and to particulates less than 2.5 micrometers in diameter ($PM_{2.5}$), which are carried deeper into the lungs. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, coughing, bronchitis, and respiratory illnesses in children. The SJVAPCD currently has a 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards to attain federal ambient air quality standards for $PM_{2.5}$ and the 2007 PM10 Maintenance Plan to maintain its current PM_{10} attainment status.

Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air, unlike ozone. The main source of CO in the San Joaquin Valley is on-road motor vehicles (SJVAPCD 2015). The San Joaquin Valley Air Basin is in attainment/unclassified status for CO; as such, the SJVAPCD has no CO attainment plans. High CO concentrations may occur in areas of limited geographic size, referred to as "hot spots," which are ordinarily associated with areas of highly congested traffic.

In addition to the criteria pollutants, the ARB has identified other air pollutants as toxic air contaminants (TACs) – pollutants that may cause acute or chronic long-term health effects, such as cancer. Some TACs may cause adverse effects even at low levels. Diesel particulate matter is the most common TAC, generated mainly as a product of combustion in diesel engines. Other TACs are less common and are typically associated with industrial activities.

Air Quality Rules and Regulations

As previously noted, the SJVAPCD has jurisdiction over most air quality matters in the Air Basin. It implements the federal and California Clean Air Acts, and the applicable attainment and maintenance plans, through local regulations. The SJVAPCD has developed plans to attain State and federal standards for ozone and particulate matter, which include emissions inventories to measure the sources of air pollutants and the use of computer modeling to estimate future levels of pollution and make sure that the Valley will meet air quality goals (SJVAPCD 2015). A State Implementation Plan for CO has been adopted by the ARB for the entire state. The SJVAPCD regulations that would be applicable to the project are summarized below.

Regulation VIII (Fugitive Dust PM10 Prohibitions)

Rules 8011-8081 are designed to reduce PM_{10} emissions - predominantly dust/dirt - generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc.

Rule 4101 (Visible Emissions)

This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.

Rule 9510 (Indirect Source Review)

Rule 9510, also known as the Indirect Source Rule, is intended to reduce or mitigate emissions of NO_x and PM_{10} from new development in the SJVAPCD including construction and operational emissions. This rule requires specific percentage reductions in estimated on-site construction and operation emissions, and/or payment of off-site mitigation fees for required reductions that cannot be met on the project site. Construction emissions of NO_x and PM_{10} exhaust must be reduced by 20% and 45%, respectively. Operational emissions of NO_x and PM_{10} must be reduced by 33.3% and 50%, respectively. Rule 9510 applies to commercial development projects of 2,000 square feet or more; therefore, the project would be subject to Rule 9510.

In addition, the SJVAPCD has established rules specifically applicable to emissions from fueling stations:

Rule 2201 (New and Modified Stationary Source Review Rule)

New stationary sources and modifications of existing stationary sources that may emit criteria pollutants must obtain an Authority to Construct and Permit to Operate the proposed facility. Emissions that exceed impact thresholds must include emission controls and may require additional mitigation. To protect local and regional public health and safety, fueling station applications are reviewed under Rule 2201 for compliance with SJVAPCD rules. SJVAPCD review of these applications includes consideration of proposed vapor recovery equipment and whether the controlled volatile organic compound emissions require offsets or trigger public notice requirements.

Rule 4621 (Gasoline Transfer into Stationary Storage Containers, Delivery Vessels and Bulk Plants)

Rule 4621 prohibits the transfer of gasoline from a delivery vessel into a stationary storage container unless the container is equipped with an ARB-certified permanent submerged fill pipe and ARB certified pressure-vacuum relief valve and utilizes an ARB-certified Phase I vapor recovery system.

Rule 4622 (Transfer of Gasoline into Vehicle Fuel Tanks)

Rule 4622 prohibits the transfer of gasoline from a stationary storage container into a motor vehicle fuel tank with a capacity greater than five gallons, unless the gasoline dispensing unit used to transfer the gasoline is equipped with and has in operation an ARB-certified Phase II vapor recovery system.

Environmental Impacts and Mitigation Measures

In 2015, the SJVAPCD adopted a revised Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD Guide). The SJVAPCD Guide defines an analysis methodology, thresholds of significance, and mitigation measures for the assessment of air quality impacts for projects within SJVAPCD's jurisdiction. Table 3-2 shows the CEQA thresholds for significance for pollutant emissions within the SJVAPCD. The significance thresholds apply to emissions from both project construction and project operations.

The California Emissions Estimator Model (CalEEMod) was used to estimate both construction and operational emissions from the proposed project. The CalEEMod results are shown in Appendix A of this document. Table 3-2 shows the maximum project construction emissions in a calendar year and the annual operational emissions. The construction period is assumed to be part of two calendar years.

TABLE 3-2
SJVAPCD SIGNIFICANCE THRESHOLDS AND PROJECT EMISSIONS

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
SJVAPCD Significance Thresholds[1]	**10**	**10**	**100**	**27**	**15**	**15**
Construction Emissions[2]	0.12	0.47	0.65	<0.01	0.05	0.03
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Operational Emissions[3]	4.46	3.48	26.3	0.06	5.81	1.52
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

[1] Applicable to both construction and operational emissions.
[2] Maximum emissions in a calendar year.
[3] Tons per year under mitigated conditions (see Chapter 9.0, Greenhouse Gas Emissions).
Notes: ROG – reactive organic gases; NO_x – nitrogen oxide; CO – carbon monoxide; SO_x – sulfur oxide; PM_{10} – particulate matter 10 microns in diameter; $PM_{2.5}$ – particulate matter 2.5 microns in diameter.
Sources: CalEEMod Version 2022.1.1.22, SJVAPCD 2015.

a) Air Quality Plan Consistency.

SJVAPCD has attainment plans for ozone and particulate matter, while the State has a CO attainment plan. As indicated in Table 3-2, project construction and operational emissions would not exceed the applicable SJVAPCD significance thresholds. Since all project emissions are estimated to be below their respective SJVAPCD significance thresholds, the project would be consistent with adopted reduction plans for ozone, particulate matter, and CO.

While project emissions would not be significant, the project would still be required to comply with applicable SJVAPCD rules and regulations, which would further reduce potential air quality impacts. As noted, SJVAPCD Regulation VIII contains measures to reduce fugitive dust emissions during construction. Dust control provisions are also routinely included in site improvement plans and specifications, along with construction contracts. In addition, the project would be subject to SJVAPCD Rule 9510, which requires specific NO_x and PM_{10} reductions from construction exhaust and operational emissions. Compliance with Rule 9510 and dust control requirements would further reduce project impacts related to air quality plans that are already less than significant.

b) Cumulative Emissions.

As noted in a) above, project operational emissions would not exceed SJVAPCD significance thresholds. Future attainment of federal and State ambient air quality standards is a function of successful implementation of the SJVAPCD's attainment plans. Consequently, the application of significance thresholds for criteria pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. Pursuant to the SJVAPCD's guidance, if project-specific emissions would be less than the thresholds of significance for criteria pollutants, the project would not be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the SJVAPCD is in nonattainment under applicable federal or State ambient air quality standards. As noted, project emissions would not exceed

SJVAPCD significance thresholds. Therefore, the cumulative impacts of these emissions are considered less than significant.

c) Exposure of Sensitive Receptors to Pollutants.

As defined in the Guide for Assessing and Mitigating Air Quality Impacts, “sensitive receptors” include residences, schools, parks and playgrounds, day care centers, nursing homes, and hospitals (SJVAPCD 2015). As noted in Section 3.1, Aesthetics, two residences are located approximately 200 feet from the southeast corner of the project site, and the Kaiser Permanente Medical Center is approximately one-quarter mile to the east. These land uses meet the definition of sensitive receptors.

Exposure of sensitive receptors to project construction emissions would be short-term and therefore would not have a lasting impact on health or well-being. As indicated in Table 3-2 above, project operational emissions would not exceed SJVAPCD significance thresholds. As discussed in a) above, the significance thresholds were established in part to ensure consistency with the objectives of air quality attainment plans adopted by the SJVAPCD. These plans are intended to have the Air Basin attain both federal and State ambient air quality standards, including federal primary standards designed to protect human health. Sensitive receptors in the vicinity of the project site would not be exposed to any substantial air pollutant emissions from project construction or operations. The project would have no impact on sensitive receptors.

CO hotspots have the potential to expose receptors to emissions that violate state and/or federal CO standards, even if the broader air basin is in attainment of these standards. The SJVAPCD guide indicates that a project would create no violations of the CO standards if neither of the following criteria are met (SJVAPCD 2015):

- A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or

- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity (See Section 3.17, Transportation, for an explanation of LOS).

A traffic study conducted for the project indicates that intersections potentially affected by project traffic would operate at a LOS above E except for the South Main Street/Woodward Avenue intersection (see Section 3.17, Transportation). This intersection already operates at LOS E, and the project would worsen LOS conditions. However, proposed traffic signal improvements at this intersection, presented as a mitigation measure below, would improve LOS B level, which would remove the potential CO standard violation. Implementation of this mitigation measure would reduce project impacts on CO to a level that would be less than significant.

<u>Mitigation Measures</u>:

AQ-1: To avoid potential violation of CO standards, the project shall contribute fair share costs, as estimated in the *Pillsbury Site Plan Traffic Impact Analysis* prepared by TJW Engineering on August 30, 2024, to the installation of traffic signal improvements at the intersection of South Main Street and East Woodward Avenue. The improvements shall be installed prior to full buildout of the project site.

d) Odors and Other Emissions.

The project proposes the development of a commercial center, with no development of significant sources of odors such as industrial plants and wastewater treatment plants. Fueling station and convenience store operations may include the emissions of odors associated with the dispensing of fuel and the food preparation. Fuel odors would be localized and are not expected to spread beyond the fuel dispensing area, particularly since the project would be required to comply with SJVAPCD Rules 4621 and 4622 as discussed above. Food preparation odors are not typically considered adverse. As noted in d) above, land uses potentially sensitive to odors are at a substantial distance from the project site which would in any event result in substantial dispersal of any odors that may be generated from the project site.

Fueling station operations would involve the dispensing of gasoline, which can emit vapors that are considered TACs, such as benzene, ethyl benzene, toluene, and xylene. Also, truck traffic to and from the project site, along with onsite truck movement and idling, could generate emissions of diesel particulate matter, which is also considered a TAC.

The ARB and the California Air Pollution Control Officers Association have developed a Gasoline Service Station Industrywide Risk Assessment Look-up Tool to screen service stations for their cancer and other risks. The tool takes the estimated fuel throughput (i.e., amount of fuel dispensed at a given time) of the proposed service station and estimates the potential increase in risk from emissions associated with fuel dispensing based on distances to the nearest sensitive receptors. For this project, the estimated fuel throughput is 2,400,000 gallons of gasoline per year. As noted, the nearest sensitive receptor is a residence approximately 200 feet away, or approximately 61 meters. To provide conservative results, risk is also calculated for exposure of the nearest worker off the project site, considered to be 20 meters away.

The results of the Look-up Tool, available in Appendix A, indicate that the cancer risk at the residence would increase by 1.73 cancers per million, and at the nearest worker by 2.74 cancers per million. Both results are below the SJVAPCD significance threshold of 10 per million. The maximum chronic and acute non-cancer hazard indices are both 0.13, which are below the SJVAPCD significance threshold of 1 for each index. These results indicate that public health risks associated with the construction or operation of the proposed fueling station would not lead to significant public health risks.

SJVAPCD Rules 4621 and 4622 would require the installation of vapor recovery systems, which would reduce the potential exposure of people using fuel pumps to potentially toxic emissions. The SJVAPCD may impose other conditions as warranted as part of its review conducted under SJVAPCD Rule 2201 as needed to prevent adverse air toxics effects on sensitive receptors in the project vicinity. Overall, project impacts related to odors and other emissions, such as TACs, would be less than significant.

3.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			✓	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				✓
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				✓
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		✓		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				✓
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?				✓

Environmental Setting

Existing Vegetation and Wildlife

Manteca is in the southern portion of San Joaquin County. Most of the Manteca area is relatively flat, with elevations ranging from approximately 31 to 36 feet above mean sea level. The area outside Manteca's urbanized center and surrounding residential areas is predominantly farmland, including alfalfa, orchards, row crops, and pasture. No major watercourse lies within Manteca. The San Joaquin River is the closest stream to Manteca, approximately 3.25 miles west of the project site.

Vegetation on the project site is primarily characterized as mostly disturbed ground with some grasses and weeds. Ornamental trees are located around the onsite single-family residence. Ruderal vegetation found on the project site typically provides habitat for both common and a few special-status wildlife populations. Some commonly observed wildlife species in the region include California ground squirrel, California vole, coyote, raccoon, opossum, striped skunk, red-tailed hawk, northern harrier, American kestrel, white-tailed kite, American killdeer, gopher snake, garter snake, and western fence lizard, as well as many native insect species and several bat species (City of Manteca 2022). Due to the limited cover, few of these species are expected to occur on the project site on more than a transitory basis.

Special-Status Species

Special-status species are plant or wildlife species that are in one or more of the following categories:

- Legally protected under the federal Endangered Species Act, the California Endangered Species Act, or other regulations.
- Designated rare, threatened, or endangered and candidate species for listing by the U.S. Fish and Wildlife Service (USFWS).
- Considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat.
- Considered rare or endangered under the conditions of CEQA Guidelines Section 15380, such as species identified on Lists 1A, 1B and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the California Native Plant Society, and species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on List 3 in the California Native Plant Society Inventory.

A search of the California Natural Diversity Database (CNDDB), maintained by the California Department of Fish and Wildlife (CDFW), and of the IPaC database, maintained by the U.S. Fish and Wildlife Service. was conducted within the U.S. Geological Survey quadrangle within which the project site is located. The results of the search found 14 special-status wildlife species. These species and their likelihood of their occurrence on the project site are discussed below.

Waters of the U.S. and Wetlands

Waters of the U.S., including wetlands, are broadly defined under 33 Code of Federal Regulations 328 to include navigable waterways, their tributaries, and adjacent wetlands. Jurisdictional wetlands and Waters of the U.S. include, but are not limited to, perennial and intermittent creeks and drainages, lakes, seeps, and springs; emergent marshes; riparian wetlands; and seasonal wetlands. Federal and state agencies regulate these waters. In April 2019, the State Water Resources Control Board (SWRCB) adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Materials to Waters of the State*, which covers wetlands not regulated by federal agencies.

Habitat Conservation Plans

The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) is a comprehensive program for assessing and mitigating the biological impacts of converting open space or biologically sensitive lands to urban development in San Joaquin County, including the City of Manteca. For the conversion of open space to non-open space uses that affect covered plant, fish, and wildlife species, the SJMSCP provides three compensation methods: preservation of existing sensitive lands, creation of new comparable habitat on the project site, or payment of fees that would be used to secure preserve lands outside the project site. In addition to fee payments, the SJMSCP identifies and requires the applicants to abide by Incidental Take Minimization Measures, which are protection measures that avoid direct impacts of development on special-status species (SJCOG 2000).

The City of Manteca is a participant in the SJMSCP. The San Joaquin Council of Governments (SJCOG) implements the SJMSCP on a project-by-project basis. The project site is in the Category A - No Pay Zone, within which projects are exempt from SJMSCP fees. As a part of SJMSCP procedures, however, a SJMSCP biologist would perform a pre-construction survey of the project site prior to any ground disturbance, and Incidental Take Minimization Measures would be issued to the project based on the findings by the biologist.

Environmental Impacts and Mitigation Measures

a) Special-Status Species.

As noted, CNDDB and IPaC searches indicated the presence of 14 special-status wildlife species recorded in the quadrangle within which the project site is located. Table 3-3 lists these species, along with their status, habitats, and likelihood of occurrence. As indicated by Table 3-3, none of the special-status species potentially occurring in the vicinity are likely to occur on the project site, mainly due to lack of suitable habitat. Only Swainson’s hawk and the two bumblebee species have any likelihood of occurrence on the site. However, the potential foraging habitat for Swainson’s hawk is of poor quality, and there are few tall trees in the area suitable for nesting sites. Given the lack of flowering vegetation, bumblebees would not be attracted to the project site.

As noted, the City is a participant in the SJMSCP, so the City would require the project to follow SJMSCP procedures, including the onsite survey and implementation of Incidental Take Minimization Measures if required, including for Swainson's hawk. With participation in the SJMSCP, project impacts on special-status species would be less than significant.

TABLE 3-3
SPECIAL-STATUS SPECIES AND POTENTIAL FOR OCCURRENCE

Common Name	Scientific Name	Federal Status[1]	State Status[2]	Habitat	Potential for Occurrence
Birds					
Swainson's hawk	*Buteo swainsoni*	None	T	Breeds in stands of tall trees in open areas. Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	<u>Low</u>: there is little vegetation on the site to provide foraging habitat, and few relatively large trees in and near the site are available for nesting. Project site is adjacent to development.
Tricolored blackbird	*Agelaius tricolor*	None	T	Requires open water and protected nesting substrate, usually cattails and riparian scrub with surrounding foraging habitat.	<u>Unlikely</u>: There is no suitable nesting habitat for this species on or near the site.
Great egret	*Ardea alba*	None	CDF-S	Marshes, ponds, shores, mud flats.	<u>Unlikely</u>: There is no suitable habitat for this species on or near the site.
Mammals					
Riparian brush rabbit	*Sylvilagus bachmani riparius*	E	E	Riparian thickets in Stanislaus and southern San Joaquin Counties.	<u>Unlikely</u>: The project site and adjacent areas do not provide suitable habitat; there is no scrub-shrub vegetation to support this species.
American badger	*Taxidea taxus*	None	SC	Prefer to live in dry, open grasslands, but have been found in semi-deserts, meadows, and open forests.	<u>Unlikely</u>: The project site and adjacent areas do not provide suitable habitat.

Common Name	Scientific Name	Federal Status[1]	State Status[2]	Habitat	Potential for Occurrence
Reptiles and Amphibians					
California tiger salamander	*Ambystoma californiense*	T	T	Seasonal water bodies without fish (i.e., vernal pools and stock ponds) and grassland/ woodland habitats with summer refugia (i.e., burrows).	Unlikely: There is no suitable habitat on or near the project site. This species occurs in the transitional bands between the valley floor and foothills.
Northwestern pond turtle	*Actinemys marmorata*	PT	SC	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas.	Unlikely: There is no suitable aquatic habitat on or near the project site.
Invertebrates					
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	Elderberry shrubs, usually in Central Valley riparian habitats.	Unlikely: There are no blue elderberry shrubs on or near the project site.
Moestan blister beetle	*Lytta moesta*	None	SA	Annual grasslands, foothill woodlands, or saltbush scrub.	Unlikely: The project site is outside the known range of this species, from Kern County to Stanislaus County.
American bumblebee	*Bombus pennsylvanicus*	None	SA	Grassland, farmland, and other open areas. Needs diverse and abundant flowers from spring through autumn for nectar and pollen, undisturbed nesting sites in clumps of grass in proximity to floral resources, and overwintering sites in decaying wood for hibernating queens in proximity to spring floral resources.	Low: Habitat on the project site is considered marginal. Species requires floral resources, which are marginal on the project site.
Western bumblebee	*Bombus occidentalis*	None	CE	Open coniferous, deciduous, and mixed-wood forests; wet and dry meadows; montane meadows and prairie grasslands; meadows bordering riparian zones, and along roadsides in taiga adjacent to wooded areas, urban	Low: Habitat on the project site is considered marginal. Species requires floral resources, which are marginal on the project site.

Common Name	Scientific Name	Federal Status[1]	State Status[2]	Habitat	Potential for Occurrence
				parks, gardens and agricultural areas, subalpine habitats and more isolated natural areas.	
Monarch butterfly	*Danaus plexippus*	C	None	Migratory species that prefers pine, fir, and cedar trees for roosting.	Unlikely: There are no trees preferable for roosting on the project site.
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	Vernal pools	Unlikely: There are no vernal pools on the project site.
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	Vernal pools	Unlikely: There are no vernal pools on the project site.

[1] E = Endangered; T = Threatened; C = Candidate; PT = Proposed Threatened; USFS-S = U.S. Forest Service Sensitive Species.

[2] E = Endangered; T = Threatened; R = Rare; CE – Candidate Endangered; SC=State of California Species of Special Concern; FP = Fully Protected Species; CDF-S = California Department of Forestry Sensitive Species; SA = on State list of Special Animals.

b) Riparian and Other Sensitive Habitats.

The project site does not have any riparian vegetation, as there are no streams in Manteca. Four sensitive natural communities have been identified within 15 miles of the Manteca area: Elderberry Savanna, Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, Great Valley Valley Oak Riparian Forest, and Coastal and Valley Freshwater Marsh. None of these are located within one mile of the Manteca area (City of Manteca 2022). The project would have no impact on riparian or other sensitive habitats.

c) State and Federal Jurisdictional Wetlands.

There are no streams on or adjacent to the project site. As noted, the nearest water to the project site is the San Joaquin River, approximately 3.25 miles to the west. A review of the National Wetlands Inventory indicated no presence of any water or wetland features on or near the project site. The project would have no impact on State or federal jurisdictional wetlands.

d) Fish and Wildlife Movement.

There are no streams either on or adjacent to the project site, so no fish movements would be affected by the project. There are a few trees on the project site that protected migratory birds could use for nesting; these are around the existing single-family residence. Project construction activities could potentially disrupt nesting activities, which would be a potentially significant impact.

While some of the migratory birds potentially affected by the project would be covered by the SJMSCP others may not be explicitly covered. In any case, the SJCOG biologist would conduct a pre-construction survey, which would reveal the presence of nesting migratory birds and result in ITMMs that would provide adequate protection for these species. This measure would reduce project impacts on nesting birds to a level that would be less than significant. No other mitigation would be required.

e) Local Biological Requirements.

The City of Manteca has few local biological requirements. Manteca Municipal Code Section 17.48.060 addresses the maintenance and removal of existing trees over six inches in trunk diameter, as measured 4.5 feet above ground level. Such trees must be protected from construction equipment, grade changes, excavation for utilities, paving, and footers for proposed structures. Section 17.48.060 also indicates that the removal of a tree shall be the final recourse in Manteca upon determining that it is infeasible to save the tree by any other method (e.g., pruning, treatment of diseases, fertilizing) and, prior to the removal of any tree, Community Development Director approval is required. However, this provision applies to trees that are part of project landscaping. This provision of the Municipal Code would not be applicable to the removal of trees surrounding the existing single-family residence.

Manteca Municipal Code Section 12.08.070 prohibits the cutting, pruning, or removal of any street trees or other vegetation in the street tree area without permission from the Community Development Director. As there are no street trees currently along the two streets bordering the project site, this provision would not apply to project construction activities. No other local biological requirements have been enacted by the City. The project would have no impact related to local biological requirements.

f) Conflict with Habitat Conservation Plans.

The City participates in the SJMSCP; as such, the project would comply with applicable provisions and measures of the SJMSCP as determined by SJCOG. As noted, the project site is in an area exempted from SJMSCP fees. No other habitat conservation plans apply to the project site. The project would have no impact related to conflict with habitat conservation plans.

3.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?			✓	
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?		✓		

c) Disturb any human remains, including those interred outside of formal cemeteries?			✓	

Environmental Setting

The project site is in Northern Valley Yokuts ethnographic territory. Section 3.18, Tribal Cultural Resources, discusses the Yokuts in more detail.

The first Europeans arrived in the area in 1769. Euro-American settlements in California increased sharply with the Gold Rush of 1848. Joshua Cowell, known as the "Father of Manteca," was one of the early settlers in the area, arriving in 1862. He acquired 1,000 acres of land in what is now the center of Manteca. Cowell is credited with having established dairy farming in the region, as well as constructing several of the area's earliest buildings. Once the Central Pacific Railroad built a line through the region, the area was named Cowell Station in honor of Cowell's significant contribution to the development of the region. In 1904 or 1905, Cowell Station was renamed Manteca. The origin of the name Manteca is a subject of debate.

The City of Manteca was incorporated in 1918. Residential neighborhoods, laid out on an irregular north-south grid, were beginning to fill in by that time. In just ten years, Manteca grew from a few buildings around a railroad stop to a full-fledged city with public services, manufacturing facilities, and more than 60 businesses. During the 1950s, the City grew even faster, as its inexpensive housing and small-town atmosphere drew workers from the Sharpe Army Depot in Lathrop and from industrial plants in outlying areas (City of Manteca 2011).

Environmental Impacts and Mitigation Measures

a) Historical Resources.

A records search of the California Historical Resources Information System was conducted by the Central California Information Center. The search, the results of which are available in Appendix C of this document, did not find any recorded historical resources on the project site. The project site contains a single-family residence with an address of 1840 Pillsbury Road. According to records of the San Joaquin County Assessor, the residence was built in 1974. A residential property may be considered a historical resource if it meets the eligibility criteria of the National Register of Historic Places, one of which is that the property has achieved significance within the past 50 years.

The National Register of Historic Places has established criteria for evaluation of potential historical resources (National Park Service 1997). They are that the quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- That are associated with events that have made a significant contribution to the broad patterns of U.S. history; or

- That are associated with the lives of persons significant in the past; or

- That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- That have yielded, or may be likely to yield, information important in prehistory or history.

This residence does not likely meet the criteria for inclusion in the National Register of Historic Places. It is not associated with a historic event or a significant person in history, and it does not have distinctive design or construction characteristics. Given its relatively recent construction, it is unlikely to yield information important in prehistory or history. Moreover, this residence was not recorded as a historical resource in the California Historical Resources Information System among the historical resources recorded in the City of Manteca (City of Manteca 2022). Given this, project impacts on historical resources would be less than significant.

b) Archaeological Resources.

A records search of the California Historical Resources Information System did not find any recorded archaeological resources on the project site (CCIC 2023). Given past agricultural activities and residential construction, it is unlikely that any intact archaeological resources are on the project site. However, it is conceivable that project construction activities could unearth archaeological materials of significance that are currently unknown. Procedures to address archaeological discoveries if they should occur are set forth in the mitigation measure below. Implementation of this mitigation would reduce potential impacts to a level that would be less than significant.

<u>Mitigation Measures</u>:

CULT-1: If any subsurface cultural resources are encountered during construction of the project, the City of Manteca Development Services Department shall be notified and all construction activities within 50 feet of the encounter shall be halted until a qualified archaeologist can examine these materials and determine their significance. If the find is determined to be significant, then the archaeologist shall recommend further mitigation measures that would reduce potential effects on the find to a level that is less than significant. Recommended measures may include, but are not limited to, 1) preservation in place, or 2) excavation, recovery, and curation by qualified professionals. The project developer shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in a written report to the City's Development Services Department, consistent with the requirements of the CEQA Guidelines.

c) Human Burials.

There are no records of any human burials having taken place on the project site (see Section 3.18, Tribal Cultural Resources for a discussion of Native American burials). Given past agricultural activities and residential construction, it is unlikely that any intact human burials are on the project site. However, it is conceivable that project construction activities could uncover a previously unknown burial.

CEQA Guidelines Section 15064.5(e) describes the procedure to be followed when human remains are uncovered in a location outside a dedicated cemetery, in accordance with California Health and Safety Code Section 7050.5 and Public Resource Code Section 5097.98. All work in the vicinity of the find shall be halted, and the County Coroner shall be notified to determine if an investigation of the death is required. If the remains are determined to be Native American in origin, more procedures shall be followed. Section 3.18, Tribal Cultural Resources, discusses the treatment of Native American burials.

Compliance with the applicable State codes, as outlined in CEQA Guidelines Section 15064.5(e), would ensure that any human remains encountered during project construction would be treated with appropriate dignity. Project impacts on human remains would be less than significant.

3.6 ENERGY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	☐	☐	✓	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	✓	☐

Environmental Setting

Electricity and natural gas are major energy sources for residences and businesses in California. In San Joaquin County, electricity consumption in 2022 totaled approximately 5,608 million kilowatt-hours, of which approximately 3,483 million kilowatt-hours were consumed by non-residential uses and the remainder by residential uses (CEC 2023a). In San Joaquin County, natural gas consumption in 2022 totaled approximately 186 million therms, of which approximately 96 million therms were consumed by non-residential uses and the remainder by residential uses (CEC 2023b).

Motor vehicle trips also account for substantial energy usage. The SJCOG estimated countywide daily vehicle miles traveled (VMT) was 17,015,116 miles in 2016, which led to the consumption of approximately 471 million gallons of gasoline and diesel fuel (SJCOG 2022a).

California has implemented numerous energy efficiency and conservation programs that have resulted in substantial energy savings. The State has adopted comprehensive energy efficiency standards as part of its Building Standards Code, California Code of Regulations, Title 24. Part 6 of Title 24, known as the California Energy Code, contains energy conservation standards applicable to all residential and non-residential buildings throughout California, including schools and community colleges. These standards are occasionally updated. Also, the California Building Standards Commission adopted a voluntary Green Building Standards Code (CALGreen), which became mandatory effective January 1, 2011. CALGreen sets forth mandatory energy efficiency measures for residential structures, which essentially require compliance with the latest building energy efficiency measures adopted by the State. The City has adopted the 2022 version of both the California Energy Code and CALGreen.

California has adopted a Renewables Portfolio Standard, which requires all electricity retailers in the state to generate 33% of electricity they sell from renewable energy sources (solar, wind, geothermal, etc.) by the end of 2020. Almost of the electricity retail sellers reported meeting the 2020 compliance target (CPUC 2022). In 2015, SB 350 was signed into law, which increased the electricity generation requirement from renewable sources to 50% by 2030. In 2018, SB 100 was enacted, which accelerated the schedule for 50% electricity generation from renewable sources to 2026 and set a goal of 60% electrical generation from renewable sources by 2030. It also set the goal that zero-carbon resources will supply 100% of electricity to California by 2045.

Environmental Impacts and Mitigation Measures

a) Project Energy Consumption.

Project construction would involve fuel consumption and use of other non-renewable resources. Construction equipment used for such improvements typically runs on diesel fuel or gasoline. The same fuels typically are used for vehicles that transport equipment and workers to and from a construction site. However, construction-related fuel consumption would be finite, short-term, and consistent with construction activities of a similar character. This energy use would not be considered wasteful, inefficient, or unnecessary.

Electricity may be used for equipment operation during construction activities. It is expected that more electrical construction equipment would be used in the future, as it would generate fewer air pollutant emissions. This electrical consumption would be consistent with construction activities of a similar character; therefore, the use of electricity in construction activities would not be considered wasteful, inefficient, or unnecessary, especially since fossil fuel consumption would be reduced. Moreover, under California's Renewables Portfolio Standard, a greater share of electricity would be provided from renewable energy sources over time, so less fossil fuel consumption to generate electricity would occur.

The 2018 Commercial Buildings Energy Consumption Survey by the U.S. Energy Information Administration, the most recent such survey conducted, provides estimates for the amount of electricity and natural gas consumed by commercial activities based on type. Table 3-4 below shows the energy consumption factors pertinent to the project.

TABLE 3-4
ENERGY CONSUMPTION FACTORS

Commercial Type	Electricity per square foot (kWh)	Natural gas per square foot (cubic feet)
Convenience store	50.7	72.6
Fast-food restaurant	62.8	183.3
Retail store	13.5	23.6

Note: kWh – kilowatt-hour
Source: EIA 2022a, 2022b.

Based on these factors, proposed development on the project site, both proposed and anticipated future, would consume annually approximately 996,688 kilowatt-hours of electricity and 2,294,442 cubic feet of natural gas (approximately 23,816 therms).

The project would be required to comply with applicable provisions of the adopted California Energy Code and CALGreen in effect at the time of project approval. The provisions of these codes are intended to increase energy efficiency of buildings, thereby reducing energy consumption. Compliance with these standards would reduce energy consumption associated with project operations. Overall, project construction and operations would not consume energy resources in a manner considered wasteful, inefficient, or unnecessary. Project impacts related to energy consumption would be less than significant.

b) Consistency with Energy Plans.

The City does not have adopted plans for renewable energy or energy efficiency. However, the City has adopted the California Energy Code and CALGreen, both of which contain provisions that promote energy efficiency. The project would be required to comply with the applicable requirements of these two codes, which are designed to improve energy efficiency of structure, thereby forwarding State energy conservation goals. Project impacts related to energy plans would be less than significant.

3.7 GEOLOGY AND SOILS

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	✓
ii) Strong seismic ground shaking?	☐	☐	✓	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	✓	☐
iv) Landslides?	☐	☐	☐	✓
b) Result in substantial soil erosion or the loss of topsoil?	☐	✓	☐	☐
c) Be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	✓	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	✓	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	✓
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	✓	☐

Environmental Setting

Existing Conditions

The project site is in the Central Valley, which is a topographically flat, northwest-trending trough about 50 miles wide and 450 miles long. The Geologic Map of the San Francisco-San Jose Quadrangle designates the underlying geology of the project site as the Dos Palos Alluvium (Wagner et al. 1991). The Dos Palos Alluvium, a geologically recent feature, is an informal name given to unconsolidated deposits of arkosic gravel, sand, silt, and clay covering the floodbasin of the lower San Joaquin River (Lettis 1982).

The project site is relatively flat with minimal slope. The soil on the project site consists of two types (SCS 1992, NRCS 2023):

- Tinnin loamy coarse sand, 0-2 percent slopes. This is a very deep, well-drained, nearly level soil. It was formed in alluvium derived from granitic rock sources. Permeability of the soil is rapid, and runoff is slow. The water erosion hazard is slight, but the hazard of soil blowing is severe. The shrink-swell (expansive) potential of this soil is low. This soil is found on approximately two-thirds of the project site.

- Delhi fine sand, 0 to 5 percent slopes. This is a very deep, somewhat excessively drained soil, nearly level soil. It formed in wind-modified alluvium derived from granitic rock sources. Permeability of the soil is rapid, and runoff is slow. The water erosion hazard is slight, but the hazard of soil blowing is very severe. The expansive potential of this soil is low. This soil is found in the remaining one-third of the project site, in the southwestern portion.

The U.S. Geological Survey identifies potential seismic sources within five miles of Manteca. The closest known faults classified as active include an unnamed fault east of the City of Tracy, located approximately five miles to the west of Manteca, and the San Joaquin fault, located approximately 15 miles to the southwest of the city. The Midway fault is located approximately 20 miles to the west. Other faults that could potentially affect the Manteca area include the Corral Hollow-Carnegie fault, the Greenville fault, the Antioch fault, and the Los Positas fault (City of Manteca 2017). There are no known faults on or in the immediate vicinity of the project site.

Earthquakes are generally expressed in terms of intensity and magnitude. Intensity is based on the observed effects of ground shaking on people, buildings, and natural features. By comparison, magnitude is based on the amplitude of the earthquake waves recorded on instruments, which have a common calibration. According to the California Geological Survey's Probabilistic Seismic Hazard Assessment Program, San Joaquin County is within an area that could experience a level of ground shaking correlating to a Modified Mercalli intensity of V to VII, ranging from light shaking to shaking that causes minor damage (City of Manteca 2017).

Paleontological Resources

Paleontological resources, also known as fossils, are the remains or traces of prehistoric plants and animals. Fossils are important scientific and educational resources. Paleontologists consider all vertebrate fossils to be of significance. Fossils of other types are considered significant if they represent a new record, new species, an oldest occurring species, the most complete specimen of its kind, a rare species worldwide, or a species helpful in the dating of formations (City of Manteca 2017).

The database of the Museum of Paleontology at UC Berkeley shows that San Joaquin County has more than 800 documented fossil localities. Most paleontological specimens have been found in rock formations in the foothills of the Diablo Mountain Range, but remains of extinct animals could be found virtually anywhere in the County, especially along watercourses such as the San Joaquin River and its tributaries (San Joaquin County 2016b). There are no known paleontological resources that have been recorded in Manteca.

Environmental Impacts and Mitigation Measures

a-i) Fault Rupture Hazards.

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 sets forth the policies and criteria of the State Mining and Geology Board, which governs the exercise of governments' responsibilities to prohibit the location of developments and structures for human occupancy across the trace of active faults. The California Geological Survey evaluates faults with available geologic and seismologic data and determines if a fault should be zoned as active, potentially active, or inactive. If a fault is determined to be active, then it is typically incorporated into a Special Studies Zone. There are no designated Special Study Zones in Manteca, including on the project site (California Geological Survey 2024). As noted, the nearest potentially active fault is five miles from Manteca. The project would have no impact related to fault rupture hazards.

a-ii, iii) Seismic Hazards.

As noted, San Joaquin County, including Manteca, is within an area that could experience a level of ground shaking such that minor damage could occur. All structures built within the City are subject to the requirements of the California Building Code, the 2022 version of which has been adopted by the City. The California Building Code includes seismic safety provisions that require buildings to be constructed to withstand anticipated ground shaking, based on occupancy type.

When coarse sediments are saturated and compact during an earthquake, soils may lose strength and become fluid, a process called liquefaction. Water from voids may be forced to the ground surface, where it emerges in the form of mud spouts or sand boils. The potential for liquefaction is highest when groundwater levels are high and loose, fine, sandy soils occur at depths of less than 50 feet (City of Manteca 2017). As discussed in Section 3.10, Hydrology and Water Quality, groundwater levels in the Manteca area are in the range of approximately 20-30 feet below the ground surface, and liquefaction occurs in areas with relatively shallow depths to groundwater. Therefore, the liquefaction potential on the project site is considered low.

Lateral spreading typically results when ground shaking moves soil toward an area where the soil integrity is weak or unsupported, and it typically occurs on the surface of a slope, although it does not occur strictly on steep slopes. Because the Manteca area, including the project site, is essentially flat, lateral spreading of soils has not been observed (City of Manteca 2017). Project impacts related to seismic hazards are considered less than significant.

a-iv) Landslides.

The topography of the project site and surrounding area is flat; therefore, landslides would not occur. The project would have no impact related to landslides.

b) Soil Erosion.

As noted, the soils on the project site have a low water erosion hazard. However, project construction activities would likely loosen soils, making them more susceptible to water erosion.

For all projects that disturb one acre of land or more, a Construction General Permit is required from the SWRCB. The permit requirements include preparation of a Storm Water Pollution Prevention Plan (SWPPP) by a Qualified SWPPP Developer to address potential water quality issues. A SWPPP specifies the Best Management Practices (BMPs) needed to avoid or minimize adverse water quality impacts. Construction BMPs fall within the general categories of Temporary Soil Stabilization, Temporary Sediment Control, Wind Erosion Control, Tracking Control, Non-Storm Water Management, and Waste Management and Materials Pollution Control. BMPs applicable to the project are incorporated in the SWPPP as required. BMPs are incorporated into project improvement plans and specifications, subject to the approval of the City Engineer. BMP function and effectiveness are monitored and reported, and remediation is required to address pollution occurrence.

As the project would disturb more than one acre, it would be required to comply with the provisions of the Construction General Permit from the SWRCB, including preparation of a SWPPP, which is required by the mitigation measure below. Compliance with the mitigation measure, along with other applicable regulations, would minimize the amount of sediment that leaves the construction site and potential construction water quality effects, thereby reducing soil erosion impacts to a level that would be less than significant.

Mitigation Measures:

GEO-1: Prior to commencement of construction activity, the developer shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project and file a Notice of Intent with the State Water Resources Control Board (SWRCB) in compliance with the Construction General Permit and City of Manteca storm water requirements. The SWPPP shall be available on the construction site at all times. The developer shall incorporate an Erosion Control Plan consistent with all applicable provisions of the SWPPP within the site improvement and building plans. The developer also shall submit the SWRCB Waste Discharger's Identification Number to the City prior to approval of development or grading plans.

c) Soil Instability.

Collapsible soils undergo a rearrangement of their grains and a loss of cementation, resulting in substantial and rapid settlement under relatively low loads. Soils prone to collapse are commonly associated with manmade fill, wind-laid sands and silts, and alluvial fan and mudflow sediments deposited during flash floods. Examples of common problems associated with collapsible soils include tilting floors, cracking or separation in structures, sagging floors, and nonfunctional windows and doors. Collapsible soils have not been identified in the Manteca area as an issue (City of Manteca 2017).

Subsidence is the gradual settling or sinking of an area with little or no horizontal motion due to changes taking place underground. It is a natural process, although it can also occur, and is greatly accelerated, by human activities. Common causes of land subsidence from human activity include pumping water, oil, and gas from underground reservoirs; dissolution of limestone aquifers (sinkholes); collapse of underground mines; drainage of organic soils; and initial wetting of dry soils. Subsidence has not been identified as an issue in the Manteca area (City of Manteca 2017).

It is possible that other types of soil instability may occur on the project site. Project design and construction of the project would be required to comply with the City's General Plan policies related to geologic and seismic hazards. Policy S-2.3 requires new development to mitigate the potential impacts of geologic and seismic hazards, including uncompacted fill, liquefaction, and subsidence, through the development review process. To implement this policy, General Plan Implementation Action S-2a continues the requirement that all proposed development projects prepare geotechnical reports, recommendations from which shall be incorporated into the development project. Moreover, mitigation presented below would ensure that the project applicant submits a design-level geotechnical study and buildings plans to the City of Manteca for review and approval. Implementation of this mitigation measure would ensure that project impacts related to soil instability would be less than significant.

Mitigation Measures:

GEO-2: Prior to issuance of building permits, the project applicant shall submit a design-level geotechnical study and building plans to the City of Manteca for review and approval. The building plans shall demonstrate that they incorporate all applicable recommendations of the design-level geotechnical study and comply with all applicable requirements of the most recent version of the California Building Standards Code. A licensed professional shall prepare the plans, including those that pertain to soil engineering, structural foundations, pipeline excavation, and installation. The approved plans shall be incorporated into the proposed project. All on-site soil engineering activities shall be conducted under the supervision of a licensed Geotechnical Engineer or Certified Engineering Geologist.

d) Expansive Soils.

Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried and expand and soften when wet. If structures are underlain by expansive soils, it is important that foundation systems be capable of tolerating or resisting any potentially damaging soil movements. In addition, it is important to limit moisture changes in the surficial soils by using positive drainage away from buildings as well as limiting landscaping watering (City of Manteca 2017). As noted, the expansive soil potential of the soils on the project site is low; therefore, the potential expansive soil hazard is likewise low. Project impacts related to expansive soils would be less than significant.

e) Adequacy of Soils for Sewage Disposal.

The project would be connected to the City's wastewater system. It does not propose to install any septic system or other on-site wastewater disposal system. Because of this, the project would have no impact related to soil adequacy for sewage disposal.

f) Paleontological Resources and Unique Geological Features.

The project site is flat and contains no geological features that may be considered unique. As noted, no fossils have been unearthed in Manteca. No fossils have been unearthed in Dos Palos Alluvium, and the paleontological sensitivity of the alluvium is rated "low." (CHSRA 2016). Given this, it is unlikely that any intact paleontological resources would be encountered. Project impacts on paleontological resources would be less than significant.

3.8 GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	✓	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	✓	☐

Environmental Setting

GHG Background

Greenhouse gases (GHGs) are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. GHGs are both naturally occurring and are emitted by human activity. GHGs include carbon dioxide, the most abundant GHG, as well as methane, nitrous oxide, and other gases. Potential climate change impacts occurring in the San Joaquin Valley include higher temperatures, longer and more severe droughts, more intense precipitation events, and more frequent and extensive wildfires (Fernandez-Bou et al. 2021).

Unlike the criteria air pollutants described in Section 3.3, Air Quality, GHGs have no "attainment" standards established by the federal or State government. In fact, GHGs are not generally thought of as traditional air pollutants because their impacts are global in nature, while air pollutants mainly affect the general region of their release to the atmosphere (SJVAPCD 2015). Nevertheless, the U.S. Environmental Protection Agency (EPA) has found that GHG emissions endanger both the public health and public welfare under Section 202(a) of the Clean Air Act due to their impacts associated with climate change (EPA 2009).

Measurements of GHG emissions are commonly expressed in carbon dioxide equivalent (CO_2e), in which emissions of all other GHGs are converted to equivalent carbon dioxide emissions. GHG emissions in California in 2021, the most recent year for which data are available, were estimated at approximately 381.3 million metric tons CO_2e – a decrease of approximately 21.5% from the peak level in 2004 but an increase of approximately 3 % from the 2020 emissions. Transportation was the largest contributor to GHG emissions in California, with 39% of total emissions. Other significant sources include industrial activities, with approximately 22% of total emissions, and electric power generation, both in-state and imported, with approximately 16% of total emissions (ARB 2023).

As part of the update of its Climate Action Plan (see below), the City conducted a preliminary inventory of community GHG emissions. The results indicated that the Manteca community generated 711,197 metric tons CO_2e of GHGs in 2020. The largest share came from transportation and motor vehicles, accounting for approximately 73.2% of total GHG emissions (City of Manteca 2023b).

GHG Emission Reduction Plans

The State of California has implemented GHG emission reduction strategies through AB 32, the Global Warming Solutions Act of 2006, which requires total statewide GHG emissions to reach 1990 levels by 2020, or an approximately 29% reduction from 2004 levels. For the target year of 2020, state GHG emissions were 369.2 million metric tons CO_2e, which was 61.8 million metric tons CO2e below the AB 52 target (ARB 2022a).

In 2016, Senate Bill (SB) 32 was enacted. SB 32 extends the GHG reduction objectives of AB 32 by mandating statewide reductions in GHG emissions to levels that are 40% below 1990 levels by the year 2030. The State has adopted an updated Scoping Plan that sets forth strategies for achieving the SB 32 target. The updated Scoping Plan continues many of the programs that were part of the previous Scoping Plans, including the cap-and-trade program, low-carbon fuel standards, renewable energy, and methane reduction strategies. It also addresses, for the first time, GHG emissions from the natural and working lands of California, including the agriculture and forestry sectors (ARB 2017).

In 2022, ARB adopted the 2022 Scoping Plan, which assesses progress towards achieving the SB 32 2030 reduction target and lays out a path to achieve carbon neutrality no later than 2045. Proposed strategies to achieve these reductions include rapid movement to zero-emission transportation, phasing out fossil fuel use for heating homes and buildings, restricting use of chemicals and refrigerants that are thousands of times more powerful at trapping heat than carbon dioxide, expanded development of renewable energy sources, increased use of natural and working lands for incorporating and storing carbon, and greater employment of carbon removal technology (ARB 2022b).

In 2013, the City of Manteca adopted a Climate Action Plan. The Climate Action Plan sets a citywide target of a per capita GHG emission reduction of 21.7% from 1990 levels by 2020. The City proposes to achieve this target by energy efficiency and other GHG reduction measures in City buildings and operations, and by requiring development projects constructed in the City of Manteca to reduce GHG emissions by measures such as designing energy-efficient structures, water conservation and waste reduction measures, and implementing transportation demand management programs in projects with large numbers of employees, among others (City of Manteca 2013). However, the Climate Action Plan applies only to achieving reduction targets to 2020. The City has begun a process to update its Climate Action Plan, but it is not known at this time when an updated plan will be adopted.

Environmental Impacts and Mitigation Measures

a, b) Project GHG Emissions and Consistency with GHG Reduction Plans.

The CalEEMod model estimated the total GHG construction and operational emissions associated with the project (see Appendix A). Table 3-4 presents the results of the CalEEMod run. “Mitigated emissions” are the result of project compliance with applicable laws, rules, and regulations, along with inclusion of project features that reduce GHG emissions. These include the following:

- Project buildings would consume less energy under the adopted 2022 Energy Code than under the 2019 Energy Code, which is the baseline used by CalEEMod.
- SB X7-7, enacted in 2009, sets an overall goal of reducing per capita urban water use by 20% by December 31, 2020. The California Green Building Code mandates a 20% reduction in indoor water use.
- AB 341 establishes the goal of diverting 75% of California’s waste stream from landfills by 2020.

TABLE 3-5
PROJECT GHG EMISSIONS

GHG Emission Type	Unmitigated Emissions	Mitigated Emissions
Construction[1]	119	119
Operational[2]	6,278	6,234

[1] Total GHG emissions for construction period in metric tons carbon dioxide equivalent (CO_2e).
[2] Annual emissions in metric tons CO2e.
Source: California Emissions Estimator Model Version 2022.1.1.22.

GHG construction emissions would be limited due to the length of time of construction activity; these emissions would cease once work is completed. Mitigated operational GHG emissions would be approximately 1% less than under business-as-usual (unmitigated) conditions.

As the City's Climate Action Plan addresses GHG emissions only to the year 2020, analysis of project impacts will be based on the 2017 California Scoping Plan. Approximately 83% of the GHG emission reduction programs in the Scoping Plan counted toward meeting the 29% objective for 2020 are State-level programs, with the remaining 17% to be achieved by programs at the local government level, including development review. Thus, the local action share of the 29% reduction would be 4.93%. Based on this, it can be assumed that a development project that achieves at least a 4.93% reduction in GHG emissions from business-as-usual levels would be consistent with the objectives of both State and SJVAPCD GHG reduction plans. The 1% reduction associated with the project would not exceed this local share. Therefore, further analysis is required.

The project would be in an area with limited retail land uses. As such, it would be expected to attract residents from the vicinity who would otherwise travel greater distances for retail services. The fueling station, in particular, would draw most of its customers from local residents. As such, the project is expected to reduce the VMT in the area, which in turn would reduce GHG emissions from vehicles. The amount of VMT reduction cannot be estimated. However, as mobile emissions are the primary source of GHG emissions associated with the project, the reduction is expected to be significant.

The State of California has comprehensive GHG laws and regulations requiring reductions that affect project emissions. The project is subject to several State regulations applicable to project design, construction, and operation that would reduce GHG emissions, increase energy efficiency, and ensure compliance with the Scoping Plan. Legal mandates to reduce GHG emissions from vehicles, for example, would reduce project-related vehicular emissions. Other mandates that would reduce GHG emissions include reducing per capita water consumption and imposing waste management standards to reduce methane and other GHGs from solid wastes.

As discussed in Section 3.6, Energy, the project would be subject to codes that require energy efficiency measures, which would reduce the demand for electricity produced by fossil fuels – a major source of GHG emissions. Also, attainment of the targets of the

Renewables Portfolio Standard would reduce the amount of electricity generated by fossil fuels, further reducing GHG emissions from energy sources.

Based on the information provided above, the project would be consistent with GHG reduction plans of the State. Project impacts related to GHG emissions and consistency with GHG emission reduction plans would be less than significant.

3.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			✓	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			✓	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				✓
d) Be located on a site 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?			✓	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				✓
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		✓		
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				✓

Environmental Setting

This section focuses on hazards associated with hazardous materials, proximity to airports, and wildfires. Geologic and soil hazards are addressed in Section 3.7, Geology and Soils, and potential flooding hazards are addressed in Section 3.10, Hydrology and Water Quality.

Data on recorded hazardous material sites are kept in the GeoTracker database, maintained by the SWRCB, and in the EnviroStor database, maintained by the California Department of Toxic Substances Control. Both GeoTracker and EnviroStor provide the names and addresses of documented hazardous material sites, along with their cleanup status. A search of both GeoTracker and EnviroStor databases indicated no record of any hazardous material sites on or within one-half mile of the project site (SWRCB 2023, DTSC 2023)

A list of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit did not show any locations in the Manteca area (CalEPA 2021a). Likewise, a list by SWRCB containing sites under Cease and Desist Orders and Cleanup and Abatement Orders showed no locations on or near the project site (CalEPA 2021b).

Facilities that store significant amounts of hazardous materials are required to prepare a Hazardous Material Business Plan that would be submitted to the San Joaquin County Environmental Health Department. The Hazardous Material Business Plan must be prepared by any facility that handles a hazardous material, or mixture containing a hazardous material, of a quantity at any one time during the reporting year equal to or greater than 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for a compressed gas.

Environmental Impacts and Mitigation Measures

a) Hazardous Material Transport, Use, and Storage.

The project would involve the transportation and storage of gasoline and diesel fuel to be sold on site. Gasoline is flammable and contains toxic substances such as benzene. Fuel transportation would be subject to federal tank, placard, and shipment documentation and reporting requirements. Fuel would be stored in two underground tanks, the installation and operation of which would follow State requirements implemented by the Underground Storage Tank Program of the local CUPA. The project also would be required to submit a Hazardous Material Business Plan that addresses the on-site use and storage of fuels. Fuel dispensing equipment would be subject to applicable vapor recovery and other requirements of the SJVAPCD, as described in Chapter 6.0, Air Quality.

Other hazardous materials that are likely to be used and stored on the project site would include cleaning products and landscaping chemicals such as pesticides, herbicides, and fertilizers. Facilities that store significant amounts of hazardous materials are required to prepare a Hazardous Material Business Plan that would be submitted to the County Environmental Health Department. However, none of these hazardous materials are likely to be stored in such quantities. Project impacts related to transport, use, or storage of hazardous materials would be less than significant.

b) Release of Hazardous Materials.

Construction activities on the project site may involve the use of hazardous materials such as fuels and solvents, and thus create a potential for hazardous material spills. Construction and maintenance vehicles would transport and use fuels in ordinary quantities. Fuel spills, if any occur, would be minimal and localized and would not typically have significant adverse effects. Potential hazardous materials spills during construction are addressed in the required SWPPP, described in Section 3.7, Geology and Soils. In accordance with SWPPP requirements, contractors have absorbent materials at construction sites to clean up minor spills. Other substances used in the construction process would be stored in approved containers and used in relatively small quantities, in accordance with the manufacturers' recommendations and/or applicable regulations.

As noted in a) above, the project would involve the transportation and storage of gasoline, and dispensing would involve potential for release of fuel vapors to the air. Fuel dispensing equipment would be subject to applicable vapor recovery and other related requirements of the SJVAPCD as needed to protect public health. Transportation of fuels to the project site by tanker trucks would involve potential for hazardous materials spills. As noted above, the transport of hazardous materials is subject to state and federal regulations designed to minimize the risk of release of hazardous materials into the environment. The City and County have emergency response teams that would handle any incident involving hazardous materials. The project would not result in a significant increase in hazards.

Hazardous materials transportation and storage on either of the development sites would be subject to federal, state, and local regulations that would prevent release of hazardous materials to the soil and/or groundwater and the creation of new hazardous material or waste sites. These requirements would include registration in the California Environmental Reporting System and preparation and implementation of a Hazardous Materials Business Plan. Overall, impacts related to releases of hazardous materials would be less than significant.

c) Hazardous Materials Releases near Schools.

There are no schools within one-quarter mile of the project site. The nearest school is Walter E. Woodward Elementary School, approximately 0.65 miles to the southwest. As noted in a) above, hazardous materials to be stored or used at the fueling station are subject to regulations on their transport and storage. The project would have no impact on schools within one-quarter mile of the project site.

d) Hazardous Materials Sites.

As previously noted, a search of the GeoTracker and EnviroStor databases did not identify any active hazardous material sites on or within one-half mile of the project site. As noted in Section 3.2, Agriculture and Forestry Resources, no agricultural activities have occurred on the project site for approximately 20 years, so contamination of the soil by residual agricultural chemicals would likely be minimal. Project impacts related to hazardous material sites would be less than significant.

e) Public Airport Operations.

The project site is not within two miles of a public or public use airport. The nearest such airport is Stockton Metropolitan Airport, approximately eight miles to the north. The project site is not within the Airport Influence Area for the Stockton Airport as delineated in the Stockton Metropolitan Airport Land Use Comprehensive Plan (Coffman Associates 2016). The project would have no impact related to airport operations.

f) Emergency Response and Evacuations.

The project would involve construction work on Woodward Avenue, mainly street frontage improvements and utility connections. Woodward Avenue, classified as a collector street, would likely be one of the main evacuation routes in southern Manteca.

Construction work within public streets would require encroachment permits from the City, which include standard conditions for maintenance of public safety during construction. In addition, mitigation presented below would require preparation of a Traffic Control Plan, which would ensure that vehicle access would be maintained during construction activities within Airport Way. Implementation of this mitigation measure would reduce impacts emergency response and evacuation routes to a level that would be less than significant.

Mitigation Measures:

HAZ-1: Prior to the start of project construction, the developer shall prepare and implement a Traffic Control Plan, which shall include such items as traffic control requirements, resident notification of access closure, and daily access restoration. The contractor shall specify dates and times of road closures or restrictions, if any, and shall ensure that adequate access will be provided for emergency vehicles. The Traffic Control Plan shall be reviewed and approved by the City Department of Public Works and shall be coordinated with the Manteca Police Department and the Manteca Fire Department if construction requires road closures or lane restrictions.

g) Wildland Fire Hazards.

The project site is in an area with a mix of development, agricultural land, and vacant land. Developed and agricultural lands are not susceptible to wildfires. The project site is the main vacant land in the area, and project development would reduce any existing fire hazard on the site by replacing the existing grasses and weeds with a developed and paved area. The project would have no impact related to wildfires. Section 3.20, Wildfire, provides a more detailed analysis of wildfire impacts.

3.10 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			✓	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			✓	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river runoff or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial erosion or siltation on- or off-site?			✓	
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			✓	
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			✓	
iv) Impede or redirect flood flows?			✓	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			✓	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				✓

Environmental Setting

Local Hydrology

No major streams flow on the project site or in the Manteca area. As noted in Section 3.4, Biological Resources, the San Joaquin River is the closest stream to the project site, approximately 3.25 miles to the west.

The City is within the Eastern San Joaquin Groundwater Subbasin. Four aquifers have been identified beneath the Manteca area, with depths down to and exceeding 600 feet. According to the most recent available groundwater report, groundwater levels in the project vicinity are approximately 30 feet below ground surface (San Joaquin County Flood

Control District 2023). The City depends mainly on groundwater for its potable water supply (see Section 3.19, Utilities and Service Systems).

The project site and vicinity has been mapped by the Federal Emergency Management Agency (FEMA) for potential floodplains. According to the FEMA map that includes the project site, with an effective date of October 16, 2009, the entire site is in Zone X, although for different reasons. The western portion of the project site is designated as being within a 500-year floodplain. The eastern portion of the project site is in an area of minimal flood hazard (FEMA 2009). Neither portion is within a Special Flood Hazard Area, which is defined as the 100-year floodplain – the area where flooding occurs on average once every 100 years.

Regulatory Framework

Water Quality

Storm water discharges from urban areas, known as “urban runoff,” have the potential to contaminate surface waters. Such discharges are prevented by adherence to the National Pollutant Discharge Elimination System (NPDES) program, which is administered by the State of California. The City participates in the NPDES system by complying with a Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit, adopted by the SWRCB in 2013 as part of the NPDES program. NPDES permits such as the MS4 permit regulate storm water and other discharges, including from industrial sources, to maintain surface water quality.

To implement the requirements of its MS4 permit, the City has prepared a Storm Water Management Program, which limits to the maximum extent practicable the discharge of pollutants from the City’s storm sewer system. As part of its Storm Water Management Program, the City has adopted Post-Construction Stormwater Standards. Standards that apply to new development provide for inclusion and maintenance of urban runoff control measures that will improve water quality and mitigate potential water quality impacts from stormwater discharges. The City’s adopted Post-Construction Stormwater Standards require the inclusion of runoff control measures such as bioswales, detention facilities, Low Impact Development measures, and other source control measures of equivalent effectiveness in new development projects to minimize the transport of untreated urban runoff to surface waters. In addition to water quality controls, the City’s standards require preparation of a hydromodification management plan to ensure the post-project stormwater runoff flow rates will not exceed estimated pre-project flow rates.

Groundwater

The State enacted the Sustainable Groundwater Management Act in 2014. This act requires the creation of local Groundwater Sustainability Agencies, each of which must prepare and adopt a Groundwater Sustainability Plan to ensure sustainable groundwater yields and prevent groundwater depletion in the agency’s jurisdiction. In 2017, the City chose to join the Eastern San Joaquin Groundwater Joint Powers Authority, which is a Groundwater Sustainability Agency that covers most of the Eastern San Joaquin Groundwater Subbasin. The Authority adopted a Groundwater Sustainability Plan for the Subbasin and submitted it to the Department of Water Resources (DWR) in January 2020. After determining the original plan to be incomplete, DWR approved a revised plan on July 6, 2023.

The goal of the Groundwater Sustainability Plan is to achieve sustainable groundwater management of the Subbasin on a long-term average basis by increasing recharge and/or reducing groundwater pumping, while avoiding undesirable results such as degraded water quality and declining groundwater levels. The Subbasin will achieve sustainability by implementing water supply projects that either replace groundwater use or supplement groundwater supplies to attain the current estimated pumping offset and/or recharge need. A final list of 23 potential projects is included in the Groundwater Sustainability Plan, representing a variety of project types, including direct and in-lieu recharge, intra-basin water transfers, demand conservation, water recycling, and stormwater reuse (ESJGA 2022).

Flooding

In 2007, the State of California approved SB 5 and a series of related Senate and Assembly bills intended to set new flood protection standards for urban areas in the Central Valley. This group of bills, referred to collectively in this document as "SB 5," establish the State standard for flood protection in these areas as protection from the 200-year frequency flood. Under SB 5, urban and urbanizing areas must be provided with 200-year flood protection no later than 2025. A map prepared as part of the City's General Plan update indicates the project site is outside the 200-year floodplain (City of Manteca 2023a).

Environmental Impacts and Mitigation Measures

a) Surface Water Quality.

As discussed in Section 3.7, Geology and Soils, construction activities could lead to increased sedimentation of surface waters, as loosened soils are carried off the construction site by runoff. The project would be required to obtain a Construction General Permit, which would require the preparation and implementation of a SWPPP to address potential sedimentation issues. Compliance with the Construction General Permit would reduce potential erosion and sedimentation effects to a level that is less than significant. See c-iii) below for a discussion of the potential impacts of runoff on water quality.

b) Groundwater Supplies and Recharge.

Water supply for the project would be provided by the City of Manteca municipal water system; the project would not involve any direct groundwater extraction. The City obtains its water supply from a mix of surface water and groundwater; as such, the project would place an indirect demand on groundwater resources. As discussed in Section 3.19, Utilities and Service Systems, potable water demand from the project would not adversely affect the City's water supplies.

The project would introduce impervious surfaces to the project site, which would reduce the area that would allow percolation of precipitation into the ground, thereby locally reducing groundwater aquifer recharge. However, the majority of the developable areas within the City are currently developed with urban uses, while the majority of open undeveloped lands within the city are designated for parks and open space uses. In addition, most open, undeveloped lands outside the City's Sphere of Influence but within its Planning Area are proposed for agricultural uses. The General Plan Land Use Map does not re-designate any areas from currently open space to urban uses (City of Manteca 2022). Given this, project development would not involve significant groundwater recharge effects on the City and surrounding area. Project impacts on groundwater supplies and recharge would be less than significant.

c-i, ii) Drainage Patterns.

The project would alter existing storm drainage patterns, due to site grading and the introduction of impervious surfaces such as buildings and pavement. However, on-site runoff would be collected by the project's on-site storm drainage system, which would connect to the City's system. The on-site system would need to comply with the City's Post-Construction Standards for storm drainage. As a result, no significant on-site or off-site erosion or siltation would occur, and no on-site or off-site flooding would result. Project impacts on drainage patterns would be less than significant.

c-iii) Runoff.

As noted above, on-site runoff would be collected by a storm water drainage system that would connect to the City's system. Drainage facilities would be designed in accordance with the City standards and subject to the approval of the City Engineer; as such, it would avoid runoff that exceeds the capacity of the City's system.

With development of the project site, runoff may contain motor vehicle fluids, trace metals, and other contaminants - known collectively as "urban runoff" - that could enter surface water, with potentially adverse consequences to water quality and aquatic habitat. As noted, the City of Manteca has adopted a Storm Water Management Program to implement the requirements of its MS4 permit. The program includes Post-Construction Stormwater Standards that apply to new development. Compliance with the City's Storm Water Management Program, including implementation of applicable Post-Construction Stormwater Standards, would reduce impacts of runoff on surface water quality and quantity to a level that is less than significant.

c-iv) Flood Flows.

As noted, the project site is in an area designated Zone X by the FEMA flood map for the site, and it is not within a Special Flood Hazard Area. Given the limited flood hazard, the project is not expected to impede or redirect 100-year flood flows. In addition, the project site is not located within a 200-year flood area as defined by SB 5. As noted, the City's Post-Construction Stormwater Standards include Low Impact Development measures to reduce and/or eliminate the volume of stormwater runoff leaving a project site, thereby minimizing potential off-site flooding that may occur with project development. Overall, project impacts related to flooding would be less than significant.

d) Release of Pollutants in Flood Zones.

As indicated in c-iv) above, the project site is not within a 100-year flood zone, which is considered a Special Flood Hazard Area, nor is the site exposed to potential 200-year flooding. The project site is not located near a large body of water where seiches or tsunamis may occur. The Existing Conditions Report for the City's General Plan update indicates the project site is within a potential inundation area resulting from failure of the San Luis Dam in Merced County (City of Manteca 2017). However, the probability of failure of San Luis Dam is low at a given time, and the dam is subject to maintenance, inspection and improvement as required to address predicted flows and flooding potential.

As noted in Section 3.9, Hazards and Hazardous Materials, the project would not store large quantities of hazardous materials, so any flood that may occur on the project site would not lead to the release of substantial amounts of pollutants into flood flows. Because of this, project impacts related to the release of pollutants during flooding would be less than significant.

e) Conflict with Water Quality or Groundwater Plans.

As noted in c-iii) above, the City has adopted Post-Construction Stormwater Standards to facilitate compliance with the provisions of the NPDES permit. The project would be required to comply with these standards. Also, as noted, a Groundwater Sustainability Plan for the Eastern San Joaquin Groundwater Subbasin has been adopted. The Groundwater Sustainability Plan contains proposed projects at the subbasin level and encourages the preparation of local water management plans. It does not contain any actions or requirements specific to projects. As noted, the project is not expected to significantly affect groundwater supplies. The project would have no impact on water quality or groundwater sustainability plans.

3.11 LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				✓
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			✓	

Environmental Setting

The project site is in southern Manteca, one of the more recently developed areas of the city. The project site is surrounded by residential development, mostly single-family residences. The site itself has one single-family residence and an accessory building.

In April 2023, the City adopted an updated General Plan. The City of Manteca General Plan is a comprehensive, long-term plan for the physical development of the City and its Planning Area. It contains the goals and policies that will guide future decisions within the City and identifies implementation measures to ensure the vision and goals of the General Plan are carried out. The General Plan also contains a land use diagram, which serves as a general guide to the distribution of land uses throughout the City and its Planning Area. The General Plan designates the project site as Commercial Mixed Use. This designation provides for high-density residential, employment centers, retail commercial, and professional offices. A mix of compatible uses is encouraged to provide neighborhood-serving sales, services, and activities, as well as employment opportunities, including offices (City of Manteca 2023a).

The City's Zoning Ordinance (Manteca Municipal Code Title 17) is intended to protect and promote the public health, safety, peace, comfort, convenience, prosperity, and general welfare, as well as to set forth and coordinate City regulations governing the development and use of land in accordance with the City of Manteca General Plan. The current City zoning for the project site is CMU, Commercial Mixed Use, which is consistent with the General Plan designation for the site. As noted in Chapter 2.0, Project Description, the CMU zone accommodates a variety of uses, including the retail commercial use proposed by the project.

Environmental Justice

Recently, the State has encouraged incorporating environmental justice concerns in local land use planning. Low-income residents, communities of color, tribal nations, and immigrant communities have historically experienced disproportionate environmental burdens and related health problems resulting from land use decisions. This inequity has resulted from many factors, including inappropriate zoning and incomplete land use planning, which has led to development patterns that concentrate pollution emissions and environmental hazards in communities that have not had the political power to protect themselves.

In 2012, the Legislature passed SB 535, directing that 25 percent of the proceeds from the Greenhouse Gas Reduction Fund go to projects that provide a benefit to disadvantaged communities. The California Office of Environmental Health Hazard Assessment has developed the California Communities Environmental Health Screening Tool (CalEnviroScreen) to identify disadvantaged communities as defined by SB 535. CalEnviroScreen measures pollution and population characteristics of each U.S. Census tract in California using 20 indicators such as air and drinking water quality, waste sites, toxic emissions, asthma rates, and poverty. These indicators are used to generate a score from 0 to 100 that rates the level of cumulative environmental impacts on each area. A Census tract with a CalEnviroScreen score in the top 25% (75 or higher) is considered a disadvantaged community under SB 535. The project site is within Census Tract 6077005114, which covers southern Manteca. This Census tract has a CalEnviroScreen score of 73, which is just below the SB 535 disadvantaged community threshold (OEHHA 2023).

Environmental Impacts and Mitigation Measures

a) Division of Established Communities.

The project site is in a predominantly residential area of southern Manteca. The project site is vacant land adjacent to Woodward Avenue, one of the main streets of southern Manteca. As such, the project would not divide existing residential communities in the area. The project would have no impact on the division of established communities.

b) Conflicts with Plans, Policies and Regulations Mitigating Environmental Effects.

The project would be consistent with the current General Plan designation of the project site as Commercial Mixed Use, which allows for the retail commercial development proposed by the project. The Commercial Mixed Use designation allows for development up to a floor-area ratio of 1.0 and 50% site coverage. Project development, including the proposed future development of Parcel 3, would be consistent with these requirements, as discussed in Chapter 2.0, Project Description.

This IS/MND analyzes the potential environmental impacts of the proposed project. For all environmental issues, the project would have no environmental impact, an impact that would be less than significant, or an impact that can be mitigated to a level that would be less than significant. This includes issues for which there are land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. These are discussed under the applicable environmental issue. No significant environmental issues associated with the project have been identified that would substantially conflict with applicable land use policies, including those in the Manteca General Plan, that are designed to avoid or mitigate an environmental effect. Mitigation measures identified in this IS/MND would avoid or reduce potential conflicts. Project conflicts with plans and programs that avoid or mitigate environmental effects are considered less than significant.

3.12 MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	✓
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	✓

Environmental Setting

The project site contains no existing mineral resource extraction activities. The only known mine in the Manteca area is an aggregate mine near Oakwood Lake to the southwest, and this mine is now closed (City of Manteca 2017). The project site contains no active oil or gas wells. The nearest active oil or natural gas field is the McMullin Ranch natural gas field approximately 1.5 miles to the south (DOGGR 2023).

Pursuant to the Surface Mining and Reclamation Act of 1975, the California State Mining and Geology Board oversees the Mineral Resource Zone (MRZ) classification system. The MRZ system characterizes both the location and known/presumed economic value of underlying mineral resources. The MRZ classifications include:

MRZ-1 - Areas of No Mineral Resource Significance

MRZ-2 - Areas of Identified Mineral Resource Significance

MRZ-3 - Areas of Undetermined Mineral Resource Significance

MRZ-4 - Areas of Unknown Mineral Resource Significance

The project site is in an area classified as MRZ-1, which is an area of no mineral resource significance (City of Manteca 2022).

Environmental Impacts and Mitigation Measures

a, b) Availability of Mineral Resources.

As noted, the project site is in an area classified as MRZ-1, which is an area of no mineral resource significance. Given this and the lack of any mineral resource activity on the project site, including oil or natural gas wells, it is unlikely that mineral deposits would exist on the project site. The project would have no impact on the availability of or access to locally designated or known mineral resources.

3.13 NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient Figure levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		✓		
b) Generation of excessive groundborne vibration or groundborne noise levels?			✓	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has				✓

not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

About Noise

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second or Hertz (Hz). "Noise" is a subjective reaction to different types of sound, typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised; the decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB, and other sound pressures are compared to this reference pressure. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Changes in decibel levels (dB) correspond closely to human perception of relative loudness. Human noise perception is further reflected by A-weighted sound levels, which has become the standard tool of environmental noise assessment.

When the standard logarithmic decibel is A-weighted, an increase of 10-dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60-dBA sound. A more detailed discussion of acoustics, noise measurement and noise description in a community planning context is provided in the Saxelby Acoustics noise analysis shown in Appendix D.

The ambient noise level is the all-encompassing noise level associated of a given environment considering all sources, typically measured as the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The day/night average level (DNL or L_{dn}) is described by the average noise level over a 24-hour day, with a +10- decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours, which accounts for human sensitivity during this period.

Noise Thresholds

The effects of noise on people include: 1) *subjective effects* of annoyance, nuisance, and dissatisfaction; 2) *interference with activities* such as speech, sleep, and learning; and 3) *physiological effects* such as hearing loss or sudden startling. Environmental noise typically produces effects in the first two categories; workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction due to a wide variation in individual thresholds of annoyance.

Human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise level exceeds the existing ambient noise level, the greater the effect on the hearer.

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6-dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles, would typically attenuate at a lower rate.

About Vibration

Vibration consists of pressure transmitted through the ground and measured in terms of acceleration, velocity, or displacement; a common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. The threshold for architectural damage to structures and human perception is 0.20 in/sec p.p.v. This is considered to be a reasonable significance threshold for short-term construction projects. Additional discussion of vibration is provided in Appendix D.

Environmental Setting

The existing noise environment in the project area is primarily defined by traffic on East Woodward Avenue. To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted continuous (24-hr.) noise level measurements at two locations on the project site. Noise measurement locations are shown on Figure 3-1; one of the locations is adjacent to Pillsbury Road just south of Woodward Avenue/ The second is adjacent to an existing house in the southern portion of the project site. A summary of the noise level measurement survey results is provided in Table 3-6.

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Figure 3-1
NOISE MEASUREMENT LOCATIONS

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. The average value, denoted L_{eq}, represents the energy average of all the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L_{50}, represents the sound level exceeded 50 percent of the time during the monitoring period. The complete results of the noise monitoring are shown in Appendix E.

TABLE 3-6
SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

Location	Date	Ldn	Daytime Leq	Daytime L50	Daytime Lmax	Nighttime Leq	Nighttime L50	Nighttime Lmax
LT-1: 525 ft. to CL of East Woodward Ave.	12/14/23 to 12/15/23	61	53	50	71	55	53	69
LT-2: 250 ft. to CL of East Woodward Ave.	12/14/23 to 12/15/23	64	62	54	82	57	53	77

- *All values shown in dBA*
- *Daytime hours: 7:00 a.m. to 10:00 p.m.*
- *Nighttime hours: 10:00 p.m. to 7:00 a.m.*
- *Source: Saxelby Acoustics*

Sensitive Receptors

Sensitive Receptors

Some land uses are considered more sensitive to noise than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise-sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise. Sensitive receptors in the project vicinity are shown on Figures 3-2 and 3-3.

Significance Thresholds

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels as discussed in more detail below. The Manteca General Plan and the Manteca Municipal Code establish noise standards for the City. The General Plan requirements include:

S-6.6 Regulate construction-related noise to reduce impacts on adjacent uses to the criteria identified in Table S-2 or, if the criteria in Table S-2 cannot be met, to the maximum level feasible using best management practices and complying with the Manteca Municipal Code Chapter 9.52.

S-6d In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels have a substantial increase. Generally, a 3 dB increase in noise levels is barely perceptible, and a 5 dB increase in noise levels is clearly perceptible. Therefore, increases in noise levels shall be considered to be substantial when the following occurs.

Transportation Noise Thresholds

When existing noise levels are less than 60 dB, a 5 dB increase in noise will be considered substantial; and when existing noise levels exceed 65 dB, a 1.5 dB increase in noise will be considered substantial.

Stationary Noise Source Thresholds

The Noise Element of the General Plan sets performance standards for stationary sources or projects affected by stationary noise sources.

TABLE 3-7

CITY OF MANTECA STATIONARY SOURCE NOISE STANDARDS

Noise Level Descriptor	**Daytime (7:00 a.m. -10:00 p.m.)**	**Nighttime (10:00 p.m. – 7:00 a.m.)**
Hourly L_{eq}, dB	55	45
Maximum level, dB	70	65

Source: City of Manteca Noise Element.

Environmental Impacts and Mitigation Measures

a) Exposure to Noise Exceeding Local Standards.

Construction Noise

During the construction phases of the project, noise from construction activities would temporarily add to the noise environment in the immediate project vicinity. As indicated in Table 3-8, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dBA Lmax at a distance of 50 feet. Construction activities would also be temporary in nature and are anticipated to occur during normal daytime working hours. The City of Manteca Municipal Code exempts construction noise from the noise ordinance between the hours of 7:00 a.m. and 7:00 p.m.

TABLE 3-8
CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	**Maximum Level (dBA at 50 feet)**
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Paver	77
Pneumatic Tools	85

Source: FHWA 2006.

The City defines a significant increase due to construction noise as an increase of 12 dBA over existing ambient noise levels; Saxelby Acoustics used this criterion to evaluate increases due to construction noise associated with the project. As shown in Table 3-8, construction equipment is predicted to generate noise levels of up to 90 dBA L_{max} at 50 feet. The nearest residential uses are located approximately 180 feet as measured from the center of the project site. At this distance, maximum construction noise levels would be up to 79 dBA. The average daytime maximum noise level in the vicinity of the sensitive receptors was measured to be 71 dBA, resulting in an increase of 8 dBA. Therefore, project construction would not cause an increase of greater than 12 dBA over existing ambient noise levels.

Construction-related noise would also be generated during the by increased truck traffic on area roadways transporting heavy materials and equipment to and from the construction site. This noise increase would be of short duration and would occur during daytime hours.

Although construction activities are temporary in nature and would occur during normal daytime working hours, construction-related noise could result in sleep interference at existing noise-sensitive land uses in the vicinity of the construction if construction activities were to occur during the nighttime. Therefore, impacts resulting from nighttime construction are considered *potentially significant*. Mitigation measure NOISE-1 would reduce construction noise impacts to a *less-than-significant* level.

Mitigation Measures:

NOISE-1: The City shall establish the following as a condition of approval for project construction: Restrict construction activities to the hours of 7:00 a.m. to 7:00 p.m. on Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays. No construction shall be permitted outside of these hours or on Sundays or federal holidays, without a specific exemption issued by the City.

NOISE-2: Should the city determine that a nighttime noise exemption should be granted, it shall condition exemption to incorporate all reasonable mitigation measures as listed in the Saxelby study at page 21.

Noise from Project Operations

Project site traffic circulation and HVAC equipment noise are considered to be the primary contributors to noise impacts from this project. The following is a list of assumptions used for the Saxelby noise modeling; the assumption data is based upon a combination of manufacturer's provided data and Saxelby Acoustics data from similar operations.

On-Site Circulation: The project is projected to generate 3,288 daily trips with 337 trips in the evening peak hour (TJW Engineering 2024). Saxelby Acoustics assumed that 1-2 of these trips could be heavy trucks. Parking lot movements are predicted to generate a sound exposure level (SEL) of 71 dBA SEL at 50 feet for cars and 85 dBA SEL at 50 feet for trucks. Nighttime traffic outside of the AM or PM peak hour is estimated to be approximately 1/4 of daytime trips during nighttime hours (10:00 p.m. to 7:00 a.m.) (Saxelby Acoustics data)

Rooftop HVAC: Saxelby Acoustics assumed that the gas station and quick-service restaurant would each have three ten-ton packaged units and one ten-ton air-cooled chiller unit. It was assumed that each retail space would be serviced by one ten-ton packaged unit. All equipment is assumed to operate continuously during the daytime, and 50% of the time at night (Manufacturer's data)

Drive-Thru: Saxelby Acoustics estimated that the drive-thru could operate continuously during both daytime and nighttime hours. The speaker was assumed to produce 62 dBA L_{eq} at 3 feet (Saxelby Acoustics data).

Saxelby Acoustics used the SoundPLAN noise prediction model. Inputs to the model included sound power levels for the proposed amenities, existing and proposed buildings, terrain type, and locations of sensitive receptors. These predictions are made in accordance with International Organization for Standardization (ISO) standard 9613-2:1996 which is the most commonly used method for calculating exterior noise propagation. Figures 3-2 and 3-3 show the noise level contours resulting from operation of the project during daytime and nighttime hours, respectively.

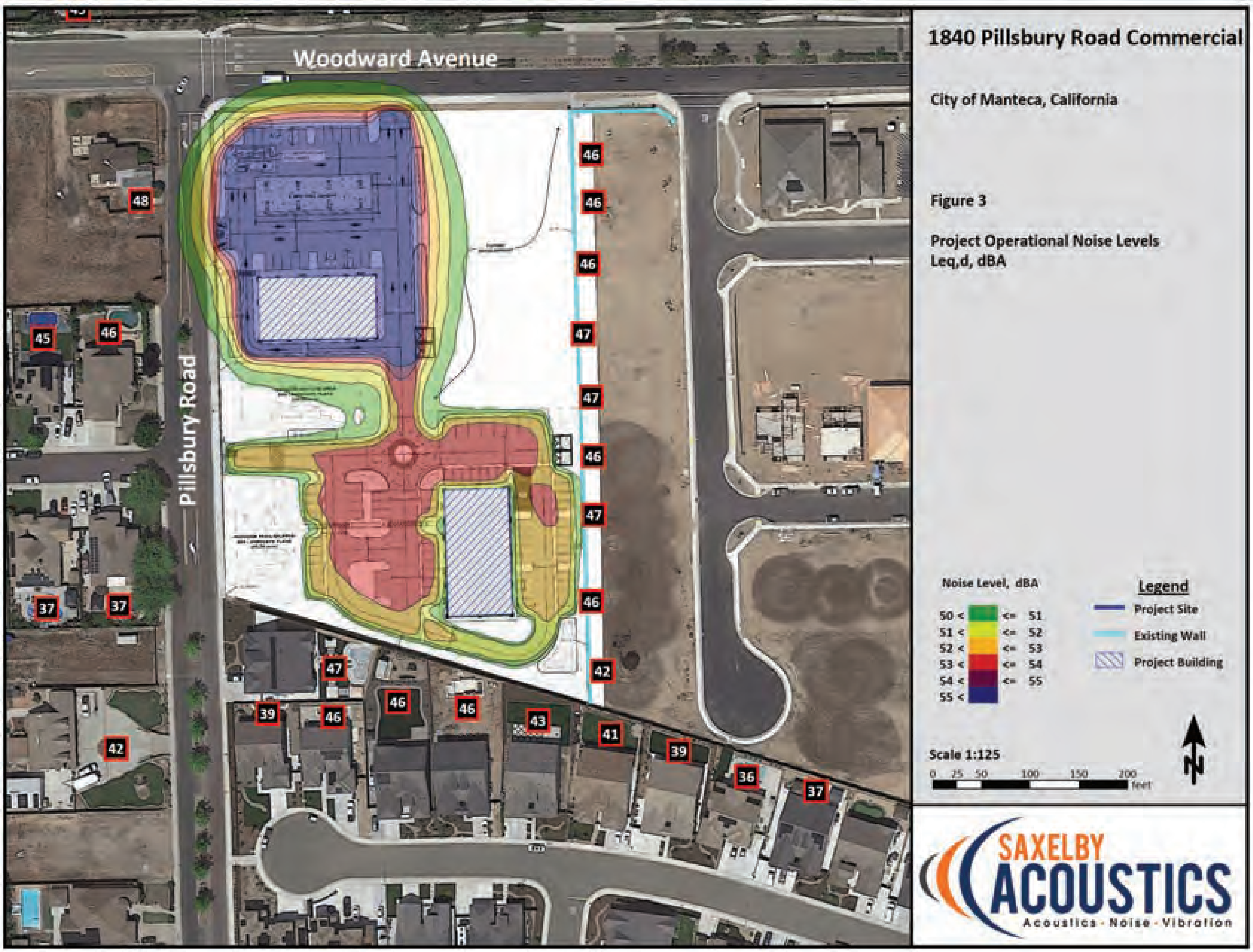

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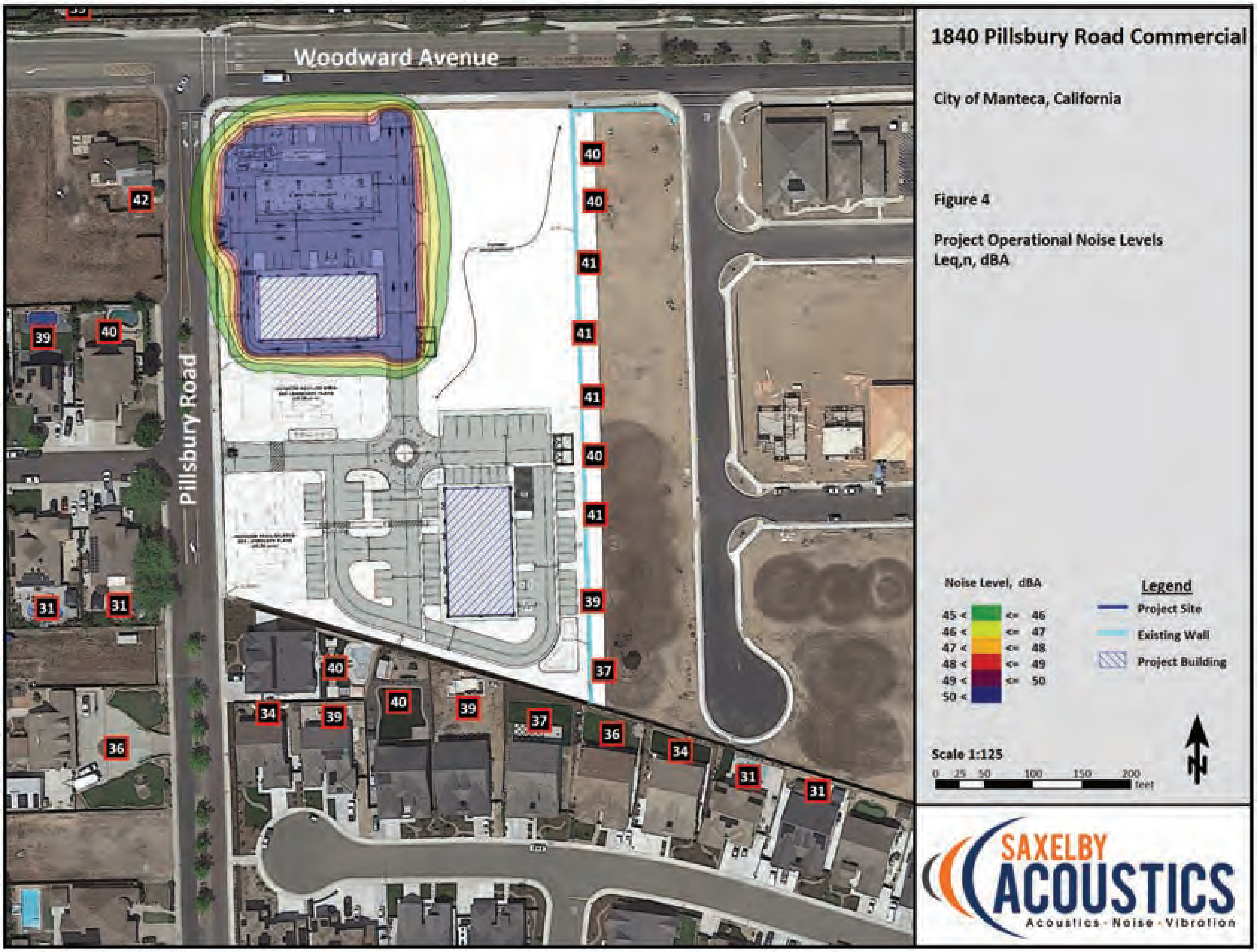
Figure 3-2
DAYTIME OPERATIONAL NOISE LEVELS



BaseCamp Environmental

Figure 3-3
NIGHTTIME OPERATIONAL NOISE LEVELS

As shown on Figures 3-2 and 3-3, the project as a stationary source is predicted to expose nearby residences to noise levels up to 47 dBA L_{eq} during daytime (7:00 a.m. to 10:00 p.m.) hours and 41 dBA L_{eq} during nighttime (10:00 p.m. to 7:00 a.m.) hours. The predicted project noise levels would comply with the City of Manteca daytime noise standard of 55 dBA L_{eq} and nighttime standard of 45 dBA L_{eq}. The project would involve no conflict with daytime standards and no mitigation is required.

The General Plan establishes a significance threshold of +5.0 dBA increase in ambient noise levels due to new stationary sources. At the residences south of the project, The predicted sum of daytime ambient noise (53 dBA L_{eq}) plus project generated noise (47 dBA L_{eq}) would be 54.0 dBA $L_{e,}$ representing an increase of 1.0 dBA over ambient, which is less than the +5 dBA increase criterion. The resulting sum of nighttime ambient noise (55 dBA L_{eq}) plus project generated noise (40 dBA L_{eq}) would be 55.2 dBA L_{eq}. This would represent an increase of 0.2 dBA over ambient, which is less than the +5 dBA increase criterion.

At the residences west of the project, the sum of daytime ambient noise (62 dBA L_{eq}) plus project generated noise (48 dBA L_{eq}) would be 62.2 dBA L_{eq}. This would represent an increase of 0.2 dBA over ambient, which is less than the +5 dBA increase criterion. The resulting sum of nighttime ambient noise (57 dBA L_{eq}) plus project generated noise (42 dBA L_{eq}) would be 57.1 dBA L_{eq}. This would represent an increase of 0.1 dBA over ambient, which is less than the +5 dBA increase criterion.

<u>Transportation Noise Impacts at Off-site Receptors</u>

To assess noise impacts due to the project would involve traffic increases on the local roadway network; therefore, the Saxelby study assessed traffic noise levels are predicted at sensitive receptors for existing and future, project and no-project conditions.

Existing and Cumulative noise levels due to traffic were calculated using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). The modelling methodology and detailed results are discussed in more detail in Appendix E.

At the off-site sensitive receptors located at the closest typical setback distance along each project-area roadway segment. Appendix D provides the complete inputs and results of the modeling. The maximum predicted noise increase at any off-site receptor amounted to 1.8 dB, which is below the level of potential perception. Therefore, traffic noise increases as off-site receptors is considered a less-than-significant effect.

b) Generation of excessive groundborne vibration

Construction vibration impacts include human annoyance and building structural damage, which can occur with vibration above the threshold of perception. Potential vibration exposure was considered by Saxelby Acoustics; the Saxelby report indicated that anticipated construction vibration levels would be less than the 0.2 in/sec threshold at distances of 26 feet. Sensitive receptors are not expected to be impacted by construction related vibration. This would be a less than significant effect.

c) Public Airport and Private Airstrip Noise.

As noted in Section 3.9, Hazards and Hazardous Materials, there are no public or public use airports within two miles of the project site. The project would involve no significant exposure to airport or air traffic noise. There are no private airstrips in the project vicinity. The project would have no impact related to airport/airstrip noise.

3.14 POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	✓
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	✓	☐

Environmental Setting

According to the 2020 U.S. Census, the population of Manteca is 83,498, which is an increase from the 2010 population of 67,096. The number of housing units in Manteca in 2020 was 27,623 (U.S. Census Bureau 2021) According to estimates from the California Department of Finance, as of January 1, 2024, there were 31,218 housing units in Manteca. Of the total housing units, approximately 78.2% were single-family detached units, and approximately 11.9% were in apartment buildings of five units or more (California Department of Finance 2024).

Environmental Impacts and Mitigation Measures

a) Unplanned Population Growth.

The proposed project is a commercial development; it does not include any residential component. As noted in Section 3.11, Land Use, the project would be on a site designated Commercial Mixed Use by the Manteca General Plan, so the project would not lead to a direct increase in population that is not anticipated by the adopted General Plan.

The project would provide employment opportunities, so it may indirectly generate additional population growth. However, most of the employees are expected to come from the existing population of Manteca. In any case, given the Commercial Mixed Use designation of the project site, the project is not expected to have an impact on population growth not otherwise planned for in the Manteca General Plan. The project would have no impact related to unplanned population growth.

b) Displacement of Housing or People.

The project site currently has one single-family residence. This residence would be demolished to make way for project construction. Demolition would result in a small reduction of the City housing stock and the potential displacement of residents. However, ongoing residential growth in the City would more than offset this loss of housing stock, as well as provide alternative housing for any residents that are displaced. Project impacts on displacement of housing or people would be less than significant.

3.15 PUBLIC SERVICES

Would the project:

a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Fire protection?			✓	
ii) Police protection?			✓	
iii) Schools?				✓
iv) Parks?				✓
v) Other public facilities?				✓

Environmental Setting

The project site is within the jurisdiction of the City of Manteca; as such, the City would provide most of the public services to the project site. Fire protection and emergency medical response services would be provided by the Manteca Fire Department, which operates out of five stations located throughout the City. The nearest Fire Department station to the project site is Station #5 at 1675 E. Woodward Avenue, less than one-half mile to the east. According to the Fire Department website, firefighting apparatus at Station #5 includes two engines and a rescue boat. The Manteca Fire Department maintains a goal for the initial company of three firefighters to arrive on scene for fire and emergency medical service incidents within five minutes 90% of the time. The Fire Department is currently meeting this goal. The Insurance Services Office Public Protection Classification Program currently rates the Fire Department as a 2 on a scale of 1 to 10, with 1 being the highest possible protection rating (City of Manteca 2022).

Police protection services would be provided by the Manteca Police Department. The Police Department operates out of its headquarters located at 1001 W. Center Street. In 2019, the Police Department had 74 sworn officers. The City has not established a standard for police response times. However, for Priority 1 calls, which involve a threat to life or a crime of violence, the average response time has been 4 minutes and 27 seconds (City of Manteca 2022)

The project site is within the boundaries of the Manteca Unified School District (MUSD), which provides school services for grades kindergarten through 12 within the communities of Manteca, Lathrop, Stockton, and French Camp. Within the City, there are 14 schools serving elementary age and middle school students (grades K-8), one K-6 school, four high schools (grades 9-12), one 7-12 school, and one vocational high school (grades 11-12). The MUSD served 24,667 students during the 2022-23 school year (EdData 2024). As noted in Section 3.9, Hazards and Hazardous Materials, the nearest school to the project site is Walter E. Woodward Elementary School, a MUSD facility approximately 0.65 miles to the southwest.

Parks and recreational services are provided by the City of Manteca and by San Joaquin County in their respective jurisdictions (see Section 3.16, Recreation). Other public facilities providing services include the Manteca Branch Library, part of the Stockton-San Joaquin County Library system and located at 320 W. Center Street. The Manteca Senior Center, located at 295 Cherry Lane, is a 10,000-plus square-foot, multi-purpose senior center serving and involving adults and seniors aged 50 and above throughout the greater Manteca area. A branch of the San Joaquin County Superior Court is at 315 East Center Street.

Environmental Impacts and Mitigation Measures

a-i) Fire Protection.

The project would place new demands upon the Manteca Fire Department for fire protection services. However, as noted, Station #5 is less than one-half mile from the project site, which would allow the station to respond to emergencies relatively quickly. No new or expanded facilities are required. Additionally, the project would be required to comply with the adopted 2022 California Fire Code, which contains requirements on fire resistance of buildings and on fire protection and life safety systems.

The Manteca General Plan Update EIR evaluated potential impacts of future development on public services, including fire protection services, and concluded that policies and actions in the General Plan update would ensure that public services are provided at acceptable levels (City of Manteca 2022). Consistent with the policies of the Manteca General Plan, the project would be assessed a Fire Facilities Fee by the City to fund future fire facilities when necessary. Project impacts on fire protection facilities would be less than significant.

a-ii) Police Protection.

The project would generate a demand for police protection services. As discussed in Section 3.14, Population and Housing, the project is not expected to affect the City's population in a manner unplanned by the City. Because of this, the project is not expected to affect the officer/population ratio such that new officers would need to be hired, and facilities would need to be built or expanded to accommodate them. Also, the City police station is approximately 2.5 miles from the project site, which would allow for adequate response times to emergencies.

As noted, the Manteca General Plan Update EIR evaluated potential impacts of future development on public services, including police protection services, and concluded that policies and actions in the General Plan update would ensure that public services are provided at acceptable levels (City of Manteca 2022). The project would be assessed a Government Building Facilities Fee by the City to fund future police facilities when necessary. Project impacts on police protection facilities would be less than significant.

a-iii) Schools.

As noted in Section 3.14, Population and Housing, the project would not construct residences that would encourage or accommodate new population growth in the area. In turn, it would not lead to the generation of students that would need new or expanded school facilities. Although the project would not generate any students, the proposed development would pay required developer fees to the MUSD to defray the costs of providing new school facilities. As of July 27, 2002, the developer fee for new commercial development is $0.78 per square foot (MUSD 2024). Under State law, payment of developer fees is considered adequate mitigation of potential environmental impacts. The project would have no impact on schools.

a-iv, v) Parks and Other Public Facilities.

As discussed in Section 3.14, Population and Housing, the project would not generate an increase in population. Therefore, additional demands on parks and other public facilities such as libraries and court facilities are not expected, and no new or expanded public facilities would be required. The project would have no impact on parks or other public facilities. Section 3.16, Recreation, discusses project impacts on parks and recreational facilities in more detail.

3.16 RECREATION

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	✓
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	✓

Environmental Setting

As noted in Section 3.15, Public Services, public parks and recreational services are provided by the City of Manteca and by San Joaquin County. The City, through its Parks and Recreation Department, manages 50 neighborhood parks (generally 5 to 7 acres), six community parks (generally 15 to 25 acres), and 10 special-use facilities that include a major multi-use recreation trail that covers over 3.5 miles of terrain. The total acreage managed by the Parks and Recreation Department is more than 483 acres (City of Manteca 2022).

The closest City park to the project site is Tesoro Park, a 9.51-acre neighborhood park less than one-quarter mile to the north. Tesoro Park has play equipment, a tot lot, picnic tables and barbeque grills. Woodward Park is approximately 0.35 miles to the west. This community park, approximately 50.62 acres in size, has basketball courts and sports fields, along with a group picnic facility, play equipment, and barbeque grills (City of Manteca 2016)

The City adopted its Parks Master Plan in 2016. The Parks Master Plan established goals in the provision of parkland to City residents based on acres per 1,000 population. For neighborhood parks, the City's goal is three acres per 1,000 population. For both community parks and special-use facilities, the City's goal is one acre per 1,000 population (City of Manteca 2016). The City currently exceeds all three goals for provision of park facilities (City of Manteca 2022).

On a regional scale, the City is in the Sacramento-San Joaquin Delta, which contains several recreational areas and facilities, primarily for water-based recreation. Regional County parks near Manteca include the 9.85-acre Dos Reis Regional Park and the 3.7-acre Mossdale Crossing Regional Park, both located along the San Joaquin River. Each of these parks includes boat launch ramps, picnic/barbeque areas, and children's play areas. Dos Reis Regional Park also has camping facilities (City of Manteca 2022).

Environmental Impacts and Mitigation Measures

a, b) Recreational Facilities.

As noted in Section 3.14, Population and Housing, the project would not construct residences that would encourage or accommodate new population growth in the area. Because of this, it would not create additional demand for recreational facilities, nor would it increase the use of existing facilities. No new or expanded facilities that could have environmental impacts would be required. The project would have no impact related to recreational facilities.

3.17 TRANSPORTATION

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?		✓		
b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?			✓	
c) Substantially increase hazards to a geometric design feature (e g., sharp curves or dangerous intersections) or incompatible uses (e g, farm equipment)?			✓	
d) Result in inadequate emergency access?			✓	

Environmental Setting

Information for this section primarily comes from a traffic impact study conducted for the project by TJW Engineering, Inc. Appendix E contains the traffic study, which describes existing traffic conditions in the vicinity of the project site and analyzes conditions with implementation of the project, both under Existing and Cumulative conditions. An analysis of traffic impacts under Cumulative conditions, without and with the project, is presented in Section 3.21, Mandatory Findings of Significance. Appendix E also contains a VMT analysis of the project, which is used to determine the CEQA environmental impacts of the project related to transportation and an analysis of Saturday traffic conditions and project impacts during that time period.

Existing Transportation Facilities and Services

<u>Streets and Intersections</u>

The project site is bounded by two streets. East Woodward Avenue is an east-west street along the northern boundary of the project site. It is classified by the Manteca General Plan as a Major Collector. The number of lanes on East Woodward Avenue varies from two to four. Along the project site frontage, East Woodward Avenue has four lanes; west of the Pillsbury Road intersection, the number of lanes is three – two westbound and one eastbound. A left-turn pocket is on Woodward Avenue on the eastern leg of the intersection with Pillsbury Road. A straight-right turn lane is on Woodward Avenue on the western leg. The speed limit on East Woodward Avenue is 45 miles per hour.

Pillsbury Road is a north-south street along the western boundary of the project site. It is classified by the Manteca General Plan as a Minor Collector. Pillsbury Road is a two-lane street that serves the residential development in the area. Its intersection with East Woodward Avenue is a "tee" intersection; at the intersection, northbound Pillsbury Road has a left-turn pocket and a right-turn pocket. The speed limit on Pillsbury Road is 25 miles per hour.

The traffic study by TJW Engineering analyzed project impacts on project area streets and intersections on weekday LOS (TJW 2024a); a separate Supplemental Analysis (TJW 2024c) considered weekend LOS during a representative Saturday morning analysis period. Both studies are shown in Appendix E

LOS is a qualitative measure of traffic conditions based on six grades from A to F, with A representing the best traffic conditions and F representing the worst. The traffic study analyzed LOS conditions at the following 13 intersections in the vicinity of the project site:

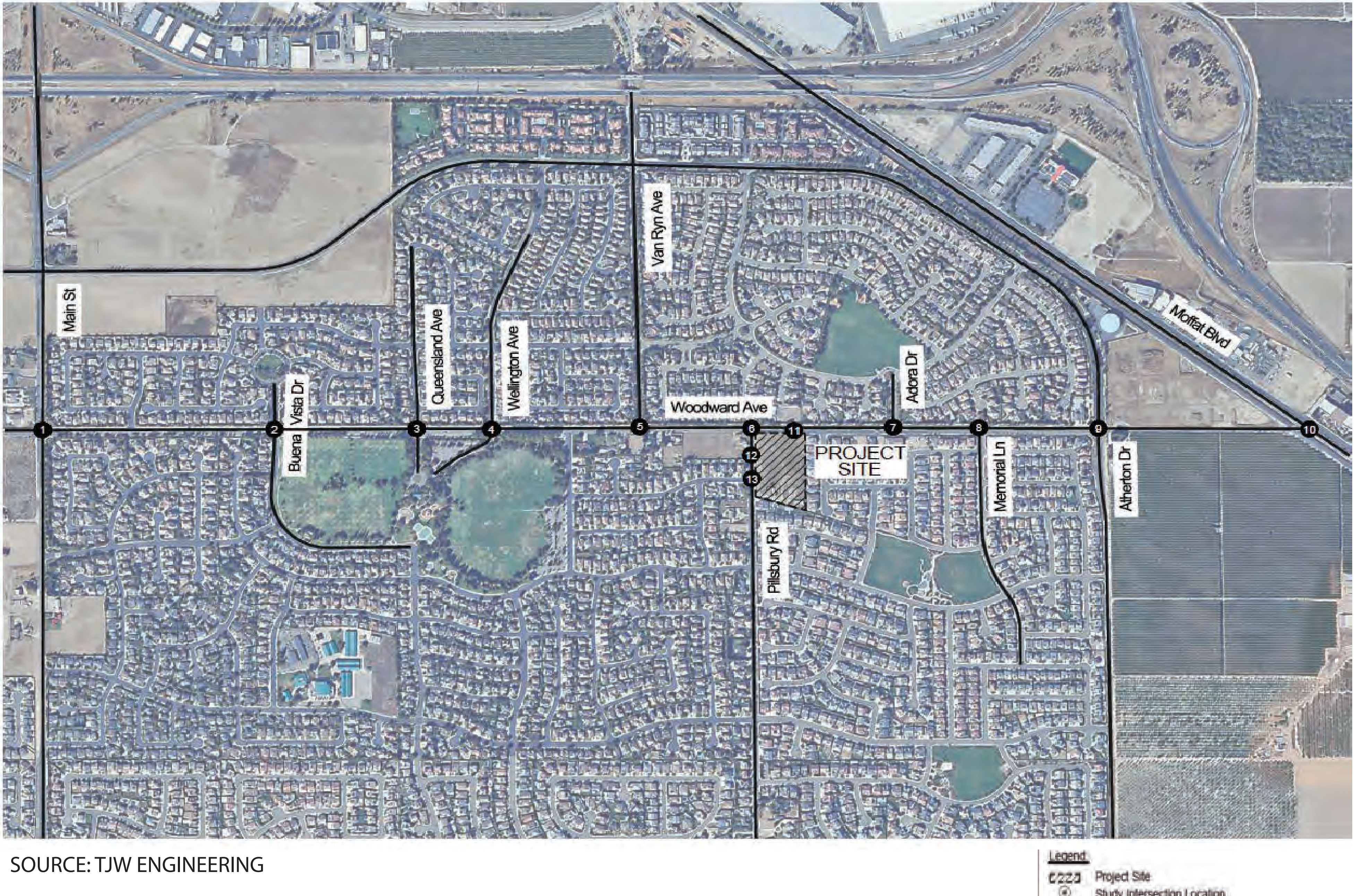
- South Main Street/East Woodward Avenue
- Buena Vista Drive/East Woodward Avenue
- Queensland Avenue/East Woodward Avenue
- Wellington Avenue/East Woodward Avenue
- Van Ryn Avenue/East Woodward Avenue
- Pillsbury Road/East Woodward Avenue
- Adora Drive/East Woodward Avenue
- Memorial Lane/East Woodward Avenue
- East Atherton Drive/ East Woodward Avenue
- Moffat Boulevard/East Woodward Avenue
- Project Driveway #1/East Woodward Avenue
- Pillsbury Road/Project Driveway #2 (northerly)
- Pillsbury Road/Project Driveway #3 (southerly)

Figure 3-4 shows the locations of the study intersections. The first ten intersections currently exist. The last three would be created with the project.

Public Transportation

Manteca Transit is the primary transit provider in the City. It provides regularly scheduled fixed-route service to major activity centers and transit hubs within the City limits. Four routes provide hourly service weekdays from 6:00 a.m. to 7:00 p.m., and three of these routes also provide hourly service on Saturdays from 9:00 a.m. to 4:00 p.m. No service is provided on Sundays or designated holidays. Route 2, which provides weekday and Saturday service, passes by the project site on Woodward Avenue. Manteca Transit also provides paratransit services for people who are unable to independently use the transit system due to a physical or mental disability.

The San Joaquin Regional Transit District, based in Stockton, provides transit service from Stockton that makes stops at the Manteca Transit Center at the corner of Main Street and Moffat Boulevard. The Altamont Corridor Express rail service connects Manteca to San Jose and the San Francisco Bay Area to the west and Stockton to the north. On weekdays, two westbound trains serve Manteca in the morning, and two eastbound trains serve the city in the evening. The Lathrop/Manteca station is located on Shideler Parkway just west of the Manteca City limits in the City of Lathrop.



SOURCE: TJW ENGINEERING

BaseCamp Environmental

Figure 3-4
Traffic Study Intersections

Bicycle and Pedestrian Facilities

Bicycle circulation in Manteca is supported by an existing network of multi-use off-street (Class I) paths, on-street (Class II) bike lanes, and bicycle routes (Class III). In general, most Manteca schools, parks, and public buildings are equipped with bike racks for short-term bicycle parking. The traffic study identified three Class II bike lanes in the project vicinity: East Atherton Drive northbound leg, Memorial Lane northbound leg, and Buena Vista Drive northbound leg, There are no designated bikeways of any class adjacent to the project site. Manteca Municipal Code Section 17.52.110 specifies bicycle parking requirements, including number of spaces and locations, the latter including nonresidential land uses.

Pedestrian facilities include multi-use off-street (Class I) paths, sidewalks, crosswalks, pedestrian signal infrastructure, curb ramps, and streetscape amenities. Most developed arterial streets in Manteca provide sidewalk coverage, accessible curb ramps, and marked crosswalks. Existing sidewalks are installed along the project site frontages of Woodward Avenue and Pillsbury Road.

Transportation Plans and Guidelines

Manteca General Plan

The current version of the Manteca General Plan sets forth guidelines for the operation of streets and transportation facilities in Manteca. Policy C-1.1 promotes balanced Level of Service (LOS) across all modes. LOS is a qualitative measure of traffic movement on roadways and through intersections. LOS is represented by letter designations from A to F, with A representing the best movement conditions and F representing the worst. Policy C-1.2 sets a standard of vehicular LOS of D or better on City streets and roads during weekday AM and PM peak hours, although Policy C-1.3 allows the City Council to make specified exceptions.

The use of LOS in assessing the environmental impacts of projects has been superseded by VMT, which is discussed below. However, LOS is discussed in this EIR as it pertains to project consistency with transportation policies, such as those in the General Plan.

State CEQA Guidelines Section 15064.3

The State of California has recently added Section 15064.3 to the CEQA Guidelines, which is meant to incorporate SB 743 into CEQA analysis. SB 743 was enacted in 2013 with the intent to balance congestion management needs and the mitigation of the environmental impacts of traffic with statewide GHG emission reduction goals, mainly by developing an alternative mechanism for evaluating transportation impacts. Section 15064.3 states that VMT is the preferred method for evaluating transportation impacts, rather than the commonly used LOS. The VMT metric measures the total miles traveled by motor vehicles as a result of a project. VMT accounts for the total environmental impact of transportation associated with a project, including use of non-motor vehicle travel modes such as public transit, bicycling, and walking.

While a quantitative analysis of VMT is preferred, a qualitative analysis may be used if existing models or methods are not available to estimate VMT for the project being considered. The Governor's Office of Planning and Research (OPR) has issued a Technical Advisory on evaluating transportation impacts using VMT. The Technical Advisory recommends several approaches in developing screening thresholds to determine significance of the transportation impacts of projects. The OPR Technical Advisory identifies screening criteria that can be used to determine whether sufficient evidence exists to presume a project will have a less-than-significant VMT impact without conducting a detailed study. These include projects that generate 110 or fewer average daily vehicle trips, and projects considered "local serving retail", defined as retail uses of 50,000 square feet or less (OPR 2018).

All local jurisdictions are required under SB 743 to establish VMT standards by July 1, 2020. The City in 2022 adopted the *City of Manteca SB 743 Implementation Policy,* which provides screening criteria and requirements for VMT assessment of land use projects.

<u>Regional Transportation Plan</u>

As the designated metropolitan planning organization representing San Joaquin County, SJCOG is required by both federal and State law to prepare a long-range transportation planning document known as a Regional Transportation Plan (RTP). The most recently adopted RTP, in 2022, sets forth how the SJCOG region will meet its transportation needs for the period from 2022 to 2046, using recent household and job growth forecasts, market demand and economic studies, and transportation studies. Projects near the project site that are part of the 2022 RTP include the reconstruction of SR 120 interchanges at Airport Way and at Main Street, and construction of the Raymus Expressway from SR 120 to Woodward Avenue (SJCOG 2022b).

Environmental Impacts and Mitigation Measures

a) Conflict with Transportation Plans, Ordinances and Policies.

The traffic study evaluated projected weekday traffic operations at the study intersections on, and weekend conditions in the Supplemental Analysis, with the addition of the project (Existing Plus Project conditions). Table 3-9 shows traffic operations at the study intersections, including the three project driveway intersections. The traffic study in Appendix E provides more detailed information.

As shown in Table 3-9, under Existing conditions with the project, all but one of the study intersections would operate at an acceptable LOS of D or better, which is acceptable under the standards set forth in the Manteca General Plan. The exception is the South Main Street/East Woodward Avenue intersection. This intersection currently operates during both the AM and PM peak hours at LOS E, which is unacceptable under City standards set forth in its General Plan. With the addition of project traffic, LOS would degrade to F during both AM and PM peak hours. As analyzed in the Supplemental Analysis, the same is projected to be true during weekend peak hour conditions.

TABLE 3-9
LOS AT INTERSECTIONS –
EXISTING WEEKDAY CONDITIONS WITHOUT AND WITH PROJECT

No.[1]	Intersection	Control	Existing LOS[2] AM Peak Hour	Existing LOS[2] PM Peak Hour	Existing Plus Project LOS[2] AM Peak Hour	Existing Plus Project LOS[2] PM Peak Hour
1	S. Main St./E. Woodward Ave.	AWSC	**E**	**E**	**F**	**F**
2	Buena Vista Dr./E. Woodward Ave.	TWSC	C	B	C	B
3	Queensland Ave./E. Woodward Ave.	Signal	D	D	D	D
4	Wellington Ave./E. Woodward Ave.	TWSC	B	B	C	C
5	Van Ryn Ave./E. Woodward Ave.	TWSC	B	B	B	B
6	Pillsbury Rd./E. Woodward Ave.	AWSC	B	A	D	C
7	Adora Dr./E. Woodward Ave.	TWSC	A	A	A	A
8	Memorial Lane/E. Woodward Ave.	TWSC	B	A	B	B
9	E. Atherton Dr./E. Woodward Ave	AWSC	B	A	B	B
10	Moffat Blvd./E. Woodward Ave.	TWSC	B	B	C	C
11	Proj. Driveway #1/E. Woodward Ave.	TWSC	-	-	B	B
12	Pillsbury Rd./Proj. Driveway #2	TWSC	-	-	B	B
13	Pillsbury Rd./Proj. Driveway #3	TWSC	-	-	B	B

Notes: **Bold** values indicate unacceptable City LOS.
TWSC – two-way stop controlled; AWSC – all-way stop controlled
[1] See Figure 3-2 for reference.
[2] Per the Highway Capacity Manual 7th Edition, for signalized intersection, the overall LOS is shown. For intersections with two or all-way stop control, the LOS for the worst individual movement is shown.
Source: TJW Engineering 2024a.

The traffic study and the Supplemental Analysis recommended the installation of traffic signals at the South Main Street/East Woodward Avenue intersection (TJW Engineering 2024a). Traffic signal warrants, as set forth in the California Manual on Uniform Traffic Control Devices, were satisfied for both AM and PM peak hours.

As noted in Section 3.3, Air Quality, Mitigation Measure AQ-1 requires the project to pay its fair share of the costs to install traffic signal improvements at this intersection, not only to improve traffic flow but to avoid adverse CO impacts. With implementation of the recommended traffic signal improvements, the South Main Street/East Woodward Avenue intersection would experience LOS of B during both AM and PM peak hours, during weekday and weekend conditions. Both LOS would be acceptable under City standards.

Since the project is non-residential, it is unlikely to generate an increased demand for public transit services. However, as the project may attract nearby local residents, it is possible this would result in increased bicycle and pedestrian traffic. Existing sidewalks would adequately accommodate any additional pedestrian traffic. While the project site plans do not show any bicycle parking facilities, the adopted CALGreen has bicycle parking requirements. Specifically, Section 5.106.4 states that permanently anchored bicycle racks shall be provided within 200 feet of the visitors' entrance for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack. Mitigation described below would require the project to comply with this provision of CALGreen, which would minimize project impacts on transportation to a level that would be less than significant.

Mitigation Measures:

TRANS-1: The project shall provide bicycle racks in accordance with Section 5.106.4 of the California Green Building Standards Code adopted by the City at time of final site plan review. The bicycle racks shall be identified on the final site plan prior to City approval.

TRANS-2: The project shall designate spaces for electric vehicle charging stations in accordance with Section 4.106.4.2 of the California Green Building Standards Code adopted by the City at time of final site plan review. The electric vehicle spaces shall be identified on the final site plan prior to City approval.

In addition, the project shall implement Mitigation Measure AQ-1.

b) Conflict with CEQA Guidelines Section 15064.3(b).

CEQA Guidelines Section 15064.3(b) sets forth criteria for analyzing transportation impacts using VMT. As discussed above, VMT is now the preferred method for evaluating transportation impacts, rather than LOS. A VMT analysis of the project was conducted by TJW Engineering, Inc.; this analysis is available in Appendix E. The analysis and conclusions were based on the *City of Manteca SB 743 Implementation Policy,* which provides screening criteria and requirements for VMT assessment of land use projects. One of the screening criteria is that a locally serving retail shopping center of 125,000 square feet or less is exempt from further VMT analysis. As the combined square footage of the proposed project's buildings is less than 125,000 square feet, the project does not meet the threshold requiring a VMT analysis (TJW Engineering 2024b). Therefore, the project is not expected to conflict with CEQA Guidelines Section 15064.3(b), and impacts would be less than significant.

c) Transportation Hazards.

The traffic study conducted a queuing analysis to determine if there would be sufficient vehicle circulation on roadway inbound approaches to the project driveways. Insufficient circulation could lead to vehicle backup on the adjacent streets, thereby creating a potential safety hazard. Results were determined for the 95th percentile queue lengths for both AM and PM peak hours. For all three driveways, inbound queue lengths of less than 20 feet, or one vehicle length, were found (TJW Engineering 2024a). As such, project traffic entering the project site from all three driveways is not expected to cause any backup on streets.

Traffic generated by the project would be mostly passenger vehicles, similar in composition to current traffic on East Woodward Avenue. Vehicles that could affect traffic flow, such as farm equipment, would not be generated by the project. Project impacts related to transportation hazards would be less than significant.

d) Emergency Access.

The project proposes construction of three vehicle access driveways that would allow emergency vehicle access throughout the project site with no obstructions. All three driveways would have at least 30 feet of. Internal access roads would have a minimum width of 28 feet. Therefore, the driveways and internal roads would provide adequate width for all vehicles, including emergency vehicles. Project impacts related to emergency access would be less than significant.

3.18 TRIBAL CULTURAL RESOURCES

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

Environmental Setting

The project site, along with Manteca, lies within the northern portion of the ethnographic territory of the Yokuts people. The Yokuts held portions of the San Joaquin Valley from the Tehachapis in the south to Stockton in the north. Settlements were oriented along the waterways, with their village sites normally placed adjacent to these features for their nearby water and food resources. House structures varied in size and shape, with most constructed from the readily available tules found in the extensive marshes of the low-lying valley areas. Economic subsistence was based on the acorn, with substantial dependency on gathering and processing of wild seeds and other vegetable foods. The rivers, streams, and sloughs that formed a maze within the valley provided abundant food resources such as fish, shellfish, and turtles. Game, wild fowl, and small mammals were trapped and hunted to provide protein augmentation of the diet. Trade was well developed, with mutually beneficial interchange of needed or desired goods with tribes on the coast and in the Sierra Nevada and the Great Basin (City of Manteca 2017).

The Yokuts were severely impacted by Euro-American settlement. Missionization and exposure to disease decimated the population. The influx of Europeans during the Gold Rush era further reduced the population because of disease and violent encounters with the miners. Because of this, the Northern Valley Yokuts are not well documented in the ethnographic record. Nevertheless, members of the Yokuts exist in the present day. The Nototome/North Valley Yokut Tribe, Inc., represents the Northern Valley Yokuts in the Manteca region.

In 2014, the California Legislature enacted AB 52, which focuses on CEQA consultation with Native American tribes on projects potentially affecting the tribes. The intent of this consultation is to avoid or mitigate potential impacts on "tribal cultural resources," which are defined as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe." Under AB 52, when a tribe requests consultation with a CEQA lead agency on projects within its traditionally and culturally affiliated geographical area, the lead agency must provide the tribe with notice of a proposed project within 14 days of a project application being deemed complete or when the lead agency decides to undertake the project if it is the agency's own project. The tribe has up to 30 days to respond to the notice and request consultation; if consultation is requested, then the local agency has up to 30 days to initiate consultation.

Matters which may be subjects of AB 52 consultation include the type of CEQA environmental review necessary, the significance of tribal cultural resources, and project alternatives or appropriate measures for preservation or mitigation of the tribal cultural resource that the tribe may recommend to the lead agency. The consultation process ends when either (1) the resource in question is not considered significant, (2) the parties agree to mitigate or avoid a significant effect on a tribal cultural resource, or (3) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. Regardless of the outcome, a lead agency is still obligated under CEQA to mitigate any significant environmental effects, as explicitly noted in AB 52.

Environmental Impacts and Mitigation Measures

a, b) Tribal Cultural Resources.

As noted, the village sites of the Yokuts were normally placed adjacent to waterways. The project site is not located on or near any waterways. A records search of the California Historical Resources Information System, conducted by the Central California Information Center, did not find any formal records of resources known to have value to local cultural groups on the project site (CCIC 2023). This of itself does not mean that there are no tribal cultural resources on the project site, as tribes may be reluctant to disclose information on such resources.

The Native American Heritage Commission was requested to search its Sacred Lands File for any record of tribal cultural resources on the project site. The results of the search were negative. Pursuant to AB 52, the City sent letters to representatives of nine local tribes inviting them to consult on the project. The Confederated Villages of Lisjan sent a response stating that it had no further information to supply about the project site, but it wishes to be contacted if there are any finds. No other responses were received within the 30-day response period set by AB 52.

As indicated in Section 3.5, there are no records of any human burials occurring on the project site, includes Native American burials. CEQA Guidelines Section 15064.5(e) describes the procedure to be followed when Native American remains are uncovered, in accordance with Public Resources Code Section 5097.98. If remains are determined to be Native American in origin, then the County Coroner must contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission shall identify the most likely descendants of the deceased Native American, and the most likely descendants may make recommendations on the disposition of the remains and any associated grave goods with appropriate dignity. If a most likely descendant cannot be identified, the descendant fails to make a recommendation, or the landowner rejects the recommendations of the most likely descendant, then the landowner shall rebury the remains and associated grave goods with appropriate dignity on the property in a location not subject to further disturbance.

Project construction could potentially uncover previously unknown archaeological resources, including those of Native American origin. Mitigation Measure CULT-1 would require construction work to stop at an uncovered resource site until an archaeologist can evaluate the resource and give recommendations for its disposition. However, additional mitigation is provided below should any resources potentially of value to a tribe be encountered. Implementation of the mitigation measure would reduce potential impacts on tribal cultural resources to a level that would be less than significant.

Mitigation Measures:

TCR-1: If tribal cultural resources are encountered, the Community Development Department shall be immediately notified of the find, and work shall stop within 50 feet of the find. The Community Development Department shall notify the appropriate Native American representatives. A qualified archaeologist and the Native American representative shall examine the materials and determine their "uniqueness" or significance as tribal cultural resources and shall recommend mitigation measures needed to reduce potential cultural resource effects to a level that is less than significant in a written report to the Community Development Department, with a copy to the Native American representatives involved with the resource. The Community Development Department will be responsible for implementing the report recommendations. Avoidance is the preferred means of disposition of tribal cultural resources. Work shall resume in the vicinity only when the disposition of the remains is agreed to and implemented. If human remains are encountered and determined to be Native American in origin, then the provisions of Public Resources Code Section 5097.98 shall be implemented.

3.19 UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			✓	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?			✓	
c) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			✓	
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			✓	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				✓

Environmental Setting

The City of Manteca currently provides water, sewer, and storm drainage services to the project vicinity and would provide such services to the project. Approximately 40 percent of the City's potable water supply is provided by 15 municipal groundwater wells, which in 2020 produced 6,048 acre-feet per year of water. The wells are supplemented by treated surface water from the South San Joaquin Irrigation District (SSJID) as part of the South County Surface Water Program. The City has been allotted 11,500 acre-feet per year of this surface water. Potable water demand in 2020 totaled 15,282 acre-feet. The City has shifted from potable water to recycled water for irrigation, to reduce both the demand on potable water supplies and the costs of groundwater treatment. Total recycled water use in 2020 was 718 acre-feet (City of Manteca 2023c). Existing water mains are located beneath Woodward Avenue and Pillsbury Road along the project site frontage.

Wastewater collected in the City is treated at the Wastewater Quality Control Facility (WQCF), located southwest of downtown Manteca. The WQCF provides primary, secondary, and tertiary treatment of wastewater. It has an average dry weather design capacity of 9.87 million gallons per day (mgd) (City of Manteca 2017). In 2020, the facility treated a flow of approximately 7.0 mgd (City of Manteca 2023c). The City is planning to expand the facility in phases from the currently permitted 9.87 mgd to 27 mgd by buildout, based on growth anticipated by the recently adopted General Plan update (City of Manteca 2017). Existing wastewater mains are located beneath Woodward Avenue and Pillsbury Road along the project site frontage.

The City operates and maintains a storm drain system to control stormwater and protect residents and businesses from flooding. The City system includes approximately 150 miles of pipelines, 52 pump stations, and 54 detention basins. Additionally, SSJID owns a complex network of irrigation laterals and drains that run within the City limits to which the City pumps stormwater. An agreement between the City and SSJID requires the City to monitor stormwater discharges to SSJID facilities to make sure that facility capacities are not exceeded. The detention basins are used to detain stormwater to attenuate peak flows before pumping drainage flows into SSJID facilities (City of Manteca 2017). Existing storm drainage lines are located beneath Woodward Avenue and Pillsbury Road along the project site frontage.

The City provides solid waste collection service through its Solid Waste Division. Most of the collected solid waste is sent to the Forward Landfill on Austin Road near Stockton. The San Joaquin County Board of Supervisors recently approved an expansion of Forward Landfill, which would extend the life of the landfill to 2036 (Crunden 2020). Lesser amounts of solid waste are sent to the Foothill Sanitary Landfill and the North County landfill in San Joaquin County. The California Integrated Waste Management Act (AB 939) required local jurisdictions to divert at least 50% of their solid waste from landfills by 2000. AB 341 increased the recycling requirement to 75% of solid waste by 2020.

The Pacific Gas and Electric Company (PG&E) provides electrical and natural gas service to residences and businesses throughout the City of Manteca. PG&E’s infrastructure is in place to distribute natural gas and electricity to Manteca, and PG&E typically can accommodate new developments upon request. It should be noted that the SSJID is seeking to replace PG&E as the electricity distributor in Manteca and nearby cities. This change was approved by the San Joaquin Local Agency Formation Commission in 2014. However, ongoing litigation has delayed implementation of this change.

Environmental Impacts and Mitigation Measures

a) Relocation or Construction of New Facilities.

Existing water, wastewater, and storm drainage lines are along the project site frontage beneath Woodward Avenue and Pillsbury Road. The project would connect to these existing lines without a need for their relocation or extension. The project also would connect to existing electricity, natural gas, and telecommunication lines in the vicinity with no need for relocations or extensions. Infrastructure serving the proposed buildings would be installed as part of site development, and therefore would not have impacts distinct from overall site development. Project impacts related to the construction or relocation of infrastructure would be less than significant.

b) Water Systems and Supply.

The project would connect to the City's water supply system. As noted, existing water mains are along the Woodward Avenue and Pillsbury Road frontages. Commercial development consumed approximately 1,200 gallons of water per day per acre (City of Manteca 2022). Based on this, and not counting the area that would be left undeveloped, project water demand would be 3,624 gallons per day, or approximately 4.08 acre-feet per year. Therefore, current water supplies would be adequate to serve the project without requiring new or expanded water entitlements.

The City's 2020 Urban Water Management Plan estimated available water supply for the City during a normal year, a single dry year, and multiple dry years (City of Manteca 2023c).

- In a normal year, the City would have 21,227 acre-feet of water available in 2025 and 35,115 acre-feet in 2040. Water demand would be 16,428 acre-feet in 2025 and 19,866 acre-feet in 2040. In none of the intervening years would demand exceed supply; in fact, supply would exceed demand by no less than 4,799 acre-feet in all years.

- In a single dry year, the City would have 19,376 acre-feet of water available in 2025 and 31,207 acre-feet in 2045. Water demand would be the same as in a normal year. In none of the intervening years would demand exceed supply; in fact, supply would exceed demand by no less than 2,948 acre-feet in all years.

- In multiple dry years, water supplies would range from 19,376 to 21,227 acre-feet of water in 2025 and 31,207 to 36,678 acre-feet in 2045. Water demand would be the same as in a normal year. In none of the intervening years would demand exceed supply; in fact, supply would exceed demand by no less than 2,948 acre-feet in all years.

Based on the information above, there would be adequate water supply available for the project under all three scenarios without requiring new or expanded water entitlements.

The City requires projects to comply with the more restrictive of the outdoor potable water reduction requirements of CALGreen Section 4.304 or the Manteca Water Efficient Landscape Ordinance, which shall be noted on all site plans. The project would comply with this requirement and note it on its final site plan. Compliance with this requirement would further reduce water use of the project and thereby its impact on the City's water supplies. Project impacts on water supply would be less than significant.

c) Wastewater Treatment Capacity.

The project would connect to the City's wastewater system. An existing wastewater line is along the project site frontage. As noted, the WQCF in 2020 treated a flow of approximately 7.0 mgd and has an average dry weather design capacity of 9.87 mgd.

Commercial mixed use development generates approximately 2,473 gallons per day per acre (City of Manteca 2022). Based on this, the project would generate approximately 7,468 gallons per day (0.0075 mgd). The WQCF would have adequate capacity to treat wastewater from the project. Moreover, as noted, the City has plans to expand the treatment capacity of the facility. Project impacts on wastewater treatment capacity would be less than significant.

d) Solid Waste Services.

Development of the project site would generate a substantial new demand for solid waste disposal services. The California Department of Resources Recovery and Recycling has posted solid waste generation rates for commercial retail land uses from several sources that range from 0.006 to 0.046 pounds per square foot per day (CalRecycle 2019). For this analysis, the more conservative 0.046 factor will be used. Using this factor, the project would generate an estimated 766 pounds per day, or approximately 139.7 tons per year.

While the content of a ton of solid waste varies, it has been approximated that a cubic yard of solid waste weighs 300 pounds, so the project would generate approximately 932 cubic yards of solid waste per year. Total capacity at all three landfills to which the City's solid waste is sent is approximately 168.6 million cubic yards (City of Manteca 2022). Therefore, sufficient capacity exists at the County landfills to accommodate the solid waste generated by the project. Solid waste would be processed and disposed of in a manner consistent with applicable federal, State, and local regulations. Project impacts related to solid waste would be less than significant.

e) Solid Waste Regulations.

The project is expected to comply with applicable State and local solid waste regulations. These include the State recycling statutes and Manteca Municipal Code Chapter 8.12, which sets forth solid waste collection, disposal, and diversion requirements for residential, commercial, industrial, and other uses and addresses yard waste, hazardous materials, recyclables, and other forms of solid waste. The project would have no impact related to compliance with solid waste regulations.

3.20 WILDFIRE

If located in or near State Responsibility Areas or lands classified as Very High Fire Hazard Severity Zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				✓
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				✓
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water				✓

sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				✓

Environmental Setting

Wildland fires are an annual hazard in San Joaquin County. Wildland fires burn natural vegetation on undeveloped lands and include rangeland, brush, and grass fires. Long, hot, and dry summers, with temperatures often exceeding 100°F, add to the County's fire hazard. Human activities are the major cause of wildland fires, with lightning another significant cause. High hazard areas for wildland fires are the grass-covered areas in the east and the southwest foothills of the County (San Joaquin County 2016a).

The California Department of Forestry and Fire Protection's Fire and Resource Assessment Program identifies fire threat based on a combination of two factors: 1) fire frequency, or the likelihood of a given area burning, and 2) potential fire behavior. These two factors are combined in determining Fire Hazard Severity Zones of Moderate, High, and Very High. These zones apply to areas designated as State Responsibility Areas – areas in which the State has primary firefighting responsibility. The project site is not within a State Responsibility Area and therefore has not been placed in a Fire Hazard Severity Zone. The area surrounding the project site is likewise not in any designated fire hazard zone (Cal Fire 2022).

Environmental Impacts and Mitigation Measures

a) Emergency Response Plans and Emergency Evacuation Plans.

As noted in Section 3.9, Hazards and Hazardous Materials, the project would not interfere with movement of emergency response vehicles or evacuations once construction work is completed. The project would have no impact on emergency responses and evacuations.

b) Exposure of Project Occupants to Wildfire Hazards.

The project site is within a predominantly developed area that is not in a Fire Hazard Severity Zone. The nearest wildlands are along the San Joaquin River, which is four miles to the west and is separated from the project site by roadways and urban development. Wildland along the San Joaquin River is limited, so fires and smoke produced by them would likewise be limited. The project would have no impact related to exposure of project occupants to wildfire hazards.

c) Installation and Maintenance of Infrastructure.

The project proposes the installation of roads and parking areas and the extension of utilities. The installation of these facilities is not expected to exacerbate the wildfire risk on the project site, which is minimal as explained in b) above. The project would have no impact related to exacerbation of wildfire hazards by infrastructure improvements.

d) Risks from Runoff, Post-Fire Slope Instability, or Drainage Changes.

The project site is in a topographically flat area. There are no streams or other channels that cross the site. As such, it is not expected that people or structures would be exposed to significant risks from changes resulting from fires in steeper areas, including downslope or downstream flooding or landslides. The project would have no impact related to risks from runoff, post-fire slope instability, or drainage changes.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially 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, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	✓	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	✓	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	✓	☐

a) Findings on Biological and Cultural Resources.

The project's potential cultural resource impacts were described in Sections 3.5 and 3.18. Potentially significant environmental effects were identified in these issue areas, but these effects would be reduced to levels that would be less than significant with implementation of identified mitigation measures.

b) Findings on Individually Limited but Cumulatively Considerable Impacts.

The potential cumulative impacts of urban development of the site as part of development of the City were accounted for in the Manteca General Plan Update EIR (City of Manteca 2022). The potential environmental effects identified in this IS/MND have been considered in conjunction with each other as to their potential to generate other potentially significant effects.

The traffic study evaluated projected traffic operations at the study intersections under Cumulative conditions without and with the addition of the project. Table 3-10 shows traffic operations at the study intersections, including the three project driveway intersections, under Cumulative conditions. The traffic study in Appendix E has a more detailed analysis.

TABLE 3-10
LOS AT INTERSECTIONS –
CUMULATIVE CONDITIONS WITHOUT AND WITH PROJECT

			Cumul. LOS[2]		Cumul. Plus Project LOS[2]	
No.[1]	**Intersection**	**Control**	**AM Peak Hour**	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**
1	S. Main St./E. Woodward Ave.	AWSC	**F**	**F**	**F**	**F**
2	Buena Vista Dr./E. Woodward Ave.	TWSC	C	C	D	C
3	Queensland Ave./E. Woodward Ave.	Signal	D	D	D	D
4	Wellington Ave./E. Woodward Ave.	TWSC	B	B	C	C
5	Van Ryn Ave./E. Woodward Ave.	TWSC	B	B	C	B
6	Pillsbury Rd./E. Woodward Ave.	AWSC	B	B	D	D
7	Adora Dr./E. Woodward Ave.	TWSC	A	B	A	B
8	Memorial Lane/E. Woodward Ave.	TWSC	B	B	B	B
9	E. Atherton Dr./E. Woodward Ave	AWSC	B	B	B	B
10	Moffat Blvd./E. Woodward Ave.	TWSC	C	C	C	D
11	Proj. Driveway #1/E. Woodward Ave.	TWSC	-	-	B	B
12	Pillsbury Rd./Proj. Driveway #2	TWSC	-	-	B	B
13	Pillsbury Rd./Proj. Driveway #3	TWSC	-	-	C	B

Notes: **Bold** values indicate unacceptable City LOS.
TWSC – two-way stop controlled; AWSC – all-way stop controlled
[1] See Figure 3-2 for reference.
[2] Per the Highway Capacity Manual 7th Edition, for signalized intersection, the overall LOS is shown. For intersections with two or all-way stop control, the LOS for the worst individual movement is shown.
Source: TJW Engineering 2024a.

As shown in Table 3-10, under Cumulative conditions with the project, all but one of the study intersections would operate at an acceptable LOS of D or better, which is acceptable under the standards set forth in the Manteca General Plan. The exception is the South Main Street/East Woodward Avenue intersection. This intersection is projected to operate under Cumulative conditions during both the AM and PM peak hours at LOS F, which is unacceptable under City standards set forth in its General Plan. With the addition of project traffic, LOS would continue to be at F during both AM and PM peak hours.

As noted in Section 3.17, Transportation, the traffic study recommended the installation of a traffic signal at the South Main Street/East Woodward Avenue intersection (TJW Engineering 2024a). As noted in Section 3.3, Air Quality, Mitigation Measure AQ-1 requires the project to pay its fair share of the costs to install traffic signal improvements at this intersection, not only to improve traffic flow but to avoid adverse CO impacts. With implementation of the recommended traffic signal improvements, the South Main Street/East Woodward Avenue intersection would experience LOS of B during both AM and PM peak hours. Both LOS would be acceptable under City standards. As discussed in Section 3.17, Transportation, the project is screened out of VMT analysis based on City criteria.

As described in this IS/MND, the potential environmental effects of the project would either be less than significant or would have no impact at all. Where the project would involve potentially significant effects, they would be avoided or reduced to a level that is less than significant with proposed mitigation measures and/or compliance with applicable regulations and conditions of required permits. The various potential environmental effects of the project would not combine to generate any potentially significant cumulative effects.

c) Findings on Adverse Effects on Human Beings.

Potential adverse effects on human beings were discussed in Section 3.7, Geology and Soils (seismic hazards); Section 3.9, Hazards and Hazardous Materials; Section 3.10, Hydrology and Water Quality (flooding); Section 3.17, Transportation (traffic hazards); and Section 3.20, Wildfire. All potential adverse effects on human beings identified in those sections would be reduced to levels that are less than significant through mitigation measures or through compliance with applicable laws, regulations, and ordinances.

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4.1 DOCUMENT PREPARERS

This IS/MND was prepared by BaseCamp Environmental, Inc. for use by and under the supervision of the City of Manteca Department of Community Development. The following persons were involved in preparation of the IS/MND:

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Luke Saxelby. Principal, Saxelby Acoustics.

Lea Simvoulakis. Deputy Development Director Development Services Department, City of Manteca.

5.0 NOTES RELATED TO 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," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used: Identify and state where they are available for review.

   b) Impacts Adequately Addressed: Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c) Mitigation Measures: For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

APPENDIX A
AIR QUALITY MODELING RESULTS

Pillsbury 2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Pillsbury 2
Construction Start Date	5/1/2025
Operational Year	2029
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	9.00
Location	37.775283296790505, -121.19731043372369
County	San Joaquin
City	Manteca
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2129
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.26

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Free-Standing Discount store	15.0	1000sqft	0.35	15,045	47,871	—	—	—

Fast Food Restaurant with Drive Thru	8.60	1000sqft	0.20	8,600	0.00	—	—	—
Convenience Market with Gas Pumps	5.00	1000sqft	0.11	5,000	15,734	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Energy	E-1	Buildings Exceed 2019 Title 24 Building Envelope Energy Efficiency Standards
Water	W-7	Adopt a Water Conservation Strategy
Waste	S-1/S-2	Implement Waste Reduction Plan

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.18	19.6	23.8	0.04	0.90	6.07	6.97	0.82	2.68	3.51	4,246
Mit.	2.18	19.6	23.8	0.04	0.90	2.51	3.40	0.82	1.08	1.90	4,246
% Reduced	—	—	—	—	—	59%	51%	—	60%	46%	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	27.7	9.80	13.5	0.02	0.41	0.27	0.68	0.38	0.06	0.45	2,512
Mit.	27.7	9.80	13.5	0.02	0.41	0.27	0.68	0.38	0.06	0.45	2,512
% Reduced	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.66	2.59	3.54	0.01	0.11	0.15	0.25	0.10	0.05	0.15	718
Mit.	0.66	2.59	3.54	0.01	0.11	0.09	0.20	0.10	0.03	0.13	718
% Reduced	—	—	—	—	—	35%	20%	—	44%	15%	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.12	0.47	0.65	< 0.005	0.02	0.03	0.05	0.02	0.01	0.03	119
Mit.	0.12	0.47	0.65	< 0.005	0.02	0.02	0.04	0.02	0.01	0.02	119
% Reduced	—	—	—	—	—	35%	20%	—	44%	15%	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	2.18	19.6	23.8	0.04	0.90	6.07	6.97	0.82	2.68	3.51	4,246
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	27.7	9.80	13.5	0.02	0.41	0.27	0.68	0.38	0.06	0.45	2,512
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2025	0.66	2.59	3.54	0.01	0.11	0.15	0.25	0.10	0.05	0.15	718
Annual	—	—	—	—	—	—	—	—	—	—	—
2025	0.12	0.47	0.65	< 0.005	0.02	0.03	0.05	0.02	0.01	0.03	119

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	2.18	19.6	23.8	0.04	0.90	2.51	3.40	0.82	1.08	1.90	4,246
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	27.7	9.80	13.5	0.02	0.41	0.27	0.68	0.38	0.06	0.45	2,512
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2025	0.66	2.59	3.54	0.01	0.11	0.09	0.20	0.10	0.03	0.13	718
Annual	—	—	—	—	—	—	—	—	—	—	—
2025	0.12	0.47	0.65	< 0.005	0.02	0.02	0.04	0.02	0.01	0.02	119

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	34.4	31.6	309	0.79	0.62	70.7	71.3	0.58	18.0	18.6	84,448
Mit.	34.4	31.6	309	0.79	0.62	70.7	71.3	0.58	18.0	18.6	84,178
% Reduced	—	< 0.5%	< 0.5%	—	—	—	—	—	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	31.7	36.3	264	0.74	0.61	70.7	71.3	0.58	18.0	18.6	78,460
Mit.	31.7	36.3	264	0.74	0.61	70.7	71.3	0.58	18.0	18.6	78,190
% Reduced	—	< 0.5%	< 0.5%	—	—	—	—	—	—	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—

Unmit.	24.5	19.1	144	0.34	0.31	31.5	31.8	0.29	8.02	8.31	37,922
Mit.	24.5	19.1	144	0.34	0.31	31.5	31.8	0.29	8.02	8.31	37,652
% Reduced	—	< 0.5%	< 0.5%	—	—	—	—	—	—	—	1%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.46	3.48	26.3	0.06	0.06	5.75	5.81	0.05	1.46	1.52	6,278
Mit.	4.46	3.48	26.3	0.06	0.06	5.75	5.81	0.05	1.46	1.52	6,234
% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%	< 0.5%	—	< 0.5%	1%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	33.5	31.2	308	0.79	0.59	70.7	71.3	0.55	18.0	18.5	82,154
Area	0.85	0.01	1.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.14
Energy	0.02	0.37	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	858
Water	—	—	—	—	—	—	—	—	—	—	43.0
Waste	—	—	—	—	—	—	—	—	—	—	337
Refrig.	—	—	—	—	—	—	—	—	—	—	1,050
Total	34.4	31.6	309	0.79	0.62	70.7	71.3	0.58	18.0	18.6	84,448
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	31.0	36.0	264	0.73	0.59	70.7	71.3	0.55	18.0	18.5	76,172
Area	0.65	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.37	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	858
Water	—	—	—	—	—	—	—	—	—	—	43.0
Waste	—	—	—	—	—	—	—	—	—	—	337
Refrig.	—	—	—	—	—	—	—	—	—	—	1,050
Total	31.7	36.3	264	0.74	0.61	70.7	71.3	0.58	18.0	18.6	78,460

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Mobile	23.7	18.7	143	0.34	0.28	31.5	31.8	0.26	8.02	8.28	35,631
Area	0.75	0.01	0.61	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.54
Energy	0.02	0.37	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	858
Water	—	—	—	—	—	—	—	—	—	—	43.0
Waste	—	—	—	—	—	—	—	—	—	—	337
Refrig.	—	—	—	—	—	—	—	—	—	—	1,050
Total	24.5	19.1	144	0.34	0.31	31.5	31.8	0.29	8.02	8.31	37,922
Annual	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.32	3.41	26.2	0.06	0.05	5.75	5.81	0.05	1.46	1.51	5,899
Area	0.14	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.42
Energy	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	142
Water	—	—	—	—	—	—	—	—	—	—	7.12
Waste	—	—	—	—	—	—	—	—	—	—	55.8
Refrig.	—	—	—	—	—	—	—	—	—	—	174
Total	4.46	3.48	26.3	0.06	0.06	5.75	5.81	0.05	1.46	1.52	6,278

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	33.5	31.2	308	0.79	0.59	70.7	71.3	0.55	18.0	18.5	82,154
Area	0.85	0.01	1.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.14
Energy	0.02	0.36	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	849
Water	—	—	—	—	—	—	—	—	—	—	34.4
Waste	—	—	—	—	—	—	—	—	—	—	84.3
Refrig.	—	—	—	—	—	—	—	—	—	—	1,050

Total	34.4	31.6	309	0.79	0.62	70.7	71.3	0.58	18.0	18.6	84,178
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	31.0	36.0	264	0.73	0.59	70.7	71.3	0.55	18.0	18.5	76,172
Area	0.65	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.36	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	849
Water	—	—	—	—	—	—	—	—	—	—	34.4
Waste	—	—	—	—	—	—	—	—	—	—	84.3
Refrig.	—	—	—	—	—	—	—	—	—	—	1,050
Total	31.7	36.3	264	0.74	0.61	70.7	71.3	0.58	18.0	18.6	78,190
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Mobile	23.7	18.7	143	0.34	0.28	31.5	31.8	0.26	8.02	8.28	35,631
Area	0.75	0.01	0.61	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.54
Energy	0.02	0.36	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	849
Water	—	—	—	—	—	—	—	—	—	—	34.4
Waste	—	—	—	—	—	—	—	—	—	—	84.3
Refrig.	—	—	—	—	—	—	—	—	—	—	1,050
Total	24.5	19.1	144	0.34	0.31	31.5	31.8	0.29	8.02	8.31	37,652
Annual	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.32	3.41	26.2	0.06	0.05	5.75	5.81	0.05	1.46	1.51	5,899
Area	0.14	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.42
Energy	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	141
Water	—	—	—	—	—	—	—	—	—	—	5.70
Waste	—	—	—	—	—	—	—	—	—	—	14.0
Refrig.	—	—	—	—	—	—	—	—	—	—	174
Total	4.46	3.48	26.3	0.06	0.06	5.75	5.81	0.05	1.46	1.52	6,234

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.33	5.65	0.01	0.16	—	0.16	0.14	—	0.14	855
Demolition	—	—	—	—	—	0.31	0.31	—	0.05	0.05	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.12	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	23.4
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.88
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.52	0.00	0.00	0.08	0.08	0.00	0.02	0.02	94.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.29	0.07	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	257
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.38
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	7.04
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.17

3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.33	5.65	0.01	0.16	—	0.16	0.14	—	0.14	855
Demolition	—	—	—	—	—	0.20	0.20	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.12	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	23.4
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.88
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.52	0.00	0.00	0.08	0.08	0.00	0.02	0.02	94.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.29	0.07	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	257
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.38
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	7.04
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.17

3.3. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.16	5.57	0.01	0.21	—	0.21	0.20	—	0.20	862
Dust From Material Movement	—	—	—	—	—	0.53	0.53	—	0.06	0.06	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.8
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.95
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.26	0.00	0.00	0.04	0.04	0.00	0.01	0.01	47.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.10
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.16	5.57	0.01	0.21	—	0.21	0.20	—	0.20	862
Dust From Material Movement	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.8
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.95
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.26	0.00	0.00	0.04	0.04	0.00	0.01	0.01	47.0

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.10
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.09	10.1	10.0	0.02	0.46	—	0.46	0.43	—	0.43	1,720
Dust From Material Movement	—	—	—	—	—	5.31	5.31	—	2.57	2.57	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.14	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	23.6

Dust From Material Movement	—	—	—	—	—	0.07	0.07	—	0.04	0.04	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.90
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.39	0.00	0.00	0.06	0.06	0.00	0.01	0.01	70.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.89
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.09	10.1	10.0	0.02	0.46	—	0.46	0.43	—	0.43	1,720
Dust From Material Movement	—	—	—	—	—	2.07	2.07	—	1.00	1.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.14	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	23.6
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.90
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.39	0.00	0.00	0.06	0.06	0.00	0.01	0.01	70.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.89
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	5.14	6.94	0.01	0.22	—	0.22	0.20	—	0.20	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	5.14	6.94	0.01	0.22	—	0.22	0.20	—	0.20	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	2.11	2.85	< 0.005	0.09	—	0.09	0.08	—	0.08	538
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.39	0.52	< 0.005	0.02	—	0.02	0.02	—	0.02	89.1

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.53	0.00	0.00	0.09	0.09	0.00	0.02	0.02	96.0
Vendor	< 0.005	0.17	0.06	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	142
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.42	0.00	0.00	0.09	0.09	0.00	0.02	0.02	86.5
Vendor	< 0.005	0.18	0.06	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	141
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	36.5
Vendor	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	58.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.04
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	9.62
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	5.14	6.94	0.01	0.22	—	0.22	0.20	—	0.20	1,309

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	5.14	6.94	0.01	0.22	—	0.22	0.20	—	0.20	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	2.11	2.85	< 0.005	0.09	—	0.09	0.08	—	0.08	538
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.39	0.52	< 0.005	0.02	—	0.02	0.02	—	0.02	89.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.53	0.00	0.00	0.09	0.09	0.00	0.02	0.02	96.0
Vendor	< 0.005	0.17	0.06	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	142
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.42	0.00	0.00	0.09	0.09	0.00	0.02	0.02	86.5
Vendor	< 0.005	0.18	0.06	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	141
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	36.5
Vendor	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	58.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.04

Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	9.62
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	4.37	5.31	0.01	0.19	—	0.19	0.18	—	0.18	826
Paving	0.79	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.3
Paving	0.01	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.87
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.72	0.00	0.00	0.15	0.15	0.00	0.03	0.03	148

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Paving (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	4.37	5.31	0.01	0.19	—	0.19	0.18	—	0.18	826
Paving	0.79	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.3
Paving	0.01	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.87
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.72	0.00	0.00	0.15	0.15	0.00	0.03	0.03	148
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	134
Architectural Coatings	27.0	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.84
Architectural Coatings	0.37	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.30
Architectural Coatings	0.07	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	17.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.24
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.04

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Architectural Coating (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	134
Architectural Coatings	27.0	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.84
Architectural Coatings	0.37	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.30
Architectural Coatings	0.07	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	17.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.24
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.04
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	3.39	2.38	22.1	0.05	0.04	4.55	4.59	0.04	1.16	1.19	5,382
Fast Food Restaurant with Drive Thru	18.9	18.1	180	0.47	0.34	41.6	42.0	0.32	10.6	10.9	48,314
Convenience Market with Gas Pumps	11.2	10.7	106	0.27	0.20	24.5	24.7	0.19	6.24	6.43	28,458

Total	33.5	31.2	308	0.79	0.59	70.7	71.3	0.55	18.0	18.5	82,154
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	3.11	2.74	20.3	0.05	0.04	4.55	4.59	0.04	1.16	1.19	5,001
Fast Food Restaurant with Drive Thru	17.6	20.9	153	0.43	0.34	41.6	42.0	0.32	10.6	10.9	44,789
Convenience Market with Gas Pumps	10.3	12.3	90.2	0.25	0.20	24.5	24.7	0.19	6.24	6.43	26,382
Total	31.0	36.0	264	0.73	0.59	70.7	71.3	0.55	18.0	18.5	76,172
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	0.46	0.39	2.99	0.01	0.01	0.69	0.70	0.01	0.18	0.18	705
Fast Food Restaurant with Drive Thru	2.25	1.84	14.2	0.03	0.03	3.20	3.23	0.03	0.81	0.84	3,267
Convenience Market with Gas Pumps	1.61	1.18	9.00	0.02	0.02	1.86	1.88	0.02	0.47	0.49	1,928
Total	4.32	3.41	26.2	0.06	0.05	5.75	5.81	0.05	1.46	1.51	5,899

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	3.39	2.38	22.1	0.05	0.04	4.55	4.59	0.04	1.16	1.19	5,382
Fast Food Restaurant with Drive Thru	18.9	18.1	180	0.47	0.34	41.6	42.0	0.32	10.6	10.9	48,314

Convenience Market with Gas Pumps	11.2	10.7	106	0.27	0.20	24.5	24.7	0.19	6.24	6.43	28,458
Total	33.5	31.2	308	0.79	0.59	70.7	71.3	0.55	18.0	18.5	82,154
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	3.11	2.74	20.3	0.05	0.04	4.55	4.59	0.04	1.16	1.19	5,001
Fast Food Restaurant with Drive Thru	17.6	20.9	153	0.43	0.34	41.6	42.0	0.32	10.6	10.9	44,789
Convenience Market with Gas Pumps	10.3	12.3	90.2	0.25	0.20	24.5	24.7	0.19	6.24	6.43	26,382
Total	31.0	36.0	264	0.73	0.59	70.7	71.3	0.55	18.0	18.5	76,172
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	0.46	0.39	2.99	0.01	0.01	0.69	0.70	0.01	0.18	0.18	705
Fast Food Restaurant with Drive Thru	2.25	1.84	14.2	0.03	0.03	3.20	3.23	0.03	0.81	0.84	3,267
Convenience Market with Gas Pumps	1.61	1.18	9.00	0.02	0.02	1.86	1.88	0.02	0.47	0.49	1,928
Total	4.32	3.41	26.2	0.06	0.05	5.75	5.81	0.05	1.46	1.51	5,899

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	75.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	201
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	145
Total	—	—	—	—	—	—	—	—	—	—	420
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	75.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	201
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	145
Total	—	—	—	—	—	—	—	—	—	—	420
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	12.4
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	33.2
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	23.9
Total	—	—	—	—	—	—	—	—	—	—	69.6

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	73.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	199
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	143
Total	—	—	—	—	—	—	—	—	—	—	416
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	73.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	199
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	143
Total	—	—	—	—	—	—	—	—	—	—	416
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	12.1
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	33.0
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	23.7
Total	—	—	—	—	—	—	—	—	—	—	68.9

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	42.4
Fast Food Restaurant with Drive Thru	0.02	0.29	0.24	< 0.005	0.02	—	0.02	0.02	—	0.02	347
Convenience Market with Gas Pumps	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	48.6
Total	0.02	0.37	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	438
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	42.4
Fast Food Restaurant with Drive Thru	0.02	0.29	0.24	< 0.005	0.02	—	0.02	0.02	—	0.02	347
Convenience Market with Gas Pumps	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	48.6
Total	0.02	0.37	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	438
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	7.02
Fast Food Restaurant with Drive Thru	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	57.4
Convenience Market with Gas Pumps	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	8.04
Total	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	72.4

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	40.3
Fast Food Restaurant with Drive Thru	0.02	0.29	0.24	< 0.005	0.02	—	0.02	0.02	—	0.02	346
Convenience Market with Gas Pumps	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	47.3
Total	0.02	0.36	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	433
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	40.3
Fast Food Restaurant with Drive Thru	0.02	0.29	0.24	< 0.005	0.02	—	0.02	0.02	—	0.02	346
Convenience Market with Gas Pumps	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	47.3
Total	0.02	0.36	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	433
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	6.68
Fast Food Restaurant with Drive Thru	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	57.2
Convenience Market with Gas Pumps	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	7.84

Total	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	71.8

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.61	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.20	0.01	1.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.14
Total	0.85	0.01	1.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.61	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—
Total	0.65	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.11	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.42
Total	0.14	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.42

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.61	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.20	0.01	1.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.14
Total	0.85	0.01	1.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.61	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—
Total	0.65	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.11	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.42
Total	0.14	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.42

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	12.1
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	27.0
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	3.94
Total	—	—	—	—	—	—	—	—	—	—	43.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	12.1
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	27.0
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	3.94
Total	—	—	—	—	—	—	—	—	—	—	43.0
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	2.00
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	4.47
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	0.65
Total	—	—	—	—	—	—	—	—	—	—	7.12

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	9.64
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	21.6
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	3.15
Total	—	—	—	—	—	—	—	—	—	—	34.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	9.64
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	21.6
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	3.15
Total	—	—	—	—	—	—	—	—	—	—	34.4
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	1.60
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	3.58
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	0.52

Total	—	—	—	—	—	—	—	—	—	—	5.70

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	122
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	187
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	28.3
Total	—	—	—	—	—	—	—	—	—	—	337
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	122
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	187
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	28.3
Total	—	—	—	—	—	—	—	—	—	—	337
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	20.2

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	30.9
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	4.69
Total	—	—	—	—	—	—	—	—	—	—	55.8

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	30.5
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	46.7
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	7.08
Total	—	—	—	—	—	—	—	—	—	—	84.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	30.5
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	46.7
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	7.08
Total	—	—	—	—	—	—	—	—	—	—	84.3
Annual	—	—	—	—	—	—	—	—	—	—	—

Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	5.05
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	7.73
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	1.17
Total	—	—	—	—	—	—	—	—	—	—	14.0

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	0.07
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	13.4
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	1,037
Total	—	—	—	—	—	—	—	—	—	—	1,050
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	0.07
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	13.4

Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	1,037
Total	—	—	—	—	—	—	—	—	—	—	1,050
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	0.01
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	2.23
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	172
Total	—	—	—	—	—	—	—	—	—	—	174

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	0.07
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	13.4
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	1,037
Total	—	—	—	—	—	—	—	—	—	—	1,050
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	0.07

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	13.4
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	1,037
Total	—	—	—	—	—	—	—	—	—	—	1,050
Annual	—	—	—	—	—	—	—	—	—	—	—
Free-Standing Discount store	—	—	—	—	—	—	—	—	—	—	0.01
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	2.23
Convenience Market with Gas Pumps	—	—	—	—	—	—	—	—	—	—	172
Total	—	—	—	—	—	—	—	—	—	—	174

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	5/1/2025	5/15/2025	5.00	10.0	—
Site Preparation	Site Preparation	5/16/2025	5/22/2025	5.00	5.00	—
Grading	Grading	5/18/2025	5/23/2025	5.00	5.00	—
Building Construction	Building Construction	5/21/2025	12/16/2025	5.00	150	—
Paving	Paving	10/9/2025	10/16/2025	5.00	5.00	—
Architectural Coating	Architectural Coating	10/17/2025	10/24/2025	5.00	5.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40

Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20

Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	11.9	LDA,LDT1,LDT2
Demolition	Vendor	—	9.10	HHDT,MHDT
Demolition	Hauling	3.50	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	11.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	9.10	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	11.9	LDA,LDT1,LDT2
Grading	Vendor	—	9.10	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT

Building Construction	—	—	—	—
Building Construction	Worker	10.2	11.9	LDA,LDT1,LDT2
Building Construction	Vendor	4.78	9.10	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	11.9	LDA,LDT1,LDT2
Paving	Vendor	—	9.10	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	2.04	11.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	9.10	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	11.9	LDA,LDT1,LDT2
Demolition	Vendor	—	9.10	HHDT,MHDT
Demolition	Hauling	3.50	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	11.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	9.10	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT

Grading	—	—	—	—
Grading	Worker	7.50	11.9	LDA,LDT1,LDT2
Grading	Vendor	—	9.10	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	10.2	11.9	LDA,LDT1,LDT2
Building Construction	Vendor	4.78	9.10	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	11.9	LDA,LDT1,LDT2
Paving	Vendor	—	9.10	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	2.04	11.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	9.10	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

Architectural Coating	0.00	0.00	43,710	14,570	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	3,000	—
Site Preparation	—	—	2.50	0.00	—
Grading	—	—	3.75	0.00	—
Paving	0.00	0.00	0.00	0.00	1.50

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Free-Standing Discount store	0.50	100%
Fast Food Restaurant with Drive Thru	0.50	100%
Convenience Market with Gas Pumps	0.50	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Free-Standing Discount store	799	1,065	906	311,105	5,134	6,394	5,441	1,955,666
Fast Food Restaurant with Drive Thru	4,050	5,299	4,064	1,544,141	13,990	58,480	44,856	9,035,742
Convenience Market with Gas Pumps	3,121	3,121	3,121	1,139,165	6,433	34,446	34,446	5,269,534

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Free-Standing Discount store	799	1,065	906	311,105	5,134	6,394	5,441	1,955,666
Fast Food Restaurant with Drive Thru	4,050	5,299	4,064	1,544,141	13,990	58,480	44,856	9,035,742
Convenience Market with Gas Pumps	3,121	3,121	3,121	1,139,165	6,433	34,446	34,446	5,269,534

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	43,710	14,570	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Free-Standing Discount store	133,208	204	0.0330	0.0040	131,885
Fast Food Restaurant with Drive Thru	355,360	204	0.0330	0.0040	1,078,380
Convenience Market with Gas Pumps	256,084	204	0.0330	0.0040	151,188

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

Free-Standing Discount store	129,680	204	0.0330	0.0040	125,457
Fast Food Restaurant with Drive Thru	353,066	204	0.0330	0.0040	1,075,857
Convenience Market with Gas Pumps	254,160	204	0.0330	0.0040	147,306

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Free-Standing Discount store	1,132,569	671,920
Fast Food Restaurant with Drive Thru	2,686,273	0.00
Convenience Market with Gas Pumps	370,363	220,843

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Free-Standing Discount store	906,055	537,536
Fast Food Restaurant with Drive Thru	2,149,019	0.00
Convenience Market with Gas Pumps	296,290	176,675

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Free-Standing Discount store	64.7	—
Fast Food Restaurant with Drive Thru	99.1	—
Convenience Market with Gas Pumps	15.0	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Free-Standing Discount store	16.2	—
Fast Food Restaurant with Drive Thru	24.8	—
Convenience Market with Gas Pumps	3.76	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Free-Standing Discount store	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Free-Standing Discount store	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Convenience Market with Gas Pumps	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Convenience Market with Gas Pumps	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

Free-Standing Discount store	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Free-Standing Discount store	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Convenience Market with Gas Pumps	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Convenience Market with Gas Pumps	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	20.4	annual days of extreme heat
Extreme Precipitation	1.60	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	62.7
AQ-PM	51.7
AQ-DPM	28.1
Drinking Water	99.7
Lead Risk Housing	28.6
Pesticides	94.0
Toxic Releases	32.3
Traffic	3.70
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	91.2
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	98.4
Solid Waste	55.9
Sensitive Population	—
Asthma	78.9
Cardio-vascular	85.4
Low Birth Weights	63.3
Socioeconomic Factor Indicators	—
Education	54.8
Housing	43.9
Linguistic	29.5
Poverty	42.2
Unemployment	67.5

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	55.72950083
Employed	10.49659951
Median HI	64.7760811
Education	—
Bachelor's or higher	33.8380598
High school enrollment	13.01167715
Preschool enrollment	40.94700372
Transportation	—
Auto Access	70.20402926
Active commuting	55.2675478
Social	—
2-parent households	85.71795201
Voting	67.98408828
Neighborhood	—
Alcohol availability	97.0101373
Park access	29.34684974
Retail density	3.900936738
Supermarket access	6.608494803
Tree canopy	68.13807263
Housing	—
Homeownership	70.80713461
Housing habitability	83.36969075
Low-inc homeowner severe housing cost burden	74.81072758
Low-inc renter severe housing cost burden	77.67226999

Uncrowded housing	47.26036186
Health Outcomes	—
Insured adults	58.10342615
Arthritis	48.2
Asthma ER Admissions	19.1
High Blood Pressure	35.1
Cancer (excluding skin)	52.2
Asthma	34.7
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	47.8
Diagnosed Diabetes	64.3
Life Expectancy at Birth	64.7
Cognitively Disabled	50.3
Physically Disabled	23.7
Heart Attack ER Admissions	12.4
Mental Health Not Good	42.4
Chronic Kidney Disease	73.0
Obesity	33.5
Pedestrian Injuries	19.6
Physical Health Not Good	50.9
Stroke	64.5
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	34.8
No Leisure Time for Physical Activity	44.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	14.8
Elderly	50.9
English Speaking	58.2
Foreign-born	34.2
Outdoor Workers	12.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	78.0
Traffic Density	2.4
Traffic Access	0.0
Other Indices	—
Hardship	58.8
Other Decision Support	—
2016 Voting	60.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	73.0
Healthy Places Index Score for Project Location (b)	46.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Estimated actual construction period.
Construction: Paving	Estimated parking area.

2022 CARB & CAPCOA Gasoline Service Station Industrywide Risk Assessment Look-up Tool
Version 1.0 - February 18, 2022

Required Value	User Defined Input	Instructions	
Annual Throughput (gallons/year)	**2544000**	Enter your gas station's annual throughput in gallons of gasoline dispensed per year.	
Hourly Dispensing Throughput (gallons/hour)	**700**	The tool will calculate the maximum hourly vehicle fueling throughput based on annual throughput as defined by Table 10 of the 2020 Gasoline Service Station Industrywide Risk Assessment Technical Guidance Document (Technical Guidance). If a different value is desired please enter it into cell L4.	
Hourly Loading Throughput (gallons/hour)	**8800**	The tool will calculate the maximum hourly loading throughput based on annual throughput as defined by Table 10 of the Technical Guidance. If a different value is desired please enter it into cell L5.	
Meteorological Data	**Fresno**	Select appropriate meteorological data. Met sets provided include 2 rural (Redding and Lancaster) and 4 urban (Fresno, Ontario, San Diego, and San Jose) locations. Use whichever best correlates to your location. If you would like to use site-specific meteorological data please refer to the Variable Met Tool.	
Distance to Nearest Resident (meters)	**61**	Enter the distance to the nearest residential receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).	
Distance to Nearest Business (meters)	**20**	Enter the distance to the nearest worker receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).	
Distance to Acute Receptor (meters)	**80**	Enter the distance where acute impacts are expected in meters as measured from the edge of the station canopy. This can be the distance to the property boundary, nearest resident, nearest worker, or any other user defined location. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).	
Control Scenario	**EVR Phase I & EVR Phase II**	Select the appropriate control scenario for your gas station. Please refer to technical Guidance for an explanation of the different control scenarios. Almost all gas stations in California are equipped with EVR Phase I and EVR Phase II controls.	
Include Building Downwash Adjustments	**no**	Building downwash may over estimate risk results. High results should be investigated further through site-specific health risk assessment.	

Risk Value	Results
Max Residential Cancer Risk (chances/million)	**2.40**
Max Worker Cancer Risk (chances/million)	**0.81**
Chronic HI	**0.04**
Acute HI	**0.07**

APPENDIX B
BIOLOGICAL RESOURCE MATERIALS

Element_Type	Scientific_Name	Common_Name	Element_Code	Federal_Status	State_Status	CDFW_Status	CA_Rare_Plant_Rank	Quad_Code	Quad_Name	Data_Status	Taxonomic_Sort
Animals - Birds	Buteo swainsoni	Swainsons hawk	ABNKC19070	None	Threatened	-	-	3712172	MANTECA	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3712172	MANTECA	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3712172	MANTECA	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	3712172	MANTECA	Mapped	Animals - Insects - Apidae - Bombus occidentalis
Animals - Insects	Bombus pensylvanicus	American bumble bee	IIHYM24260	None	None	-	-	3712172	MANTECA	Mapped	Animals - Insects - Apidae - Bombus pensylvanicus
Animals - Insects	Lytta moesta	moestan blister beetle	IICOL4C020	None	None	-	-	3712172	MANTECA	Mapped	Animals - Insects - Meloidae - Lytta moesta
Animals - Mammals	Sylvilagus bachmani riparius	riparian brush rabbit	AMAEB01021	Endangered	Endangered	-	-	3712172	MANTECA	Unprocessed	Animals - Mammals - Leporidae - Sylvilagus bachmani riparius
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3712172	MANTECA	Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus

IPaC **U.S. Fish & Wildlife Service**

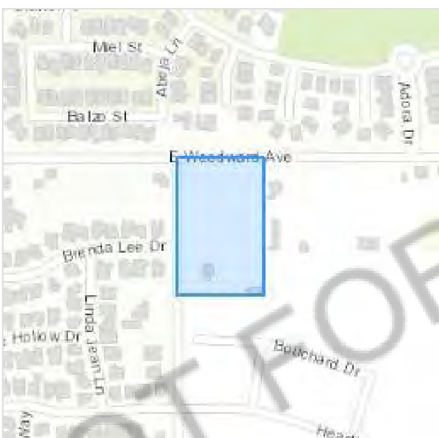
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

San Joaquin County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Common Yellowthroat *Geothlypis trichas sinuosa* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Nuttall's Woodpecker *Picoides nuttallii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI Pillsbury 113023

December 1, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

APPENDIX C
CULTURAL RESOURCE MATERIALS

CENTRAL CALIFORNIA INFORMATION CENTER
California Historical Resources Information System
Department of Anthropology – California State University, Stanislaus
One University Circle, Turlock, California 95382
(209) 667-3307

Alpine, Calaveras, Mariposa, Merced, San Joaquin, Stanislaus & Tuolumne Counties

Date: 10/25/2023

Records Search File #: 12702L
Project: 1840 Pillsbury Road, Manteca, CA
APN 224-050-07

Rayanna Beck rbeck@basecampenv.com
BaseCamp Environmental, Inc.
802 West Lodi Ave.
Lodi, CA 95240
209-224-8213

Dear Ms. Beck:

We have conducted a non-confidential extended records search as per your request for the above-referenced project area located on the Manteca USGS 7.5-minute quadrangle map in San Joaquin County.

Search of our files includes review of our maps for the specific project area and the immediate vicinity of the project area, and review of the following:

National Register of Historic Places (NRHP)
California Register of Historical Resources (CRHR)
California Inventory of Historic Resources (1976)
California Historical Landmarks
California Points of Historical Interest listing
Office of Historic Preservation Built Environment Resource Directory (BERD) and the Archaeological Resources Directory (ARD)
Survey of Surveys (1989)
Caltrans State and Local Bridges Inventory
General Land Office Plats
Other pertinent historic data available at the CCaIC for each specific county

The following details the results of the records search:

Prehistoric or historic resources within the project area:

- There are no formally recorded prehistoric or historic archaeological resources or historic buildings or structures within the project area.

- The General Land Office survey plat for the T2S R7E (dated 1855) shows a road passing through the SW ¼ of Section 10 from northwest to southeast. No other historic features are referenced.

- The Map of the County of San Joaquin, California (1883) shows John C. White as a landowner in the project vicinity.

- The 1914 edition of the Manteca USGS quadrangle shows the street alignments of Pillsbury and E. Woodward Roads.

- The 1952 edition of the Manteca USGS quadrangle shows an unnamed lateral along the southern border of the project area. We have no further information on file regarding this water conveyance feature that would be 71 years in age (or older).

Prehistoric or historic resources within the immediate vicinity of the project area: No prehistoric or historical archaeological features have been formally recorded; 1950-era historic buildings have been documented along Woodward Avenue east and west of the project area.

Resources that are known to have value to local cultural groups: None has been formally reported to the Information Center.

Previous investigations within the project area: No project-specific investigations have been conducted. The project area falls within the general boundary of three overview documents, referenced as follows:

Napton, L. K. (CSU Stanislaus, Institute for Archaeological Research for WPM Planning Team)
1993 *A Preliminary Cultural Resources Investigation of the South Manteca Area Plan, 7,800 acres in San Joaquin County, California.*
CCaIC Report SJ-01900

Windmiller, Ric and Donald Napoli (Ric Windmiller, Consulting Archaeologist (and) Donald Napoli, of Historic Preservation Planning; for Wade Associates, Sacramento, CA)
2002 *City of Manteca--General Plan Update, Background Reports: Archaeological Resources, Historical Resources, Records Search Results.*
CCaIC Report SJ-04786

Shideler, H. (San Joaquin County Historical Society)
1988 *Manteca: City in Transition.*
CCaIC Report SJ-04982

Recommendations/Comments:

Please be advised that a historical resource is defined as a building, structure, object, prehistoric or historic archaeological site, or district possessing physical evidence of human activities over 45 years old. Since the project area has not been subject to previous investigations, there may be unidentified features involved in your project that are 45 years or older and considered as historical resources requiring further study and evaluation by a qualified professional of the appropriate discipline.

If the current project does not include ground disturbance, further study for archaeological resources is not recommended at this time. If ground disturbance is considered a part of the current project, we recommend further review for the possibility of identifying prehistoric or historic-era archaeological resources.

If the proposed project contains buildings or structures that meet the minimum age requirement (45 years in age or older) it is recommended that the resource/s be assessed by a professional familiar with architecture and history of the county. Review of the available historic building/structure data has included only those sources listed above and should not be considered comprehensive.

If at any time you might require the services of a qualified professional the Statewide Referral List for Historical Resources Consultants is posted for your use on the internet at http://chrisinfo.org

If archaeological resources are encountered during project-related activities**,** work should be temporarily halted in the vicinity of the discovered materials and workers should avoid altering the materials and their context until a qualified professional archaeologist has evaluated the situation and provided appropriate recommendations. Project personnel should not collect cultural resources.

If human remains are discovered, California Health and Safety Code Section 7050.5 requires you to protect the discovery and notify the county coroner, who will determine if the find is Native American. If the remains are recognized as Native American, the coroner shall then notify the Native American Heritage Commission (NAHC). California Public Resources Code Section 5097.98 authorizes the NAHC to appoint a Most Likely Descendant (MLD) who will make recommendations for the treatment of the discovery.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the State Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

We thank you for contacting this office regarding historical resource preservation. Please let us know when we can be of further service. Thank you for sending the **Access Agreement Short Form.**

Note: Billing will be transmitted separately via email from the Financial Services office ($150.00), payable within 60 days of receipt of the invoice.

If you wish to include payment by Credit Card, you must wait to receive the official invoice from Financial Services so that you can reference the CMP # (Invoice Number), and then contact the link below:

https://commerce.cashnet.com/ANTHROPOLOGY

Sincerely,

E. A. Greathouse

E. A. Greathouse, Coordinator
Central California Information Center
California Historical Resources Information System

* Invoice Request sent to: ARBilling@csustan.edu, CSU Stanislaus Financial Services

May 23, 2024

Buena Vista Rancheria of Me-Wuk Indians
Attn: Rhonda Morningstar-Pope, Chairperson
1418 20th Street, Suite 200
Sacramento, CA 95811
rhonda@buenavistatribe.com

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Ms. Morningstar-Pope

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

Project Description: The proposed project is the subdivision of one parcel into 3 parcels with the development of a commercial center on two parcels. The commercial center would consist of a fueling station with a convenience store and quick serve restaurant and a commercial/retail building. The third parcel will not be developed as part of this project but will be available for future use. The project is located on a 4.67-acre site in the City of Manteca with the address of 1840 Pillsbury Road (APN: 224-050-07). A project map is attached with this letter.

The results of the Sacred Lands File check conducted through the Native American Heritage Commission was negative, as noted in the May 23, 2024 correspondence received from NAHC. Staff understands that the records maintained by the NAHC are not exhaustive and a negative response to this search does not preclude the existence of a tribal cultural resources. As such, we invite you to request consultation on the matter, should you choose to do so.

Should you have any questions, or need further information, please contact me at your convenience at (209) 456-8517 or tbarnum@manteca.gov.

Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

California Valley Miwok Tribe
AKA Sheep Rancheria of Me-Wuk Indians of CA
P.O. Box 395
West Point, CA 95255
l.ewilson@yahoo.com

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear California Valley Miwok Tribe AKA Sheep Rancheria of Me-Wuk Indians of CA,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

CITY OF MANTECA
DEVELOPMENT SERVICES DEPARTMENT

May 23, 2024

California Valley Miwok Tribe
14807 Avenida Central
La Grange, CA 95329

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear California Valley Miwok Tribe,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

Confederated Villages of Lisjan Nation
Attn: Corrina Gould, Chairperson
10926 Edes Avenue
Oakland, CA 94603
cvltribe@gmail.com

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Ms. Gould,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

Confederated Villages of Lisjan Nation
Attn: Cheyenne Gould, Tribal Cultural Resource Manager
10926 Edes Avenue
Oakland, CA 94603
cvltribe@gmail.com

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Ms. Gould,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

Confederated Villages of Lisjan Nation
Attn: Deja Gould, Language Program Manager
10926 Edes Avenue
Oakland, CA 94603
cvltribe@gmail.com

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Ms. Gould,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

CITY OF MANTECA

DEVELOPMENT SERVICES DEPARTMENT

May 23, 2024

Ione Band of Miwok Indians
Attn: Sara Dutschke, Chairperson
9252 Bush Street
Plymouth, CA 95669
consultation@ionemiwok@net

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Ms. Dutschke,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

Muwekma Ohlone Indian Tribe of the SF Bay Area
Attn: Monica Arellano, Vice Chairwoman
20885 Redwood Road, Suite 232
Castro Valley, CA 94546
monicavarellano@gmail.com

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Ms. Arellano,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

North Valley Yokuts Tribe
Attn: Katherine Perez, Chairperson
P.O. Box 717
Linden, CA 95236
canutes@verizon.net

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Ms. Perez,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

North Valley Yokuts Tribe
Attn: Timothy Perez, Chairperson
P.O. Box 717
Linden, CA 95236
huskanam@gmail.com

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Mr. Perez,

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

Tule River Indian Tribe
Attn: Joey Garfield, Tribal Archaeologist
P.O. Box 589
Porterville, CA 93258
Joey.garfield@tulerivertribe-nsn.gov

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Mr. Garfield,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

Project Description: The proposed project is the subdivision of one parcel into 3 parcels with the development of a commercial center on two parcels. The commercial center would consist of a fueling station with a convenience store and quick serve restaurant and a commercial/retail building. The third parcel will not be developed as part of this project but will be available for future use. The project is located on a 4.67-acre site in the City of Manteca with the address of 1840 Pillsbury Road (APN: 224-050-07). A project map is attached with this letter.

The results of the Sacred Lands File check conducted through the Native American Heritage Commission was negative, as noted in the May 23, 2024 correspondence received from NAHC. Staff understands that the records maintained by the NAHC are not exhaustive and a negative response to this search does not preclude the existence of a tribal cultural resources. As such, we invite you to request consultation on the matter, should you choose to do so.

Should you have any questions, or need further information, please contact me at your convenience at (209) 456-8517 or tbarnum@manteca.gov.

Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

Tule River Indian Tribe
Attn: Neal Peyron, Chairperson
P.O. Box 589
Porterville, CA 93258
neil.peyron@tulerivertribe-nsn.gov

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Mr. Peyron,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

CITY OF MANTECA

DEVELOPMENT SERVICES DEPARTMENT

May 23, 2024

Tule River Indian Tribe
Attn: Kerri Vera, Environmental Department
P.O. Box 589
Porterville, CA 93258
kerri.vera@tulerivertribe-nsn.gov

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Ms. Vera,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

Wilton Rancheria
Attn: Dahlton Brown, Director of Administration
9728 Kent Street
Elk Grove, CA 95624
dbrown@wiltonrancheria-nsn-gov

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Mr. Brown,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

Wilton Rancheria
Attn: Steven Hutchason, THPO
9728 Kent Street
Elk Grove, CA 95624
shutchason@wiltonrancheria-nsn-gov

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Mr. Hutchason,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

CITY OF MANTECA

DEVELOPMENT SERVICES DEPARTMENT

May 23, 2024

Wilton Rancheria
Attn: Jesus Tarango, Chairperson
9728 Kent Street
Elk Grove, CA 95624
jtarango@wiltonrancheria-nsn-gov

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Mr. Tarango,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Should you have any questions, or need further information, please contact me at your convenience at (209) 456-8517 or tbarnum@manteca.gov.

Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

May 23, 2024

Wuksachi Indian Tribe/Eshom Valley Band
Attn: Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas, CA 93906
Kwood8934@aol.com

Re: Native American Tribal Consultation, Pursuant to Assembly Bill (AB 52), for Pillsbury Neighborhood Shopping Center

Dear Mr. Woodrow,

The City of Manteca is currently reviewing a project that is in the geographic area that has been traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1 and 21084.3(c), the City, as the lead agency, is providing you the opportunity to consult and the proposed project, as the project will required a Mitigated Negative Declaration. Per Public Resources Code Section 21080.3.1 your tribe has 30 days to request consultation on the project.

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Thank you,

Toben Barnum, Associate Planner
Development Services Department, Planning Division

APPENDIX D
NOISE STUDY

Environmental Noise Assessment

1840 Pillsbury Road Commercial

City of Manteca, California

September 10, 2024

Project #231010

Prepared for:

BaseCamp Environmental, Inc.
802 West Lodi Avenue
Lodi, CA 95240

Prepared by:

Saxelby Acoustics LLC

Luke Saxelby, INCE Bd. Cert.
Principal Consultant
Board Certified, Institute of Noise Control Engineering (INCE)

(916) 760-8821
www.SaxNoise.com | Luke@SaxNoise.com
915 Highland Pointe Drive, Suite 250
Roseville, CA 95678

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INTRODUCTION

The 1840 Pillsbury Road Commercial project is located in the City of Manteca, California. The project includes the construction of a gas station, a quick service restaurant, and strip retail buildings. Single family residences are located immediately to the east and south, as well as west across Pillsbury Road.

Figure 1 shows the project site plan. **Figure 2** shows an aerial photo of the project site.

ENVIRONMENTAL SETTING

BACKGROUND INFORMATION ON NOISE

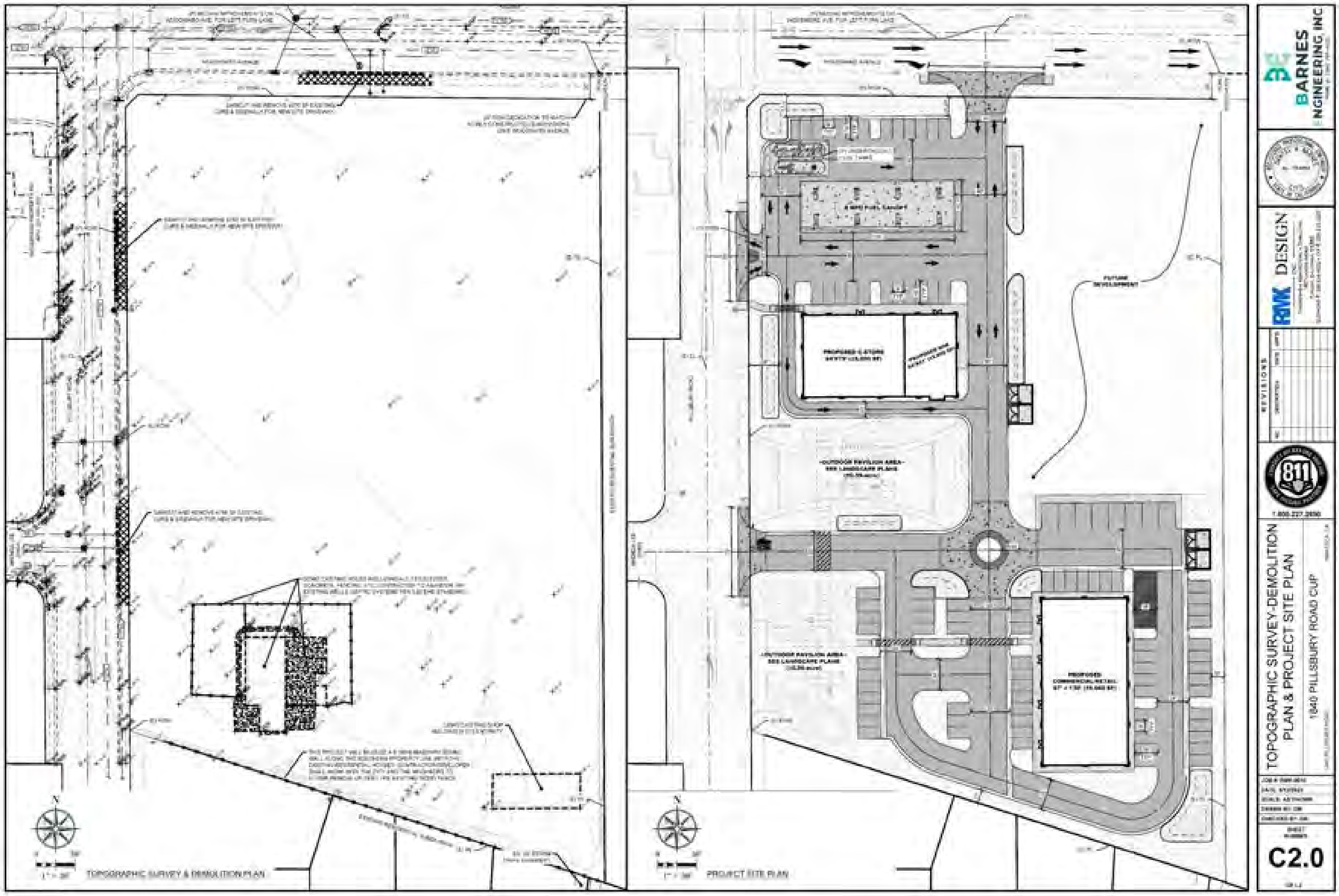
Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.

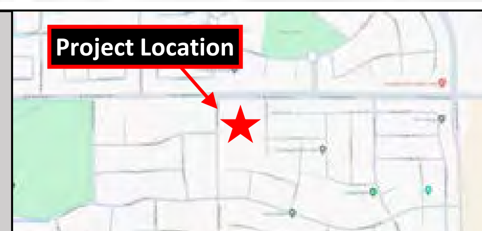


1840 Pillsbury Road Commercial

City of Manteca, California

Figure 1

Project Site Plan



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1840 Pillsbury Road Commercial

City of Manteca, California

Figure 2

Noise Measurement Sites

Legend

Noise Measurement Site - Long Term

0 ft 100 ft 200 ft

Projection: UTM Zone 10 / WGS84 / meters
Rev. Date: 12/15/2023

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Acoustics · Noise · Vibration

The decibel scale is logarithmic, not linear. In other words, two sound levels 10-dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10-dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60-dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (DNL or L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. **Appendix A** provides a summary of acoustical terms used in this report.

TABLE 1: TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft.)	--100--	
Gas Lawn Mower at 1 m (3 ft.)	--90--	
Diesel Truck at 15 m (50 ft.), at 80 km/hr. (50 mph)	--80--	Food Blender at 1 m (3 ft.) Garbage Disposal at 1 m (3 ft.)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft.)	--70--	Vacuum Cleaner at 3 m (10 ft.)
Commercial Area Heavy Traffic at 90 m (300 ft.)	--60--	Normal Speech at 1 m (3 ft.)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. September, 2013.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regards to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6-dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE AND VIBRATION ENVIRONMENTS

EXISTING NOISE RECEPTORS

Some land uses are considered more sensitive to noise than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise-sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

Sensitivity is a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. In the vicinity of the project site, sensitive land uses include single family residences located immediately to the east and south, as well as west across Pillsbury Road.

EXISTING GENERAL AMBIENT NOISE LEVELS

The existing noise environment in the project area is primarily defined by traffic on East Woodward Avenue. To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted continuous (24-hr.) noise level measurements at two locations on the project site. Noise measurement locations are shown on **Figure 2**. A summary of the noise level measurement survey results is provided in **Table 2**. **Appendix B** contains the complete results of the noise monitoring.

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. The average value, denoted L_{eq}, represents the energy average of all the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L_{50}, represents the sound level exceeded 50 percent of the time during the monitoring period. s

Larson Davis Laboratories (LDL) model 820 and 812 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with a CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

TABLE 2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

Location	Date	L_{dn}	Daytime L_{eq}	Daytime L_{50}	Daytime L_{max}	Nighttime L_{eq}	Nighttime L_{50}	Nighttime L_{max}
LT-1: 525 ft. to CL of East Woodward Ave.	12/14/23 to 12/15/23	61	53	50	71	55	53	69
LT-2: 250 ft. to CL of East Woodward Ave.	12/14/23 to 12/15/23	64	62	54	82	57	53	77

- *All values shown in dBA*
- *Daytime hours: 7:00 a.m. to 10:00 p.m.*
- *Nighttime Hours: 10:00 p.m. to 7:00 a.m.*
- *Source: Saxelby Acoustics, 2023.*

FUTURE TRAFFIC NOISE ENVIRONMENT AT OFF-SITE RECEPTORS

OFF-SITE TRAFFIC NOISE IMPACT ASSESSMENT METHODOLOGY

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at sensitive receptors for existing and future, project and no-project conditions.

Existing and Cumulative noise levels due to traffic are calculated using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict traffic noise levels in terms of L_{dn}, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Project trip generation volumes were provided by the project traffic engineer (TJW Engineering 2024), truck usage and vehicle speeds on the local area roadways were estimated from field observations. The predicted increases in traffic noise levels on the local roadway network for Existing and Cumulative conditions which would result from the project are provided in terms of L_{dn}.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. In some locations sensitive receptors may not receive full shielding from noise barriers or may be located at distances which vary from the assumed calculation distance.

Tables 3 and 4 summarize the modeled traffic noise levels at the nearest sensitive receptors along each roadway segment in the Project area. **Appendix C** provides the complete inputs and results of the FHWA traffic modeling.

TABLE 3: PREDICTED TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

Roadway	Segment	Existing no Project (dBA L_{dn})	Existing + Project (dBA L_{dn})	Change (dBA)
Main St	North of Woodward Dr	58.7	58.9	0.2
Woodward Ave	East of Main Street	62.5	63.0	0.5
Woodward Ave	East of Buena Vista Dr	61.9	62.8	0.9
Woodward Ave	East of Queensland Ave	61.6	62.7	1.1
Wellington Ave	North of Woodward Dr	53.4	53.6	0.2
Woodward Ave	East of Wellington Ave	61.8	63.1	1.3
Van Ryn Ave	North of Woodward Dr	55.7	56.0	0.3
Woodward Ave	East of Van Ryn Ave	61.2	62.9	1.7
Pillsbury Rd	South of Woodward Dr	57.6	59.3	1.7
Woodward Ave	East of Pillsbury Rd	60.6	62.4	1.8
Adora Dr	North of Woodward Dr	55.4	55.7	0.3
Woodward Ave	East of Adora Dr	60.8	61.8	1.0
Woodward Ave	Memorial Ln	61.0	61.7	0.7

TABLE 4: CUMULATIVE TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

Roadway	Segment	Cumulative no Project (dBA L_{dn})	Cumulative + Project (dBA L_{dn})	Change (dBA)
Main St	North of Woodward Dr	59.5	59.7	0.2
Woodward Ave	East of Main Street	63.4	63.9	0.5
Woodward Ave	East of Buena Vista Dr	62.8	63.5	0.7
Woodward Ave	East of Queensland Ave	62.5	63.4	0.9
Wellington Ave	North of Woodward Dr	53.5	53.6	0.1
Woodward Ave	East of Wellington Ave	62.7	63.7	1.0
Van Ryn Ave	North of Woodward Dr	56.1	56.4	0.3
Woodward Ave	East of Van Ryn Ave	62.0	63.5	1.5
Pillsbury Rd	South of Woodward Dr	58.1	59.8	1.7
Woodward Ave	East of Pillsbury Rd	61.5	62.9	1.4
Adora Dr	North of Woodward Dr	55.5	55.7	0.2
Woodward Ave	East of Adora Dr	61.6	62.4	0.8
Woodward Ave	Memorial Ln	61.7	62.4	0.7

Based upon the **Tables 3 and 4** data, the proposed project is predicted to result in an increase in a maximum traffic noise level increase of 1.8 dBA.

EVALUATION OF PROJECT OPERATIONAL NOISE ON EXISTING SENSITIVE RECEPTORS

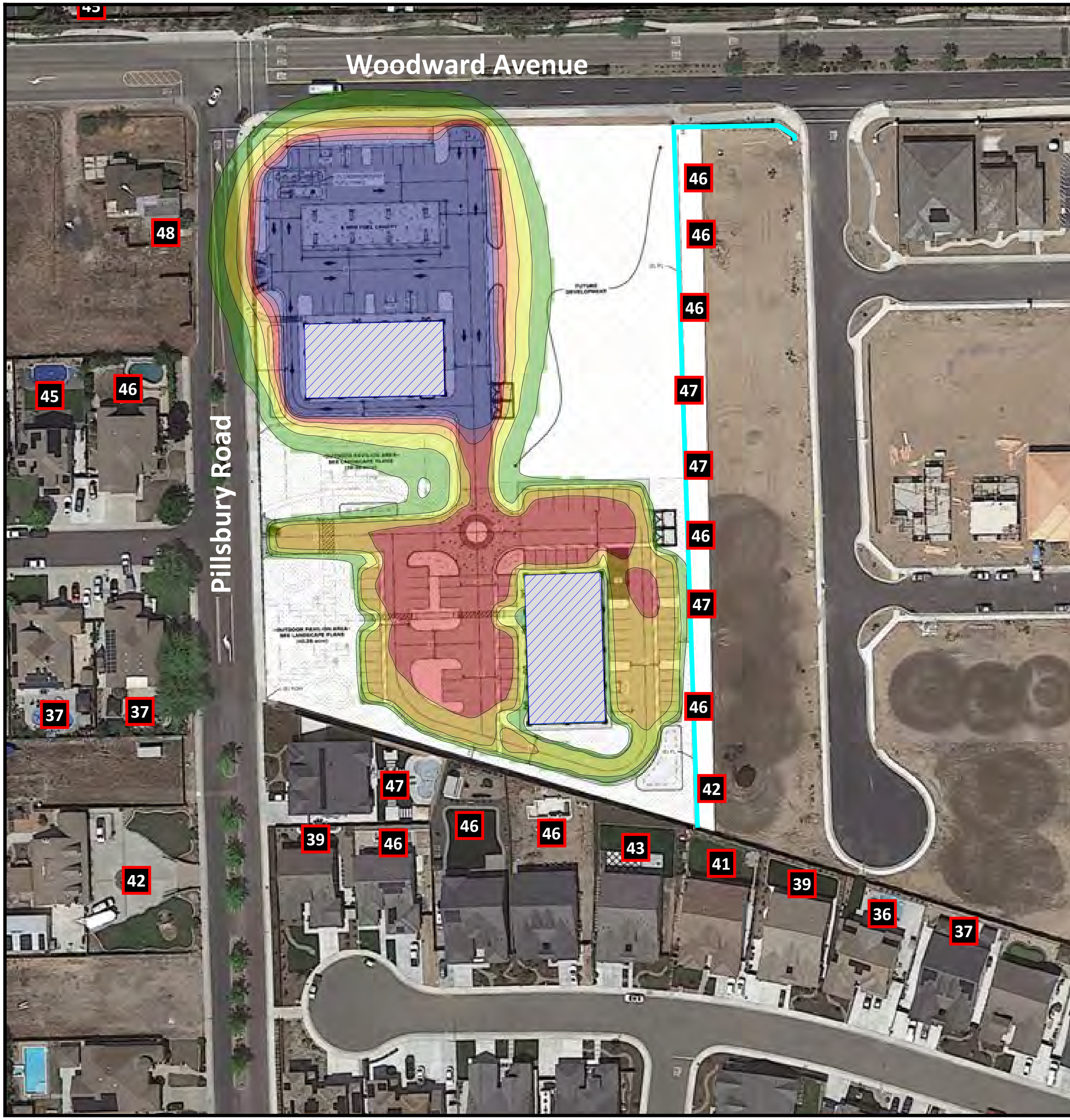
Project site traffic circulation and HVAC equipment noise are considered to be the primary noise sources for this project. The following is a list of assumptions used for the noise modeling. The data used is based upon a combination of manufacturer's provided data and Saxelby Acoustics data from similar operations.

On-Site Circulation: The project is projected to generate 3,288 daily trips with 337 trips in the evening peak hour (TJW Engineering 2024). Saxelby Acoustics assumed that 1-2 of these trips could be heavy trucks. Parking lot movements are predicted to generate a sound exposure level (SEL) of 71 dBA SEL at 50 feet for cars and 85 dBA SEL at 50 feet for trucks. Nighttime traffic outside of the AM or PM peak hour is estimated to be approximately 1/4 of daytime trips during nighttime hours (10:00 p.m. to 7:00 a.m.). Saxelby Acoustics data.

Rooftop HVAC: Saxelby Acoustics assumed that the gas station and quick-service restaurant would each have three ten-ton packaged units and one ten-ton air-cooled chiller unit. It was assumed that each retail space would be serviced by one ten-ton packaged unit. All equipment is assumed to operate continuously during the daytime, and 50% of the time at night. Manufacturer's data.

Drive-Thru: Saxelby Acoustics estimated that the drive-thru could operate continuously during both daytime and nighttime hours. The speaker was assumed to produce 62 dBA L_{eq} at 3 feet. Saxelby Acoustics data.

Saxelby Acoustics used the SoundPLAN noise prediction model. Inputs to the model included sound power levels for the proposed amenities, existing and proposed buildings, terrain type, and locations of sensitive receptors. These predictions are made in accordance with International Organization for Standardization (ISO) standard 9613-2:1996 (Acoustics – Attenuation of sound during propagation outdoors). ISO 9613 is the most commonly used method for calculating exterior noise propagation. **Figures 3 and 4** show the noise level contours resulting from operation of the project during daytime and nighttime hours, respectively.



1840 Pillsbury Road Commercial

City of Manteca, California

Figure 3

Project Operational Noise Levels
Leq,d, dBA

Noise Level, dBA

50 <		<=	51
51 <		<=	52
52 <		<=	53
53 <		<=	54
54 <		<=	55
55 <			

Legend

- Project Site
- Existing Wall
- Project Building

Scale 1:125

0 25 50 100 150 200 feet

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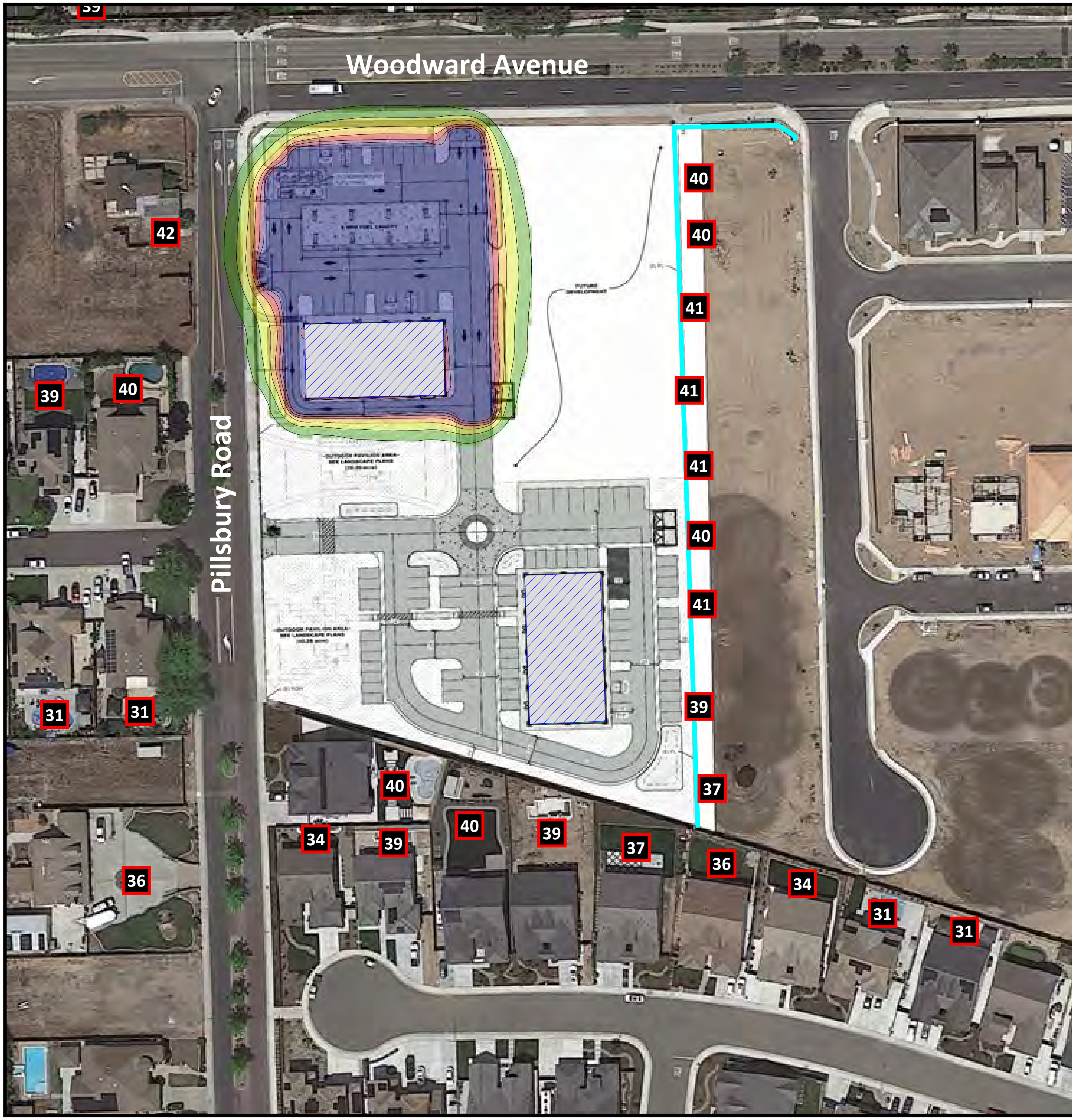

1840 Pillsbury Road Commercial

City of Manteca, California

Figure 4

Project Operational Noise Levels
Leq,n, dBA

Noise Level, dBA

45 <	<=	46
46 <	<=	47
47 <	<=	48
48 <	<=	49
49 <	<=	50
50 <		

Legend

- Project Site
- Existing Wall
- Project Building

Scale 1:125

0 25 50 100 150 200 feet

N

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

CONSTRUCTION NOISE ENVIRONMENT

During the construction of the proposed project, noise from construction activities would temporarily add to the noise environment in the project vicinity. As shown in **Table 5**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dB at a distance of 50 feet.

TABLE 5: CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Maximum Level, dBA at 50 feet
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85

Source: Roadway Construction Noise Model User's Guide. Federal Highway Administration. FHWA-HEP-05-054. January 2006.

CONSTRUCTION VIBRATION ENVIRONMENT

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. **Table 6** shows the typical vibration levels produced by construction equipment.

TABLE 6: VIBRATION LEVELS FOR VARIOUS CONSTRUCTION EQUIPMENT

Type of Equipment	Peak Particle Velocity at 25 feet (inches/second)	Peak Particle Velocity at 50 feet (inches/second)	Peak Particle Velocity at 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210 (Less than 0.20 at 26 feet)	0.074	0.026

Source: Transit Noise and Vibration Impact Assessment Guidelines. Federal Transit Administration. May 2006.

REGULATORY CONTEXT

FEDERAL

There are no federal regulations related to noise that apply to the Proposed Project.

STATE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels. CEQA standards are discussed in more detail under the Thresholds of Significance section.

LOCAL

City of Manteca General Plan

S-6.6 Regulate construction-related noise to reduce impacts on adjacent uses to the criteria identified in Table S-2 or, if the criteria in Table S-2 cannot be met, to the maximum level feasible using best management practices and complying with the MMC Chapter 9.52.

S-6.15 Recognizing that existing noise-sensitive uses may be exposed to increase noise levels due to circulation improvement projects associated with development under the General Plan and that it may not be feasible to reduce increased traffic noise levels to the criteria identified in Table S-1, the following criteria may be used to determine the significance of noise impacts associated with circulation improvement projects:

- Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels range between 60 and 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant.

S-6d In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels are have a substantial increase. Generally, a 3 dB increase in noise levels is barely perceptible, and a 5 dB increase in noise levels is clearly perceptible. Therefore, increases in noise levels shall be considered to be substantial when the following occurs:

Transportation Noise

- *When existing noise levels are less than 60 dB, a 5 dB increase in noise will be considered* *substantial;*

- *When existing noise levels are between 60 dB and 65 dB, a 3 dB increase in noise will be considered substantial;*
- *When existing noise levels exceed 65 dB, a 1.5 dB increase in noise will be considered substantial.*

TABLE 7: MAXIMUM ALLOWABLE NOISE EXPOSURE FROM MOBILE NOISE SOURCES

Land Use[1]	Outdoor Activity Areas[2],[3]	Interior Spaces	
		L_{dn}/ CNEL, dBA	L_{eq}, dBA[4]
Residential	60	45	-
Motels/Hotels	65	45	-
Mixed-Use	65	45	
Hospitals, Nursing Homes	60	45	-
Theaters, Auditoriums	-	-	35
Churches	60	-	40
Office Buildings	65	-	45
Schools, Libraries, Museums	70	-	45
Playgrounds, Neighborhood Parks	70	-	-
Industrial	75	-	45
Golf Courses, Water Recreation	70	-	-

[1]Where a proposed use is not specifically listed, the use shall comply with the standards for the most similar use as determined by the City.
[2]Outdoor activity areas for residential development are considered to be the back yard patios or decks of single family units and the common areas where people generally congregate for multi-family developments. Where common outdoor activity areas for multi-family developments comply with the outdoor noise level standard, the standard will not be applied at patios or decks of individual units provided noise-reducing measures are incorporated (e.g., orientation of patio/deck, screening of patio with masonry or other noise-attenuating material). Outdoor activity areas for non-residential developments are the common areas where people generally congregate, including pedestrian plazas, seating areas, and outside lunch facilities; not all residential developments include outdoor activity areas.
[3]In areas where it is not possible to reduce exterior noise levels to achieve the outdoor activity area standard using a practical application of the best noise-reduction technology, an increase of up to 5 Ldn over the standard will be allowed provided that available exterior noise reduction measures have been implemented and interior noise levels are in compliance with this table
[4]Determined for a typical worst-case hour during periods of use.
Source: City of Manteca General Plan Table S-1.

TABLE 8: PERFORMANCE STANDARDS FOR STATIONARY NOISE SOURCES OR PROJECTS AFFECTED BY STATIONARY NOISE SOURCES [1,2,3,4]

Noise Level Descriptor	Daytime (7 AM – 10 PM)	Nighttime (10 PM – 7 AM)
Hourly L_{eq}, dB	55	45

[1] Each of the noise levels specified above should be lowered by five (5) dB for simple noise tones, noises consisting primarily of speech or music, or recurring impulsive noises. Such noises are generally considered by residents to be particularly annoying and are a primary source of noise complaints.

[2] No standards have been included for interior noise levels. Standard construction practices should, with the exterior noise levels identified, result in acceptable interior noise levels.

[3] Stationary noise sources which are typically of concern include, but are not limited to, the following:

HVAC Systems	*Cooling Towers/Evaporative Condensers*
Pump Stations	*Lift Stations*
Emergency Generators	*Boilers*
Steam Valves	*Steam Turbines*
Generators	*Fans*
Air Compressors	*Heavy Equipment*
Conveyor Systems	*Transformers*
Pile Drivers	*Grinders*
Drill Rigs	*Gas or Diesel Motors*
Welders	*Cutting Equipment*
Outdoor Speakers	*Blowers*

[4] The types of uses which may typically produce the noise sources described above include but are not limited to: industrial facilities, pump stations, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, public works projects, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, and athletic fields.

Source: City of Manteca General Plan Table S-2.

City of Manteca Municipal Code Noise Ordinance

17.58.050 D. Exempt Activities

8. Construction activities when conducted as part of an approved Building Permit, except as prohibited in Subsection 17.58.050(E)(1) (Prohibited Activities) below.

17.58.050 E. Prohibited Activities

1. Construction Noise. Operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work daily between the hours of 7:00 p.m. and 7:00 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities.

Criteria for Acceptable Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. **Table 9** which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Table 9 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. A threshold of 0.20 in/sec p.p.v. is considered to be a reasonable threshold for short-term construction projects.

TABLE 9: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

Peak Particle Velocity		Human Reaction	Effect on Buildings
mm/second	in/second		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of “architectural” damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of “architectural” damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize “architectural” damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

Source: Transportation Related Earthborne Vibrations. Caltrans. TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Significance criteria for noise impacts are drawn from CEQA Guidelines Appendix G (Items XI [a-c]).

Would the project:

a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b. Generate excessive groundborne vibration or groundborne noise levels?

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project is not located within two miles of a public or private airport, therefore item "c" is not discussed any further in this study.

Noise Level Increase Criteria for Long-Term Project-Related Noise Level Increases

The City of Manteca establishes noise level increase criteria for long-term project-related increases due to transportation noise in the General Plan. The relevant criteria are reproduced below:

S-6d In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels have a substantial increase. Generally, a 3 dB increase in noise levels is barely perceptible, and a 5 dB increase in noise levels is clearly perceptible. Therefore, increases in noise levels shall be considered to be substantial when the following occurs:

Transportation Noise

- When existing noise levels are less than 60 dB, a 5 dB increase in noise will be considered substantial;
- When existing noise levels are between 60 dB and 65 dB, a 3 dB increase in noise will be considered substantial;
- When existing noise levels exceed 65 dB, a 1.5 dB increase in noise will be considered substantial.

Non-Transportation Noise

- A 5 dB increase in noise will be considered substantial.

Temporary Construction Noise Impacts

With temporary noise impacts (construction), identification of "substantial increases" depends upon the duration of the impact, the temporal daily nature of the impact, and the absolute change in decibel levels. Per the City of Manteca Municipal Code, construction activities operating between 7:00 p.m. and 7:00 a.m. are exempt from the ordinance. For short-term noise associated with Project construction, the City of Manteca establishes an increase criteria of 12 dBA in Policy S-6d. This level of increase is approximately equivalent to a doubling of sound energy.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

Impact 1: ***Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

Traffic Noise Increases at Off-Site Receptors

The City of Manteca General Plan specifies criteria to determine the significance of traffic noise impacts. Where existing traffic noise levels are greater than 65 dB L_{dn}, a +1.5 dB L_{dn} increase in roadway noise levels will be considered significant. Where existing traffic noise levels are between 60 and 65 dB L_{dn}, a +3.0 dB L_{dn} increase in roadway noise levels will be considered significant. Where existing traffic noise levels are less than 60 dB L_{dn}, a +5.0 dB L_{dn} increase in roadway noise levels will be considered significant. **Tables 10 and 11** below evaluate significance of increases in roadway noise levels.

TABLE 10: EXISTING PLUS PROJECT SIGNIFICANCE ANALYSIS

Roadway	Segment	Existing (dBA L_{dn})	Significance Threshold	Existing + Project (dBA L_{dn})	Change (dBA)	Significant?
Main St	North of Woodward Dr	58.7	>60 or +5.0 dB	58.9	0.2	No
Woodward Ave	East of Main Street	62.5	+3.0 dB	63.0	0.5	No
Woodward Ave	East of Buena Vista Dr	61.9	+3.0 dB	62.8	0.9	No
Woodward Ave	East of Queensland Ave	61.6	+3.0 dB	62.7	1.1	No
Wellington Ave	North of Woodward Dr	53.4	>60 or +5.0 dB	53.6	0.2	No
Woodward Ave	East of Wellington Ave	61.8	+3.0 dB	63.1	1.3	No
Van Ryn Ave	North of Woodward Dr	55.7	>60 or +5.0 dB	56.0	0.3	No
Woodward Ave	East of Van Ryn Ave	61.2	+3.0 dB	62.9	1.7	No
Pillsbury Rd	South of Woodward Dr	57.6	>60 or +5.0 dB	59.3	1.7	No
Woodward Ave	East of Pillsbury Rd	60.6	+3.0 dB	62.4	1.8	No
Adora Dr	North of Woodward Dr	55.4	>60 or +5.0 dB	55.7	0.3	No
Woodward Ave	East of Adora Dr	60.8	+3.0 dB	61.8	1.0	No
Woodward Ave	Memorial Ln	61.0	+3.0 dB	61.7	0.7	No

TABLE 11: CUMULATIVE PLUS PROJECT SIGNIFICANCE ANALYSIS

Roadway	Segment	Cumulative (dBA L_{dn})	Significance Threshold	Cumulative + Project (dBA L_{dn})	Change (dBA)	Significant?
Main St	North of Woodward Dr	59.5	>60 or +5.0 dB	59.7	0.2	No
Woodward Ave	East of Main Street	63.4	+3.0 dB	63.9	0.5	No
Woodward Ave	East of Buena Vista Dr	62.8	+3.0 dB	63.5	0.7	No
Woodward Ave	East of Queensland Ave	62.5	+3.0 dB	63.4	0.9	No
Wellington Ave	North of Woodward Dr	53.5	>60 or +5.0 dB	53.6	0.1	No
Woodward Ave	East of Wellington Ave	62.7	+3.0 dB	63.7	1.0	No
Van Ryn Ave	North of Woodward Dr	56.1	>60 or +5.0 dB	56.4	0.3	No
Woodward Ave	East of Van Ryn Ave	62.0	+3.0 dB	63.5	1.5	No
Pillsbury Rd	South of Woodward Dr	58.1	>60 or +5.0 dB	59.8	1.7	No
Woodward Ave	East of Pillsbury Rd	61.5	+3.0 dB	62.9	1.4	No
Adora Dr	North of Woodward Dr	55.5	>60 or +5.0 dB	55.7	0.2	No
Woodward Ave	East of Adora Dr	61.6	+3.0 dB	62.4	0.8	No
Woodward Ave	Memorial Ln	61.7	+3.0 dB	62.4	0.7	No

Impacts resulting from increased traffic noise would be considered ***less-than-significant***, and no mitigation is required.

Operational Noise at Existing Sensitive Receptors

Compliance with City Standards

As shown on **Figures 3 and 4**, the project is predicted to expose nearby residences to noise levels up to 47 dBA L_{eq} during daytime (7:00 a.m. to 10:00 p.m.) hours and 41 dBA L_{eq} during nighttime (10:00 p.m. to 7:00 a.m.) hours. The predicted project noise levels would comply with the City of Manteca daytime noise standard of 55 dBA L_{eq} and nighttime standard of 45 dBA L_{eq}.

This is a ***less-than-significant*** impact, and no mitigation is required.

Analysis of Significance of Long-Term Project-Related Noise Increases

The City of Manteca General Plan establishes a significance threshold of +5.0 dBA increase in ambient noise levels due to new stationary sources.

At the residences south of the project, the average ambient noise level was measured to be 53 dBA L_{eq} during daytime (7:00 a.m. to 10:00 p.m.) hours and 55 dBA L_{eq} during nighttime (10:00 p.m. to 7:00 a.m.) hours based upon the ambient noise level survey (LT-1). An increase of +5.0 dBA or greater would constitute a significant increase. The resulting sum of daytime ambient noise (53 dBA L_{eq}) plus project generated noise (47 dBA L_{eq}) would be 54.0 dBA L_{eq}. This would represent an increase of 1.0 dBA over ambient, which is less than the +5 dBA increase criterion. The resulting sum of nighttime ambient noise (55 dBA L_{eq}) plus project generated noise (40 dBA L_{eq}) would be 55.2 dBA L_{eq}. This would represent an increase of 0.2 dBA over ambient, which is less than the +5 dBA increase criterion.

At the residences west of the project, the average ambient noise level was measured to be 62 dBA L_{eq} during daytime (7:00 a.m. to 10:00 p.m.) hours and 57 dBA L_{eq} during nighttime (10:00 p.m. to 7:00 a.m.) hours based upon the ambient noise level survey (LT-1). An increase of +5.0 dBA or greater would constitute a significant increase. The resulting sum of daytime ambient noise (62 dBA L_{eq}) plus project generated noise (48 dBA L_{eq}) would be 62.2 dBA L_{eq}. This would represent an increase of 0.2 dBA over ambient, which is less than the +5 dBA increase criterion. The resulting sum of nighttime ambient noise (57 dBA L_{eq}) plus project generated noise (42 dBA L_{eq}) would be 57.1 dBA L_{eq}. This would represent an increase of 0.1 dBA over ambient, which is less than the +5 dBA increase criterion.

Therefore, this is a ***less-than-significant*** impact, and no mitigation is required.

Construction Noise

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. As indicated in **Table 5,** activities involved in construction would generate maximum noise levels ranging from 76 to 90 dBA L_{max} at a distance of 50 feet. Construction activities would also be temporary in nature and are anticipated to occur during normal daytime working hours. The City of Manteca Municipal Code exempts construction noise from the noise ordinance between the hours of 7:00 a.m. and 7:00 p.m.

The City defines a significant increase due to construction noise as an increase of 12 dBA over existing ambient noise levels; Saxelby Acoustics used this criterion to evaluate increases due to construction noise associated with the project. As shown in **Table 5**, construction equipment is predicted to generate noise levels of up to 90 dBA L_{max} at 50 feet. Construction noise is evaluated as occurring at the center of the site to represent average noise levels generated over the duration of construction across the project site. The nearest residential uses are located approximately 180 feet as measured from the center of the project site. At this distance, maximum construction noise levels would be up to 79 dBA. The average daytime maximum noise level in the vicinity of the sensitive receptors was measured to be 71 dBA, resulting in an increase of 8 dBA. Therefore, project construction would not cause an increase of greater than 12 dBA over existing ambient noise levels.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from the construction site. This noise increase would be of short duration and would occur during daytime hours.

Although construction activities are temporary in nature and would occur during normal daytime working hours, construction-related noise could result in sleep interference at existing noise-sensitive land uses in the vicinity of the construction if construction activities were to occur outside the normal daytime hours. Therefore, impacts resulting from noise levels temporarily exceeding the threshold of significance due to construction would be considered ***potentially significant***. Mitigation measure 1(a) would reduce construction noise impacts to ***less-than-significant***.

Mitigation Measures

1(a) The City shall establish the following as conditions of approval for any permit that results in the use of construction equipment:

- Restrict construction activities to the hours of 7:00 a.m. to 7:00 p.m. on Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays. No construction shall be permitted outside of these hours or on Sundays or federal holidays, without a specific exemption issued by the City. No exemption shall be issued for construction within 200 feet of residential uses. All construction equipment powered by internal combustion engines shall be properly muffled and maintained.
- A Construction Noise Management Plan shall be submitted by the applicant for construction projects that exceed ambient noise levels by more than 12 dBA or produce perceptible vibrations at any off-site structures. The Construction Noise Management Plan shall include proper posting of construction schedules, appointment of a noise 9. Safety 9-19 Adoption Draft disturbance coordinator, methods for assisting in noise reduction measures, and shall establish allowed truck routes to access the site that minimize exposure of residential areas to heavy truck traffic.
- Noise reduction measures shall include, but are not limited to, the following:
  a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) wherever feasible.
  b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. This muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available. This would achieve a reduction of up to 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.
  c. Temporary power poles or zero-emission power sources shall be used instead of generators where feasible.
  d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction.
  e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.
  f. Delivery of materials shall observe the hours of operation described above
  g. Truck traffic shall avoid residential areas to the greatest extent feasible.

Implementation of mitigation measure 1(a) would help to reduce construction-generated noise levels. With mitigation, this impact would be considered ***less-than-significant***.

Impact 2: ***Would the project generate excessive groundborne vibration or groundborne noise levels?***

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural.

The **Table 6** data indicate that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distances of 26 feet. Sensitive receptors which could be impacted by construction related vibrations, especially vibratory compactors/rollers, are located approximately 26 feet, or further, from typical construction activities. At these distances construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours.

This is a **less-than-significant** impact and no mitigation is required.

Impact 3: ***For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?***

There are no airports within two miles of the project vicinity. Therefore, this impact is not applicable to the proposed project.

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Appendix A: Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
ASTC	Apparent Sound Transmission Class. Similar to STC but includes sound from flanking paths and correct for room reverberation. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by +5 dBA and nighttime hours weighted by +10 dBA.
DNL	See definition of Ldn.
IIC	Impact Insulation Class. An integer-number rating of how well a building floor attenuates impact sounds, such as footsteps. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one-hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
NIC	Noise Isolation Class. A rating of the noise reduction between two spaces. Similar to STC but includes sound from flanking paths and no correction for room reverberation.
NNIC	Normalized Noise Isolation Class. Similar to NIC but includes a correction for room reverberation.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
RT60	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train pass by, that compresses the total sound energy into a one-second event.
SPC	Speech Privacy Class. SPC is a method of rating speech privacy in buildings. It is designed to measure the degree of speech privacy provided by a closed room, indicating the degree to which conversations occurring within are kept private from listeners outside the room.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations. The STC rating is typically used to rate the sound transmission of a specific building element when tested in laboratory conditions where flanking paths around the assembly don't exist. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

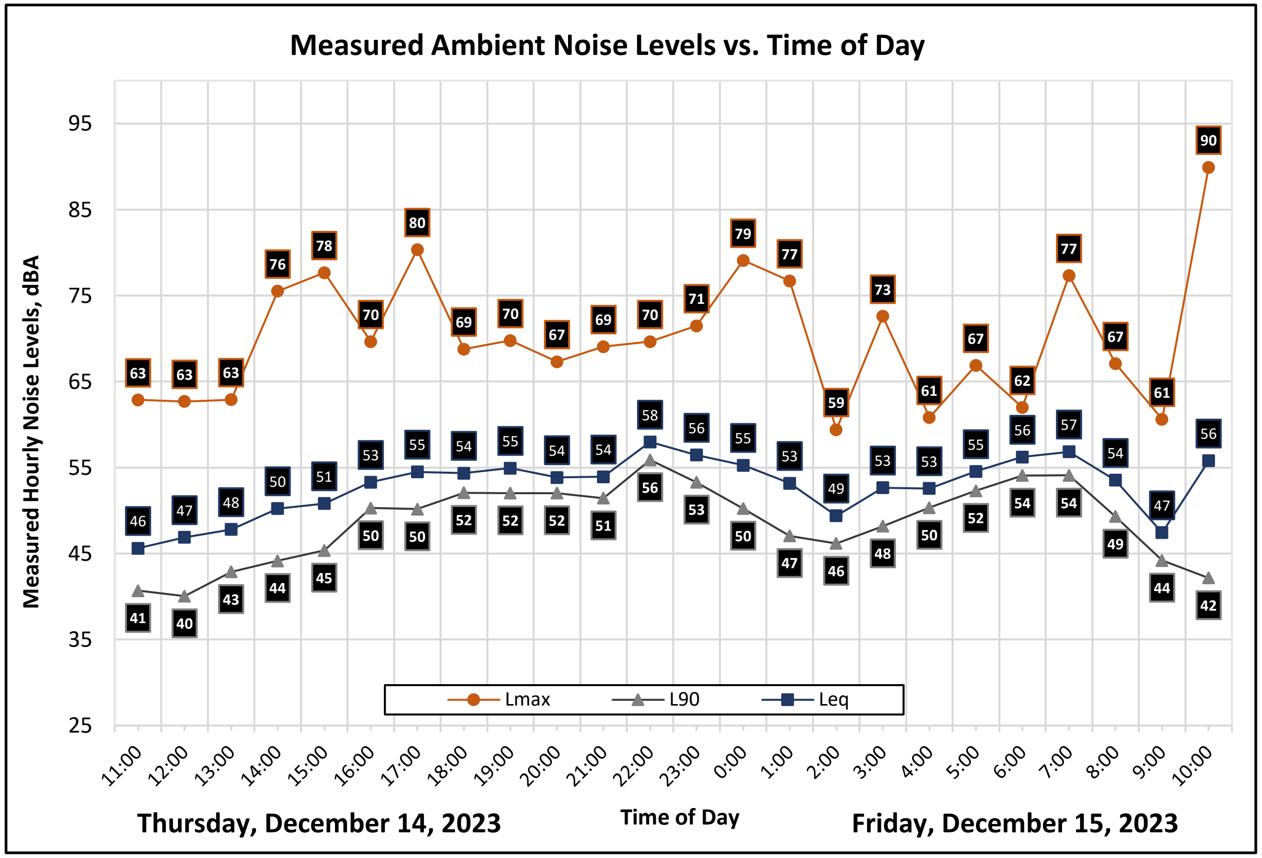
Appendix B: Continuous Ambient Noise Measurement Results

Appendix B1: Continuous Noise Monitoring Results

Site: LT-1
Project: 1840 Pillsbury Road Commercial
Location: Southern Project Boundary
Coordinates: 37.774335, -121.196867
Meter: LDL 820-1
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, December 14, 2023	11:00	46	63	43	41
Thursday, December 14, 2023	12:00	47	63	43	40
Thursday, December 14, 2023	13:00	48	63	46	43
Thursday, December 14, 2023	14:00	50	76	47	44
Thursday, December 14, 2023	15:00	51	78	49	45
Thursday, December 14, 2023	16:00	53	70	52	50
Thursday, December 14, 2023	17:00	55	80	52	50
Thursday, December 14, 2023	18:00	54	69	53	52
Thursday, December 14, 2023	19:00	55	70	54	52
Thursday, December 14, 2023	20:00	54	67	53	52
Thursday, December 14, 2023	21:00	54	69	53	51
Thursday, December 14, 2023	22:00	58	70	58	56
Thursday, December 14, 2023	23:00	56	71	56	53
Friday, December 15, 2023	0:00	55	79	52	50
Friday, December 15, 2023	1:00	53	77	49	47
Friday, December 15, 2023	2:00	49	59	49	46
Friday, December 15, 2023	3:00	53	73	51	48
Friday, December 15, 2023	4:00	53	61	52	50
Friday, December 15, 2023	5:00	55	67	54	52
Friday, December 15, 2023	6:00	56	62	56	54
Friday, December 15, 2023	7:00	57	77	55	54
Friday, December 15, 2023	8:00	54	67	53	49
Friday, December 15, 2023	9:00	47	61	46	44
Friday, December 15, 2023	10:00	56	90	44	42

Statistics	Leq	Lmax	L50	L90
Day Average	53	71	50	47
Night Average	55	69	53	51
Day Low	46	61	43	40
Day High	57	90	55	54
Night Low	49	59	49	46
Night High	58	79	58	56
Ldn	61	Day %		53
CNEL	61	Night %		47



Appendix B2: Continuous Noise Monitoring Results

Site: LT-2

Project: 1840 Pillsbury Road Commercial

Location: West of the Project Site

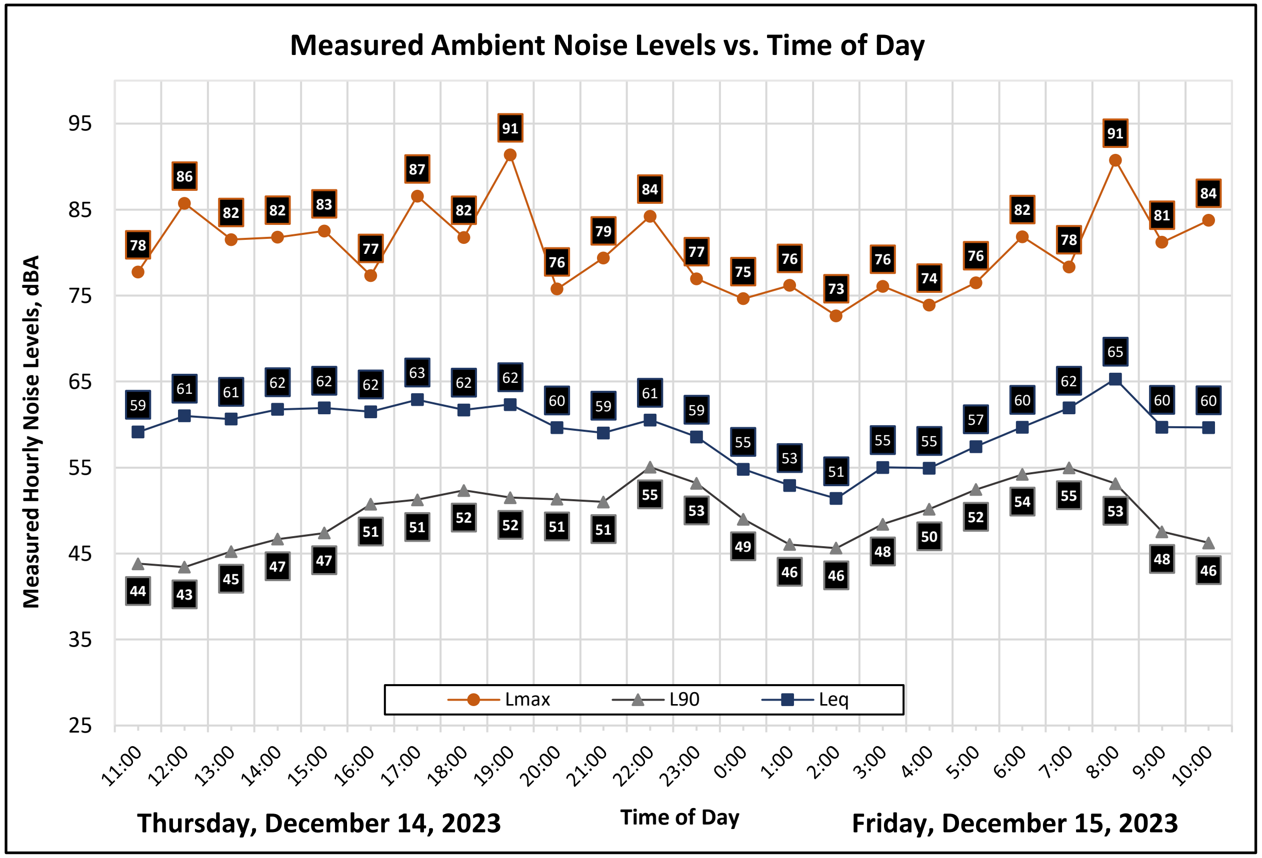
Coordinates: 37.775104, -121.197701

Meter: LDL 812-2

Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, December 14, 2023	11:00	59	78	50	44
Thursday, December 14, 2023	12:00	61	86	51	43
Thursday, December 14, 2023	13:00	61	82	52	45
Thursday, December 14, 2023	14:00	62	82	54	47
Thursday, December 14, 2023	15:00	62	83	54	47
Thursday, December 14, 2023	16:00	62	77	56	51
Thursday, December 14, 2023	17:00	63	87	56	51
Thursday, December 14, 2023	18:00	62	82	56	52
Thursday, December 14, 2023	19:00	62	91	55	52
Thursday, December 14, 2023	20:00	60	76	54	51
Thursday, December 14, 2023	21:00	59	79	54	51
Thursday, December 14, 2023	22:00	61	84	57	55
Thursday, December 14, 2023	23:00	59	77	56	53
Friday, December 15, 2023	0:00	55	75	51	49
Friday, December 15, 2023	1:00	53	76	49	46
Friday, December 15, 2023	2:00	51	73	49	46
Friday, December 15, 2023	3:00	55	76	51	48
Friday, December 15, 2023	4:00	55	74	52	50
Friday, December 15, 2023	5:00	57	76	54	52
Friday, December 15, 2023	6:00	60	82	56	54
Friday, December 15, 2023	7:00	62	78	58	55
Friday, December 15, 2023	8:00	65	91	57	53
Friday, December 15, 2023	9:00	60	81	52	48
Friday, December 15, 2023	10:00	60	84	51	46

Statistics	Leq	Lmax	L50	L90
Day Average	62	82	54	49
Night Average	57	77	53	50
Day Low	59	76	50	43
Day High	65	91	58	55
Night Low	51	73	49	46
Night High	61	84	57	55
Ldn	64	Day %		82
CNEL	65	Night %		18



Appendix C: Traffic Noise Calculation Inputs and Results

Appendix C-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 231010
Description: Existing Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
	SR 99	**S Main St. to SR 99**	**117,000**	**66**	**0**	**34**	**3.9%**	**10.9%**	**75**	**100**	**0**	**3664**	**1701**	**789**	**83.5**
	SR 120	**Austin Rd. to SR 120**	**94,000**	**77**	**0**	**23**	**2.5%**	**12.2%**	**75**	**100**	**0**	**2672**	**1240**	**576**	**81.4**
1	Main St	North of Woodward Dr	11,680	82	0	18	1.0%	1.0%	35	80	-5	117	54	25	57.5
2	Woodward Ave	East of Main Street	7,810	82	0	18	1.0%	1.0%	55	65	-5	189	88	41	62.0
3	Woodward Ave	East of Buena Vista Dr	6,660	82	0	18	1.0%	1.0%	55	65	-5	170	79	37	61.3
4	Woodward Ave	East of Queensland Ave	6,170	82	0	18	1.0%	1.0%	55	65	-5	162	75	35	60.9
5	Wellington Ave	North of Woodward Dr	440	82	0	18	1.0%	1.0%	25	115	-5	9	4	2	38.2
6	Woodward Ave	East of Wellington Ave	6,350	82	0	18	1.0%	1.0%	55	65	-5	165	77	36	61.1
7	Van Ryn Ave	North of Woodward Dr	3,350	82	0	18	1.0%	1.0%	25	60	-5	34	16	7	51.2
8	Woodward Ave	East of Van Ryn Ave	5,310	82	0	18	1.0%	1.0%	55	65	-5	146	68	32	60.3
9	Pillsbury Rd	South of Woodward Dr	2,810	82	0	18	1.0%	1.0%	25	65	0	30	14	6	55.0
10	Woodward Ave	East of Pillsbury Rd	4,270	82	0	18	1.0%	1.0%	55	65	-5	127	59	27	59.3
11	Adora Dr	North of Woodward Dr	410	82	0	18	1.0%	1.0%	25	65	-5	8	4	2	41.6
12	Woodward Ave	East of Adora Dr	4,270	82	0	18	1.0%	1.0%	55	65	-5	127	59	27	59.3
13	Woodward Ave	Memorial Ln	4,070	82	0	18	1.0%	1.0%	55	65	-5	123	57	26	59.1

Appendix C-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 231010
Description: Existing Plus Project Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
	SR 99	**S Main St. to SR 99**	**117,000**	**66**	**0**	**34**	**3.9%**	**10.9%**	**75**	**100**	**0**	**3664**	**1701**	**789**	**83.5**
	SR 120	**Austin Rd. to SR 120**	**94,000**	**77**	**0**	**23**	**2.5%**	**12.2%**	**75**	**100**	**0**	**2672**	**1240**	**576**	**81.4**
1	Main St	North of Woodward Dr	12,270	82	0	18	1.0%	1.0%	35	80	-5	121	56	26	57.7
2	Woodward Ave	East of Main Street	8,980	82	0	18	1.0%	1.0%	55	65	-5	208	96	45	62.6
3	Woodward Ave	East of Buena Vista Dr	8,410	82	0	18	1.0%	1.0%	55	65	-5	199	92	43	62.3
4	Woodward Ave	East of Queensland Ave	8,210	82	0	18	1.0%	1.0%	55	65	-5	196	91	42	62.2
5	Wellington Ave	North of Woodward Dr	1,030	82	0	18	1.0%	1.0%	25	115	-5	15	7	3	41.9
6	Woodward Ave	East of Wellington Ave	8,980	82	0	18	1.0%	1.0%	55	65	-5	208	96	45	62.6
7	Van Ryn Ave	North of Woodward Dr	3,940	82	0	18	1.0%	1.0%	25	60	-5	38	17	8	52.0
8	Woodward Ave	East of Van Ryn Ave	8,530	82	0	18	1.0%	1.0%	55	65	-5	201	93	43	62.3
9	Pillsbury Rd	South of Woodward Dr	5,430	82	0	18	1.0%	1.0%	25	65	0	47	22	10	57.8
10	Woodward Ave	East of Pillsbury Rd	6,970	82	0	18	1.0%	1.0%	55	65	-5	176	81	38	61.5
11	Adora Dr	North of Woodward Dr	1,040	82	0	18	1.0%	1.0%	25	65	-5	15	7	3	45.6
12	Woodward Ave	East of Adora Dr	5,720	82	0	18	1.0%	1.0%	55	65	-5	154	71	33	60.6
13	Woodward Ave	Memorial Ln	5,230	82	0	18	1.0%	1.0%	55	65	-5	145	67	31	60.2

Appendix C-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 231010
Description: Cumulative Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
	SR 99	**S Main St. to SR 99**	**117,000**	**66**	**0**	**34**	**3.9%**	**10.9%**	**75**	**100**	**0**	**3664**	**1701**	**789**	**83.5**
	SR 120	**Austin Rd. to SR 120**	**94,000**	**77**	**0**	**23**	**2.5%**	**12.2%**	**75**	**100**	**0**	**2672**	**1240**	**576**	**81.4**
1	Main St	North of Woodward Dr	14,880	82	0	18	1.0%	1.0%	35	80	-5	137	64	30	58.5
2	Woodward Ave	East of Main Street	9,950	82	0	18	1.0%	1.0%	55	65	-5	223	103	48	63.0
3	Woodward Ave	East of Buena Vista Dr	8,480	82	0	18	1.0%	1.0%	55	65	-5	200	93	43	62.3
4	Woodward Ave	East of Queensland Ave	7,880	82	0	18	1.0%	1.0%	55	65	-5	190	88	41	62.0
5	Wellington Ave	North of Woodward Dr	570	82	0	18	1.0%	1.0%	25	115	-5	10	5	2	39.3
6	Woodward Ave	East of Wellington Ave	8,090	82	0	18	1.0%	1.0%	55	65	-5	194	90	42	62.1
7	Van Ryn Ave	North of Woodward Dr	4,270	82	0	18	1.0%	1.0%	25	60	-5	40	18	9	52.3
8	Woodward Ave	East of Van Ryn Ave	6,770	82	0	18	1.0%	1.0%	55	65	-5	172	80	37	61.3
9	Pillsbury Rd	South of Woodward Dr	3,580	82	0	18	1.0%	1.0%	25	65	0	35	16	8	56.0
10	Woodward Ave	East of Pillsbury Rd	5,440	82	0	18	1.0%	1.0%	55	65	-5	149	69	32	60.4
11	Adora Dr	North of Woodward Dr	520	82	0	18	1.0%	1.0%	25	65	-5	10	5	2	42.6
12	Woodward Ave	East of Adora Dr	5,450	82	0	18	1.0%	1.0%	55	65	-5	149	69	32	60.4
13	Woodward Ave	Memorial Ln	5,190	82	0	18	1.0%	1.0%	55	65	-5	144	67	31	60.2

SAXELBY ACOUSTICS
Acoustics • Noise • Vibration

Appendix C-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 231010
Description: Cumulative Plus Project Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
	SR 99	**S Main St. to SR 99**	**117,000**	**66**	**0**	**34**	**3.9%**	**10.9%**	**75**	**100**	**0**	**3664**	**1701**	**789**	**83.5**
	SR 120	**Austin Rd. to SR 120**	**94,000**	**77**	**0**	**23**	**2.5%**	**12.2%**	**75**	**100**	**0**	**2672**	**1240**	**576**	**81.4**
1	Main St	North of Woodward Dr	15,470	82	0	18	1.0%	1.0%	35	80	-5	141	65	30	58.7
2	Woodward Ave	East of Main Street	11,120	82	0	18	1.0%	1.0%	55	65	-5	240	111	52	63.5
3	Woodward Ave	East of Buena Vista Dr	10,230	82	0	18	1.0%	1.0%	55	65	-5	227	105	49	63.1
4	Woodward Ave	East of Queensland Ave	9,920	82	0	18	1.0%	1.0%	55	65	-5	222	103	48	63.0
5	Wellington Ave	North of Woodward Dr	1,160	82	0	18	1.0%	1.0%	25	115	-5	17	8	4	42.4
6	Woodward Ave	East of Wellington Ave	10,720	82	0	18	1.0%	1.0%	55	65	-5	234	109	50	63.3
7	Van Ryn Ave	North of Woodward Dr	4,860	82	0	18	1.0%	1.0%	25	60	-5	43	20	9	52.9
8	Woodward Ave	East of Van Ryn Ave	9,990	82	0	18	1.0%	1.0%	55	65	-5	223	104	48	63.0
9	Pillsbury Rd	South of Woodward Dr	6,200	82	0	18	1.0%	1.0%	25	65	0	51	24	11	58.4
10	Woodward Ave	East of Pillsbury Rd	8,140	82	0	18	1.0%	1.0%	55	65	-5	195	90	42	62.1
11	Adora Dr	North of Woodward Dr	1,150	82	0	18	1.0%	1.0%	25	65	-5	17	8	4	46.1
12	Woodward Ave	East of Adora Dr	6,900	82	0	18	1.0%	1.0%	55	65	-5	174	81	38	61.4
13	Woodward Ave	Memorial Ln	6,350	82	0	18	1.0%	1.0%	55	65	-5	165	77	36	61.1

APPENDIX E
TRANSPORTATION IMPACT ANALYSIS

Pillsbury Site Plan
Traffic Impact Analysis

City of Manteca, California

August 30, 2024

Prepared by:

TJW ENGINEERING, INC.
9841 Irvine Center Drive, Suite 200
Irvine, CA 92618
949.878.3509 | www.tjwengineering.com

TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

August 30, 2024

Ms. Rayanna Beck
BASECAMP ENVIRONMENTAL, INC.
802 West Lodi Avenue
Lodi, CA 95240

Subject: Traffic Impact Analysis – Pillsbury Site Plan, City of Manteca, CA

Dear Ms. Beck:

TJW ENGINEERING, INC. (TJW) is pleased to present you with this traffic impact analysis for the proposed project, the Pillsbury Site Plan, comprised of a 16-pump gasoline station with a 5,000 square foot convenience store, a 2,600 square foot fast food restaurant with drive through, and a 9,045 square foot retail space. The project site is located at 1840 Pillsbury Road in the City of Manteca.

This traffic study has been prepared to meet the traffic study requirements for the City of Manteca and assesses the forecast traffic operations associated with the proposed project and its impact on the local street network. This report is being submitted to you for review and forwarding to the City of Manteca.

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,

Thomas Wheat, PE, TE
President
Registered Civil Engineer *#69467*
Registered Traffic Engineer *#2565*

David Chew, PTP
Transportation Planner

Travis Yokota
Assistant Transportation Planner

Pillsbury Site Plan
Traffic Impact Analysis

City of Manteca, California

August 30, 2024

Prepared for:

Ms. Rayanna Beck
BASECAMP ENVIRONMENTAL, INC.
802 West Lodi Avenue
Lodi, CA 95240

Prepared by:

Thomas Wheat, PE, TE
David Chew, PTP
Travis Yokota

TJW ENGINEERING, INC.
9841 Irvine Center Drive, Suite 200
Irvine, CA 92618
949.878.3509 | www.tjwengineering.com

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1.0 EXECUTIVE SUMMARY

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed project, the Pillsbury Site Plan, to be located at 1840 Pillsbury Road in the City of Manteca. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from the development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared in coordination with the City of Manteca via a scoping agreement (See **Appendix B**) and follows the *City of Manteca General Plan Update (City General Plan)* (April 2023), and the *City of Manteca Transportation Impact Analysis Guidelines (City Guidelines).*

The proposed project is comprised of a 16-pump gasoline station with a 5,000 square foot convenience store, a 2,600 square foot fast food restaurant with drive through, and a 9,045 square foot retail space. Of note, a portion of the site has been set aside for future development not part of the current proposal. Due to the future development sharing the proposed project's driveways, this analysis conservatively assumes 6,000 square feet of retail and 6,000 square feet of fast food with drive-through land uses to account for future development.

Site access is planned via three driveways, one right-in/right-out (RI/RO) on East Woodward Avenue and two on Pillsbury Road, the northerly being RI/RO and the southerly full-access. In the City General Plan, the site is currently zoned and designated for Commercial Mixed use. The project site is currently vacant.

The proposed project is anticipated to be completed and generating trips by 2025. When completed along with the future development, 7,734 daily trips are expected to be generated, including 729 AM peak hour trips, and 586 PM peak hour trips.

The following thirteen (13) intersections in the vicinity of the project site have been included in the level of service (LOS) analysis:

1. South Main Street/East Woodward Avenue
2. Buena Vista Drive/East Woodward Avenue
3. Queensland Avenue/East Woodward Avenue
4. Wellington Avenue/East Woodward Avenue
5. Van Ryn Avenue/East Woodward Avenue
6. Pillsbury Road/East Woodward Avenue
7. Adora Drive/East Woodward Avenue
8. Memorial Lane/East Woodward Avenue
9. East Atherton Drive/ East Woodward Avenue
10. Moffat Boulevard/East Woodward Avenue
11. Project Driveway #1/East Woodward Avenue

12. Pillsbury Road/Project Driveway #2 (northerly)
13. Pillsbury Road/Project Driveway #3 (southerly)

The study intersections are analyzed for the following study scenarios:

- Existing Traffic Conditions (Existing);
- Existing Plus Project Traffic Conditions (EP);
- Cumulative Traffic Conditions (Cumulative);
- Cumulative Plus Project Traffic Conditions (CP).

1.1 SUMMARY OF LEVEL OF SERVICE ANALYSIS RESULTS

Table ES-1 summarizes the results of the intersection level of service analysis based on the City of Manteca thresholds of significance for analyzing transportation deficiencies.

Table ES-1

Summary of Transportation Deficiencies at Study Intersections

Intersection			Existing Conditions	Existing Plus Project Conditions	Cumulative Conditions	Cumulative Plus Project Conditions
1	South Main Street	East Woodward Avenue	Deficient	Deficient	Deficient	Deficient
2	Buena Vista Drive	East Woodward Avenue	-	-	-	-
3	Queensland Avenue	East Woodward Avenue	-	-	-	-
4	Wellington Avenue	East Woodward Avenue	-	-	-	-
5	Van Ryn Avenue	East Woodward Avenue	-	-	-	-
6	Pillsbury Road	East Woodward Avenue	-	-	-	-
7	Adora Drive	East Woodward Avenue	-	-	-	-
8	Memorial Lane	East Woodward Avenue	-	-	-	-
9	East Atherton Drive	East Woodward Avenue	-	-	-	-
10	Moffat Boulevard	East Woodward Avenue	-	-	-	-
11	Project Driveway #1	East Woodward Avenue	-	-	-	-
12	Pillsbury Road	Project Driveway #2 (northerly)	-	-	-	-
13	Pillsbury Road	Project Driveway #3 (southerly)	-	-	-	-

Existing Traffic Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *Existing* traffic conditions with the exceptions of:

- South Main Street/East Woodward Avenue at both AM and PM peak hours.

Existing Plus Project (EP) Traffic Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *Existing Plus Project* traffic conditions.

- South Main Street/East Woodward Avenue at both AM and PM peak hours.

Cumulative Traffic Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *Cumulative* traffic conditions.

- South Main Street/East Woodward Avenue at both AM and PM peak hours.

Cumulative Plus Project (CP) Traffic Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *Cumulative Plus Project* traffic conditions.

- South Main Street/East Woodward Avenue at both AM and PM peak hours.

1.2 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

Wherever necessary, roadways adjacent to the proposed project site and site access points will be constructed in compliance with recommended roadway classifications and respective cross-sections in the *City General Plan* or as directed by the City Engineer.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City sight distance standards at the time of final grading, landscaping and street improvement plans.

Signing/striping should be implemented in conjunction with detailed construction plans for the project site.

2.0 INTRODUCTION

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed project, the Pillsbury Site Plan, to be located at 1840 Pillsbury Road in the City of Manteca. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from the development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared in coordination with the City of Manteca via a scoping agreement (See **Appendix B**) and follows the *City of Manteca General Plan Update (City General Plan)* (April 2023), and the *City of Manteca Transportation Impact Analysis Guidelines (City Guidelines).*

2.1 PROJECT DESCRIPTION

The proposed project is comprised of a 16-pump gasoline station with a 5,000 square foot convenience store, a 2,600 square foot fast food restaurant with drive through, and a 9,045 square foot retail space. Of note, a portion of the site has been set aside for future development not part of the current proposal. Due to the future development sharing the proposed project's driveways, this analysis conservatively assumes 6,000 square feet of retail and 6,000 square feet of fast food with drive-through land uses to account for future development.

Site access is planned via three driveways, one right-in/right-out (RI/RO) on East Woodward Avenue and two on Pillsbury Road, the northerly being RI/RO and the southerly full-access. In the City General Plan, the site is currently zoned and designated for Commercial Mixed use. The project site is currently vacant.

The proposed project is anticipated to be completed and generating trips by 2025. **Exhibit 1** shows the project site location. **Exhibit 2** shows the proposed project site plan.

2.2 STUDY AREA

The following thirteen (13) intersections in the vicinity of the project site have been included in the level of service (LOS) analysis:

1. South Main Street/East Woodward Avenue
2. Buena Vista Drive/East Woodward Avenue
3. Queensland Avenue/East Woodward Avenue
4. Wellington Avenue/East Woodward Avenue
5. Van Ryn Avenue/East Woodward Avenue
6. Pillsbury Road/East Woodward Avenue
7. Adora Drive/East Woodward Avenue
8. Memorial Lane/East Woodward Avenue
9. East Atherton Drive/ East Woodward Avenue

10. Moffat Boulevard/East Woodward Avenue
11. Project Driveway #1/East Woodward Avenue
12. Pillsbury Road/Project Driveway #2 (northerly)
13. Pillsbury Road/Project Driveway #3 (southerly)

Exhibit 3 shows the locations of the study intersections. Each intersection is located within the City of Manteca.

The study intersections are analyzed for the following study scenarios:

- Existing Traffic Conditions (Existing);
- Existing Plus Project Traffic Conditions (EP);
- Cumulative Traffic Conditions (Cumulative);
- Cumulative Plus Project Traffic Conditions (CP).

Traffic operations are evaluated for the following time periods:

- Weekday AM Peak Hour occurring between 7:00 AM to 9:00 AM; and
- Weekday PM Peak Hour occurring between 4:00 PM to 6:00 PM.

2.3 ANALYSIS METHODOLOGY

Level of Service (LOS) is commonly used to describe the quality of flow on roadways and at intersections using a range of LOS from LOS A (free flow with little congestion) to LOS F (severely congested conditions). The definitions for LOS for interruption of traffic flow differ depending on the type of traffic control (traffic signal, unsignalized intersection with side street stops, unsignalized intersection with all-way stops). The *Highway Capacity Manual (HCM) 7th Edition* (Transportation Research Board, 2022) methodology expresses the LOS of an intersection in terms of delay time for the intersection approaches. The HCM methodology utilizes different procedures for different types of intersection control.

The *City Guidelines* recommends signalized intersection operations to be analyzed utilizing the HCM 7th Edition methodology. Intersection LOS for signalized intersections is based on the intersections average control delay for all movements at the intersection during the peak hour. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The procedure for stop-control analysis determines the average total delay, expressed in seconds of delay per vehicle, for left turns from the major street and from the stop-controlled minor street traffic stream. Delay values are calculated based on the relationship between traffic on the major street and the availability of acceptable "gaps" in this stream through which conflicting traffic movements can be made.

Table 1 describes the general characteristics of traffic flow and accompanying delay ranges at signalized intersections.

Table 1:
HCM – LOS & Delay Ranges – Signalized Intersections

Level of Service	Description	Delay (in seconds)
A	Very favorable progression; most vehicles arrive during green signal and do not stop. Short cycle lengths.	0 – 10.00
B	Good progression, short cycle lengths. More vehicles stop than for LOS A.	10.01 – 20.00
C	Fair progression; longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, though many vehicles still pass through without stopping.	20.01 – 35.00
D	Progression less favorable, longer cycle length and high flow/capacity ratio. The proportion of vehicles that pass through without stopping diminishes. Individual cycle failures are obvious.	35.01 – 55.00
E	Severe congestion with some long-standing queues on critical approaches. Poor progression, long cycle lengths and high flow/capacity ratio. Individual cycle failures are frequent.	55.01 – 80.00
F	Very poor progression, long cycle lengths and many individual cycle failures. Arrival flow rates exceed capacity of intersection.	> 80.01

Source: Transportation Research Board, *Highway Capacity Manual, 7th Edition* (Washington D.C., 2022).

Collected peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. It is a common practice in LOS analysis to conservatively use a peak 15-minute flow rate applied to the entire hour to derive flow rates in vehicles per hour that are used in the LOS analysis. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume. PHF = [Hourly Volume]/ [4 * Peak 15-Minute Volume]. The use of a 15-minute PHF produces a more detailed and conservative analysis compared to analyzing vehicles per hour. Existing PHFs, obtained from the *Existing* traffic counts have been used for all analysis scenarios in this study.

The *City Guidelines* also recommends unsignalized intersection operations to be analyzed utilizing the HCM 7th Edition methodology. Intersection operation for unsignalized intersections is based on the weighted average control delay expressed in seconds per vehicle.

At a two-way or side-street stop-controlled intersection, LOS is calculated for each stop-controlled minor street movement, for the left-turn movement(s) from the major street, and for the intersection as a whole. For approaches consisting of a single lane, the delay is calculated as the average of all movements in that lane. For all-way stop-controlled intersection, LOS is computed for the intersection as a whole. **Table 2** describes the general characteristics of traffic flow and accompanying delay ranges at unsignalized intersections.

Table 2:
HCM – LOS & Delay Ranges – Unsignalized Intersections

Level of Service	Description	Delay (in seconds)
A	Very favorable progression; most vehicles arrive during green signal and do not stop. Short cycle lengths.	0 – 10.00
B	Good progression, short cycle lengths. More vehicles stop than for LOS A.	10.01 – 20.00
C	Fair progression; longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, though many vehicles still pass through without stopping.	20.01 – 35.00
D	Progression less favorable, longer cycle length and high flow/capacity ratio. The proportion of vehicles that pass through without stopping diminishes. Individual cycle failures are obvious.	35.01 – 55.00
E	Severe congestion with some long-standing queues on critical approaches. Poor progression, long cycle lengths and high flow/capacity ratio. Individual cycle failures are frequent.	55.01 – 80.00
F	Very poor progression, long cycle lengths and many individual cycle failures. Arrival flow rates exceed capacity of intersection.	> 80.01

Source: Transportation Research Board, *Highway Capacity Manual, 7th Edition* (Washington D.C., 2022).

This analysis utilizes *PTV Vistro*, Version 2022 analysis software for all signalized and unsignalized intersections. Vistro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis specified in Chapter 16 of the HCM. The level of service and capacity analysis performed within Vistro takes the optimization and coordination of signalized intersections within a network into consideration.

2.4 PERFORMANCE CRITERIA

The *City General Plan* indicates that all intersections should be maintained at an LOS of “D” or better during AM and PM peak hours.

Per the *City Guidelines*, for facilities that operate at an acceptable LOS without the project, an impact is defined if the project causes the LOS of an intersection to change from an acceptable LOS under “No Project” conditions to an unacceptable LOS under “With Project Conditions.”

The *City Guidelines* indicate that a project impacts an intersection operating at an unacceptable LOS under Existing or Cumulative No Project Conditions, if:

- The addition of project traffic increases the average vehicle delay for a signalized intersection by five seconds or more, or
- The addition of project traffic increases the average delay for an all-way stop controlled intersection by five seconds or more and the intersection meets the one-hour peak hour signal warrant, or

- The addition of project traffic increases the highest delayed side-street movement for a side-street stop-controlled intersection by five seconds or more and the intersection meets the one-hour peak hour signal warrant.

Exhibit 1: Project Location

Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW Engineering, Inc.

Exhibit 2: Proposed Project Site Plan

Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW Engineering, Inc.

Legend:
Project Site
Study Intersection Location

Not to Scale

Exhibit 3: Project Study Area

Traffic Impact Analysis

BAS-23-001

TJW ENGINEERING, INC.

3.0 EXISTING CONDITIONS

3.1 EXISTING CIRCULATION NETWORK/STUDY AREA CONDITIONS

The *City General Plan* classifies its streets and highways by their function. The description of these roadway classifications can be found in **Appendix B**. The characteristics of the roadways in the vicinity of the proposed project site are described in **Table 3.**

Table 3:
Roadway Characteristics within Study Area

Roadway	Classification[1]	Jurisdiction	Direction	Existing Travel Lanes	Median Type[2]	Speed Limit (mph)	On-Street Parking
East Woodward Avenue	Major Collector	Manteca	East-West	2-4	NM-TWLT-RM	45	No
South Main Street	Minor Collector	Manteca	North-South	2	TWLT	35	No
Buena Vista Drive	Residential/ Minor Collector	Manteca	North-South	2	NM-RM	25	Yes
Queensland Avenue	Residential	Manteca	North-South	2	NM-RM	25	Yes
Wellington Avenue	Residential	Manteca	North-South	2	NM	25	Yes
Van Ryn Avenue	Minor Collector	Manteca	North-South	2	NM	35	No
Pillsbury Road	Minor Collector	Manteca	North-South	2	NM-RM	25	Yes
Adora Drive	Minor Collector	Manteca	North-South	2	RM	25	No
Memorial Lane	Residential	Manteca	North-South	2	RM	25	Yes
East Atherton Drive	Major Collector	Manteca	North-South	4	RM	45	No
Moffat Boulevard	Minor Collector	Manteca	North-South	2	NM	45	No

1: Sources: City of Manteca General Plan (April 2023).
2: TWLTL = Two-Way Left-Turn Lane, RM= Raised Median, NM = No Median.

Exhibit 4 shows the *Existing* intersection controls and roadway geometry of the study area.

3.2 PEDESTRIAN AND BICYCLE FACILITIES

The *City General Plan* provides classifications of the bicycle facilities throughout the City. Within the project study area, there are three Class II bicycle facilities located on:

- East Atherton Drive northbound leg, entry and exit pockets
- Memorial Lane northbound leg, entry and exit pockets.
- Buena Vista Drive northbound leg, exit pocket.

A Class II lane is an on-street striped lane for one-way bicycle travel.

For pedestrians, there are paved sidewalks along all roadways within the study area with the exception of the segment of East Woodward Avenue between East Atherton Drive and Moffat Boulevard.

3.3 EXISTING PUBLIC TRANSIT SERVICES

The City of Manteca is served by the Manteca Transit which provides bus service throughout the City of Manteca. The proposed project is located within one-half mile of four stops along Route 2. The stops are:

- Wellington Avenue & East Woodward Avenue
- Memorial Lane & East Woodward Avenue
- Tesoro Drive & East Atherton Drive
- Van Ryn Avenue & East Atherton Drive

This route connects Woodward Community Park in the proposed project study area with four separate shopping centers in the City of Manteca.

3.4 EXISTING TRAFFIC VOLUMES

To determine the *Existing* operation of the study intersections and roadway segments, AM and PM peak period traffic volumes were collected on Tuesday, August 13, 2024. Detailed traffic count data is provided in **Appendix C**. The *Existing* AM peak hour volumes at each study intersection are shown in **Exhibit 5**, while the *Existing* PM peak hour volumes at each study intersection are shown in **Exhibit 6**.

3.5 EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE ANALYSIS

The AM and PM peak hour intersection analysis of the *Existing* traffic conditions are shown in **Table 4.** Calculations are based on the current geometrics at each study area intersection as shown in **Exhibit 4.** HCM analysis reports are provided in **Appendix D**.

Table 4:
Intersection Analysis – Existing Conditions

Intersection			Control Type[1]	Target LOS	Peak Hour	Existing Conditions	
						Delay[2]	LOS
1	South Main Street	East Woodward Avenue	AWSC	D	AM	38.9	E
					PM	44.4	E
2	Buena Vista Drive	East Woodward Avenue	TWSC	D	AM	15.7	C
					PM	13.4	B
3	Queensland Avenue	East Woodward Avenue	Signal	D	AM	39.2	D
					PM	40.3	D
4	Wellington Avenue	East Woodward Avenue	TWSC	D	AM	12.6	B
					PM	12.8	B
5	Van Ryn Avenue	East Woodward Avenue	TWSC	D	AM	10.5	B
					PM	10.5	B
6	Pillsbury Road	East Woodward Avenue	AWSC	D	AM	10.0	B
					PM	10.0	A
7	Adora Drive	East Woodward Avenue	TWSC	D	AM	9.3	A
					PM	9.9	A
8	Memorial Lane	East Woodward Avenue	TWSC	D	AM	10.1	B
					PM	10.0	A
9	East Atherton Drive	East Woodward Avenue	AWSC	D	AM	11.1	B
					PM	9.7	A
10	Moffat Boulevard	East Woodward Avenue	TWSC	D	AM	13.8	B
					PM	14.5	B

1: AWSC = All-Way Stop-Control; TWSC = Two-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 4**, the study intersections under *Existing* traffic conditions are currently operating at an acceptable LOS during the AM and PM peak hours with the exception of:

- South Main Street/East Woodward Avenue at both AM and PM peak hours.

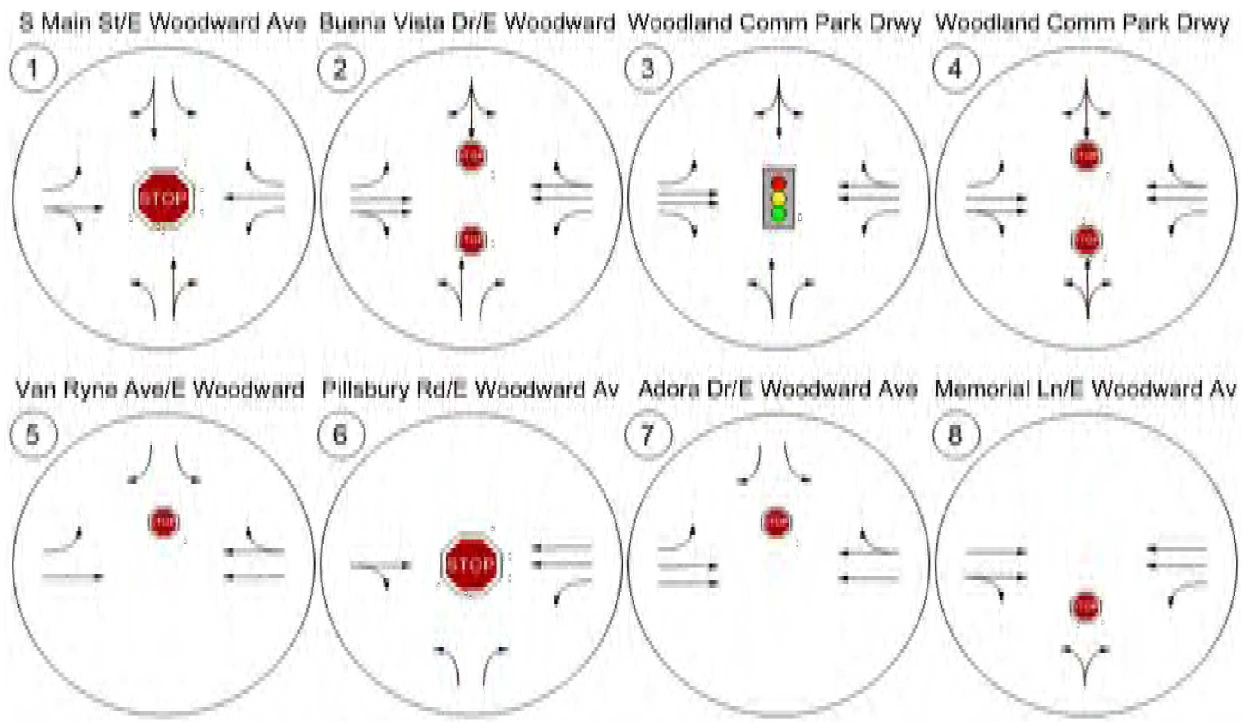

Exhibit 4: Lane Geometry and Intersection Controls

Traffic Impact Analysis

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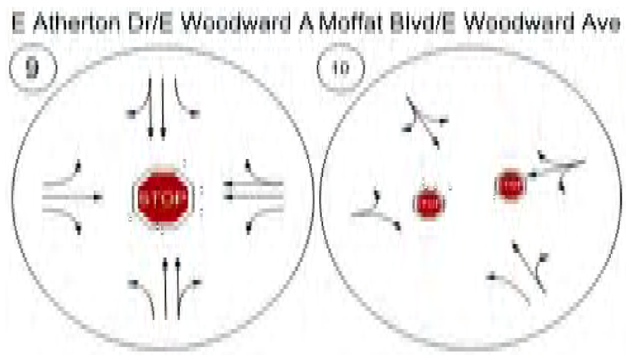
BAS-23-001

Not to Scale

Moffat Blvd
10
9
Woodward Ave
Atherton Dr



E Atherton Dr/E Woodward A
Moffat Blvd/E Woodward Ave
9
10
STOP

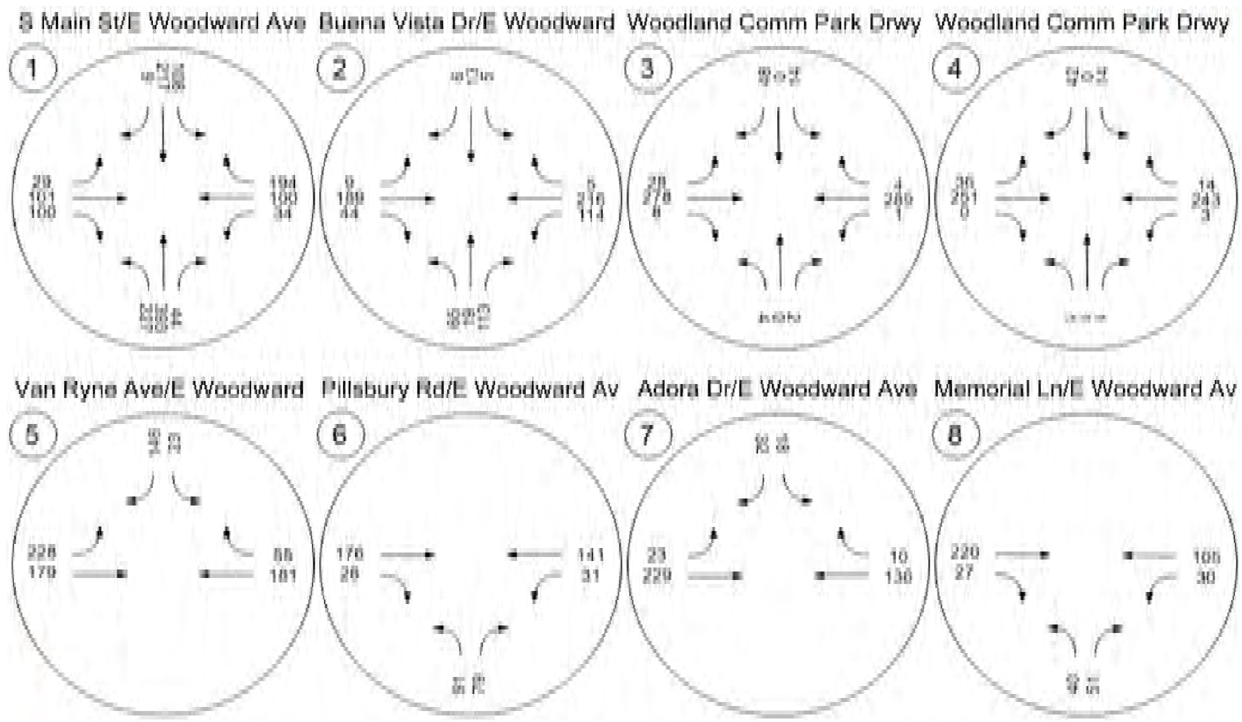


Exhibit 5: Existing AM Peak Hour Volumes

Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW ENGINEERING, INC.

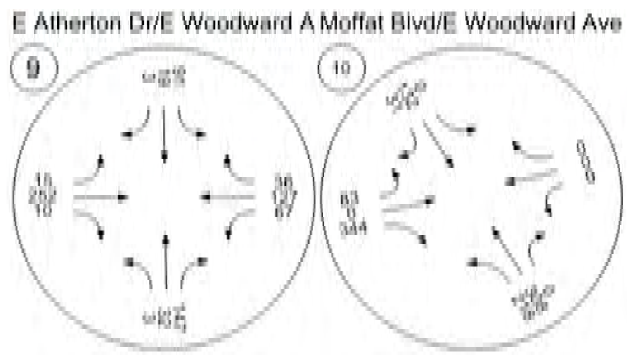


Exhibit 5: Existing AM Peak Hour Volumes

Traffic Impact Analysis

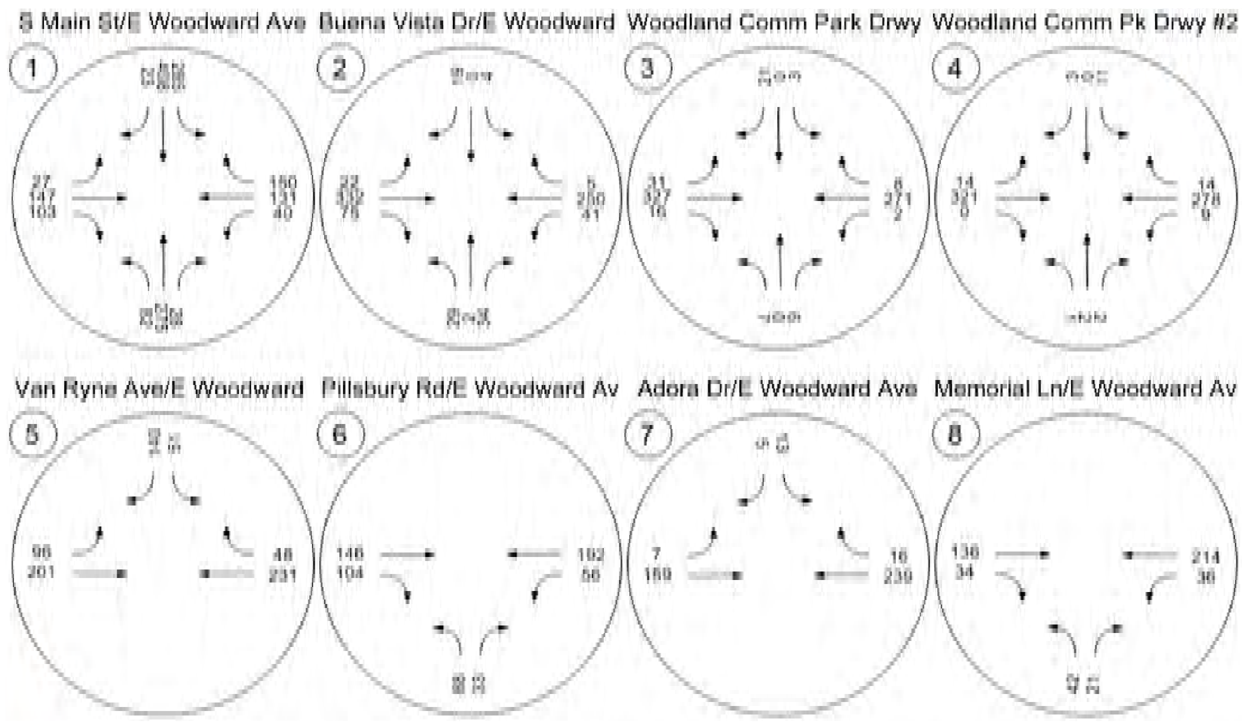


Exhibit 6: Existing PM Peak Hour Volumes

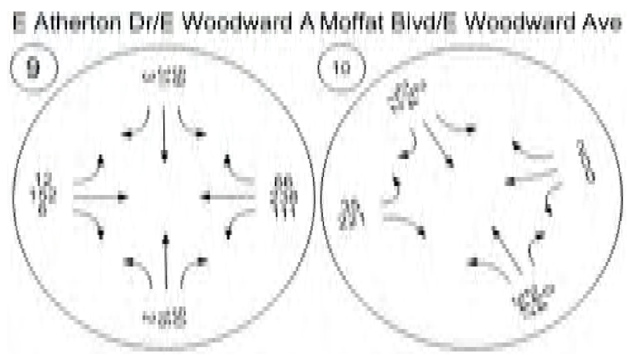
Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW ENGINEERING, INC.


Moffat Blvd
9
10
Woodward Ave
Atherton Dr


E Atherton Dr/E Woodward A Moffat Blvd/E Woodward Ave
9
10

4.0 PROPOSED PROJECT

4.1 PROJECT DESCRIPTION

The proposed project is comprised of a 16-pump gasoline station with a 5,000 square foot convenience store, a 2,600 square foot fast food restaurant with drive through, and a 9,045 square foot retail space. Of note, a portion of the site has been set aside for future development not part of the current proposal. Due to the future development sharing the proposed project's driveways, this analysis conservatively assumes 6,000 square feet of retail and 6,000 square feet of fast food with drive-through land uses to account for future development.

Site access is planned via three driveways, one right-in/right-out (RI/RO) on East Woodward Avenue and two on Pillsbury Road, the northerly being RI/RO and the southerly full-access. In the City General Plan, the site is currently zoned and designated for Commercial Mixed use. The project site is currently vacant.

The proposed project is anticipated to be completed and generating trips by 2025. **Exhibit 2** previously showed the proposed project site plan.

4.2 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic, both inbound and outbound, produced by a development. Determining trip generation for a proposed project is based on projecting the amount of traffic that the specific land uses being proposed will produce. Industry standard *Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021)* trip generation rates were used to determine trip generation of for most of the proposed project land uses.

Table 5 summarizes the projected AM peak hour, PM peak hour and daily trip generation of the proposed project. When completed along with the future development, 7,734 daily trips are expected to be generated, including 729 AM peak hour trips, and 586 PM peak hour trips.

Table 5:
Proposed Project Trip Generation

Proposed Land Use[1]	ITE Code	Qty	Unit[3]	Daily		AM Peak Hour					PM Peak Hour				
				Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
								In	Out	Total			In	Out	Total
Convenience Store/Gas Station, GFA (4-5.5K), VFP	822	29.0	TSF	54.45	1,580	2.36	60:40	41	27	68	6.59	50:50	96	95	191
Pass-By Trips (0.15 Daily & AM, 0.25 PM)					*-617*			*-33*	*-32*	*-65*			*-46*	*-46*	*-91*
Fast Food Restaurant with Drive-Through Window	934	2.6	TSF	467.48	1,215	44.61	51:49	59	57	116	33.03	52:48	45	41	86
Pass-By Trips (0.15 Daily & AM, 0.25 PM)					*-182*			*-9*	*-9*	*-17*			*-11*	*-10*	*-22*
Strip Retail Plaza (<40k)	822	9.0	TSF	54.45	493	2.36	60:40	13	8	21	6.59	50:50	30	30	60
Fast Food Restaurant with Drive-Through Window[2]	934	6.0	TSF	467.48	2,805	44.61	51:49	137	131	268	33.03	52:48	103	95	198
Pass-By Trips (0.15 Daily & AM, 0.25 PM)					*-421*			*-21*	*-20*	*-40*			*-26*	*-24*	*-50*
Strip Retail Plaza (<40k)[2]	822	6.0	TSF	54.45	327	2.36	60:40	8	6	14	6.59	50:50	20	20	40

Results	Daily Volume	AM Peak Hour	In	Out	Total	PM Peak Hour	In	Out	Total
Subtotal	8,954		434	418	852		380	368	748
Pass-By Trips	*-1,220*		*-62*	*-61*	*-123*		*-83*	*-80*	*-162*
Net Total	**7,734**		**372**	**357**	**729**		**298**	**289**	**586**

1: Trip generation rates are from the ITE Trip Generation Manual (11th Edition, 2021).
2: Future Development not part of current proposed project.
3: TSF = Thousand Square Feet; DU = Dwelling Unit.

4.3 PROJECT TRIP DISTRIBUTION

Projecting trip distribution involves the process of identifying probable destinations and traffic routes that will be utilized by the proposed project's traffic. The potential interaction between the proposed land use and surrounding regional access routes are considered to identify the probable routes onto which project traffic would distribute. The projected trip distribution for the proposed project is based on anticipated travel patterns to and from the project site. **Exhibit 7** shows the project proposed trip distribution.

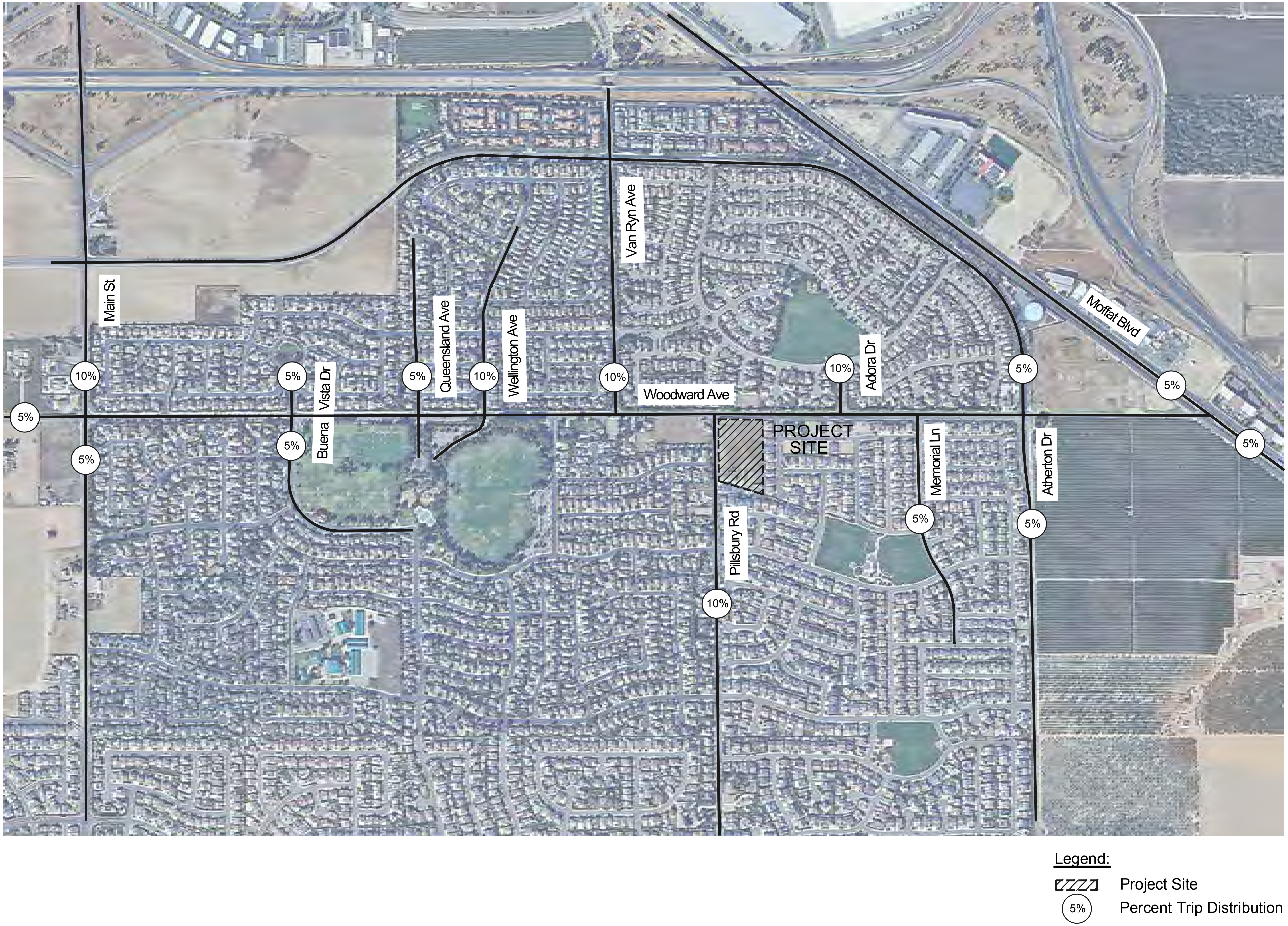


Exhibit 7: Proposed Trip Distribution

Traffic Impact Analysis

BAS-23-001

Not to Scale

5.0 EXISTING PLUS PROJECT TRAFFIC CONDITIONS (EP)

The *Existing Plus Project (EP)* traffic conditions analysis is intended to identify current baseline conditions plus the proposed project.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *EP* conditions scenario are consistent with those previously shown in **Exhibit 4**.

5.2 EP TRAFFIC VOLUMES

The *EP* traffic conditions scenario analyzes *Existing* volumes with no growth rate applied, plus project traffic volumes. It does not include background traffic. **Exhibit 8** shows *EP* AM peak hour volumes at the study intersections. **Exhibit 9** shows *EP* PM peak hour volumes at the study intersections.

EP Volumes = Existing Counts + Proposed Project

5.3 EP TRAFFIC CONDITIONS INTERSECTION LEVEL OF SERVICE ANALYSIS

The AM and PM peak hour intersection analysis of the *EP* traffic conditions are shown in **Table 6.** Calculations are based on the current geometrics at each study area intersection as shown in **Exhibit 4.** HCM analysis reports are provided in **Appendix D**.

Table 6:
Intersection Analysis – EP Conditions

Intersection			Control Type[1]	Target LOS	Peak Hour	Existing Conditions		EP Conditions	
						Delay[2]	LOS	Delay[2]	LOS
1	South Main Street	East Woodward Avenue	AWSC	D	AM	38.9	E	50.7	F
					PM	44.4	E	56.6	F
2	Buena Vista Drive	East Woodward Avenue	TWSC	D	AM	15.7	C	24.8	C
					PM	13.4	B	14.5	B
3	Queensland Avenue	East Woodward Avenue	Signal	D	AM	39.2	D	38.0	D
					PM	40.3	D	39.7	D
4	Wellington Avenue	East Woodward Avenue	TWSC	D	AM	12.6	B	17.1	C
					PM	12.8	B	17.5	C
5	Van Ryn Avenue	East Woodward Avenue	TWSC	D	AM	10.5	B	13.2	B
					PM	10.5	B	11.9	B
6	Pillsbury Road	East Woodward Avenue	AWSC	D	AM	10.0	B	34.7	D
					PM	10.0	A	19.7	C
7	Adora Drive	East Woodward Avenue	TWSC	D	AM	9.3	A	9.8	A
					PM	9.9	A	10.0	A
8	Memorial Lane	East Woodward Avenue	TWSC	D	AM	10.1	B	11.1	B
					PM	10.0	A	10.6	B
9	East Atherton Drive	East Woodward Avenue	AWSC	D	AM	11.1	B	11.7	B
					PM	9.7	A	10.2	B
10	Moffat Boulevard	East Woodward Avenue	TWSC	D	AM	13.8	B	15.2	C
					PM	14.5	B	16.2	C
11	Project Driveway #1	East Woodward Avenue	TWSC	D	AM	-	-	10.9	B
					PM	-	-	10.0	B
12	Pillsbury Road	Project Driveway #2	TWSC	D	AM	-	-	11.3	B
					PM	-	-	10.0	B
13	Pillsbury Road	Project Driveway #3	TWSC	D	AM	-	-	14.3	B
					PM	-	-	12.4	B

1: AWSC = All-Way Stop-Control; TWSC = Two-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 6**, the study intersections under *EP* traffic conditions are projected to continue to operate at an acceptable LOS during the AM and PM peak hours with the exception of:

- South Main Street/East Woodward Avenue at both AM and PM peak hours.

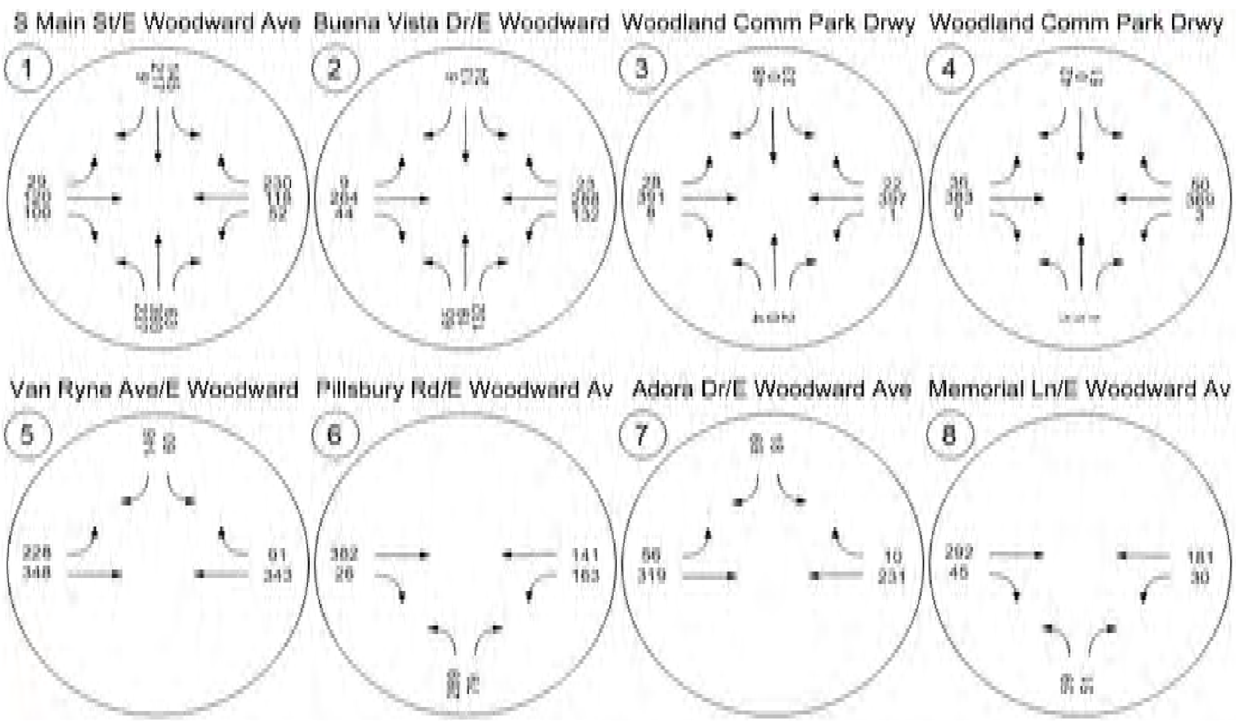


Exhibit 8: EP AM Peak Hour Volumes

Traffic Impact Analysis

TJW ENGINEERING, INC.

BAS-23-001

Not to Scale

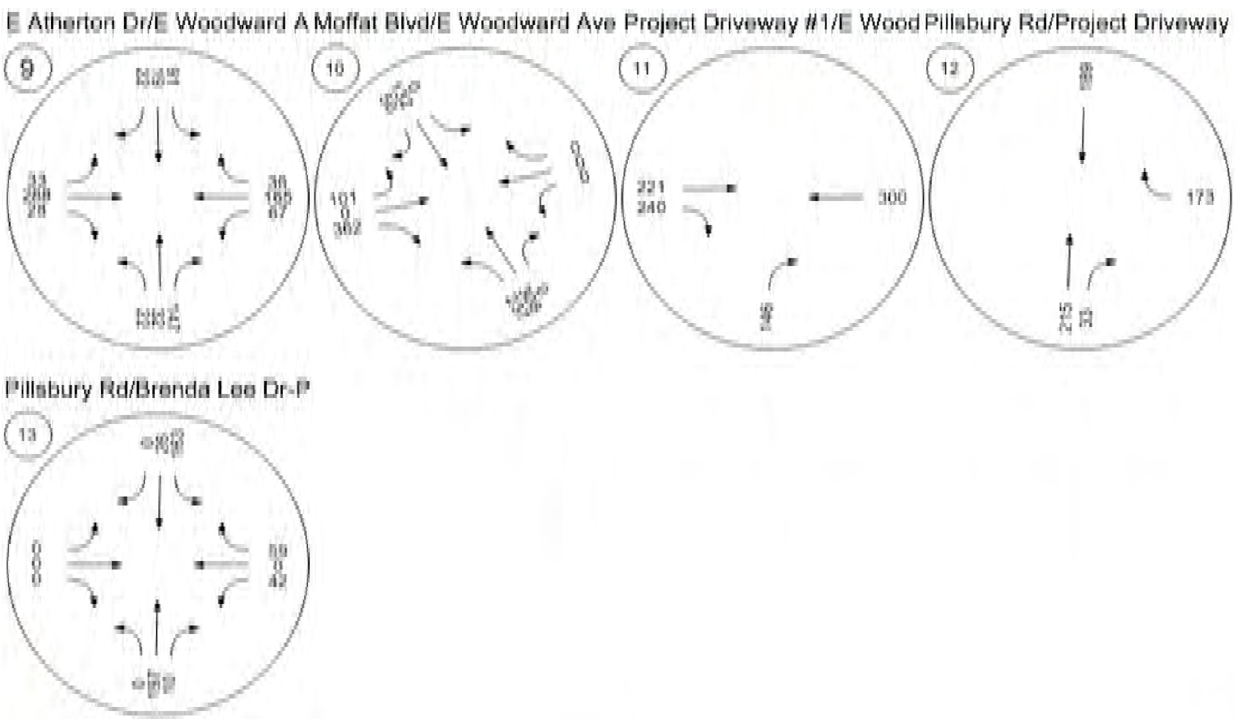


Exhibit 8: EP AM Peak Hour Volumes

Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW Engineering, Inc.

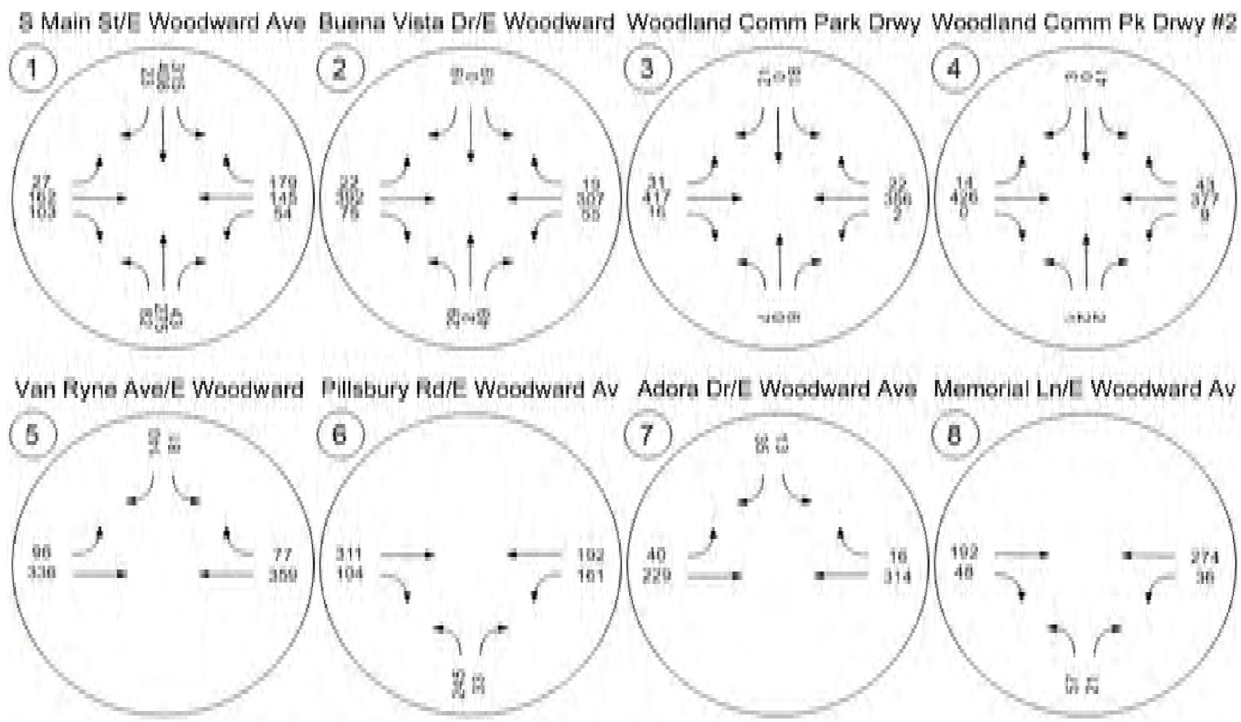


Exhibit 9: EP PM Peak Hour Volumes

Traffic Impact Analysis

TJW ENGINEERING, INC.

BAS-23-001

Not to Scale

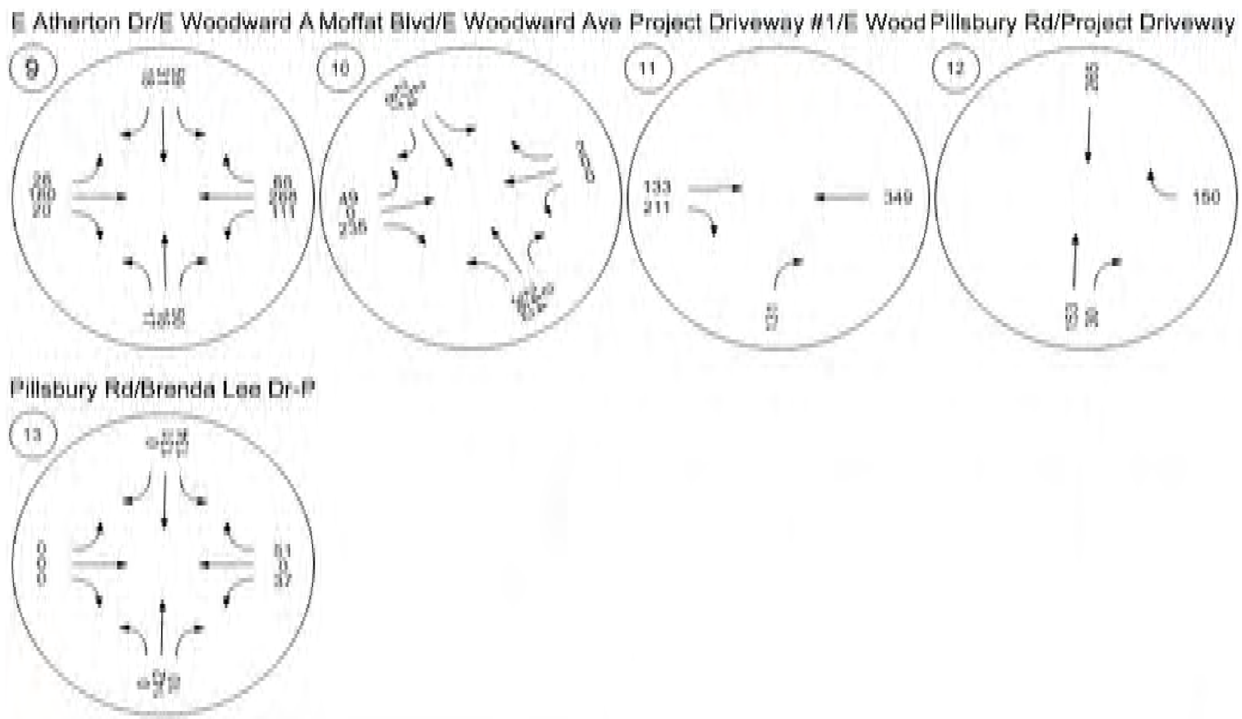


Exhibit 9: EP PM Peak Hour Volumes

Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW Engineering, Inc.

6.0 CUMULATIVE TRAFFIC CONDITIONS

The *Cumulative* traffic conditions analysis is intended identify traffic conditions with the addition of cumulative, or pipeline, projects currently under development.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *Cumulative* traffic conditions scenario are consistent with those previously shown in **Exhibit 4**.

6.2 CUMULATIVE TRAFFIC VOLUMES

Cumulative traffic volumes are *Existing* volumes projected to the City of Manteca horizon year, 2040, using an annual growth rate derived from the projected population of the City of Manteca through 2040 as documented in the San Joaquin County Demographic And Employment Forecast (September 2020). This growth rate is applied to the *Existing* traffic volumes for a sixteen-year period beginning with the year 2024 through 2040. **Exhibit 10** shows *CP* AM peak hour volumes at the study intersections. **Exhibit 11** shows *CP* PM peak hour volumes at the study intersections.

CP Volumes = (Existing (2024) Counts * 1.0153^16)

6.3 CUMULATIVE INTERSECTION LEVEL OF SERVICE ANALYSIS

The AM and PM peak hour intersection analysis of the *Cumulative* traffic conditions is shown in **Table 7**. Calculations are based on the current geometrics at the study area intersections. HCM analysis reports are provided in **Appendix D.**

Table 7:
Intersection Analysis – Cumulative Conditions

Intersection			Control Type[1]	Target LOS	Peak Hour	Cumulative Conditions	
						Delay[2]	LOS
1	South Main Street	East Woodward Avenue	AWSC	D	AM	67.5	F
					PM	101.3	F
2	Buena Vista Drive	East Woodward Avenue	TWSC	D	AM	18.6	C
					PM	15.7	C
3	Queensland Avenue	East Woodward Avenue	Signal	D	AM	39.0	D
					PM	40.5	D
4	Wellington Avenue	East Woodward Avenue	TWSC	D	AM	13.4	B
					PM	14.2	B
5	Van Ryn Avenue	East Woodward Avenue	TWSC	D	AM	11.1	B
					PM	11.1	B
6	Pillsbury Road	East Woodward Avenue	AWSC	D	AM	10.4	B
					PM	11.2	B
7	Adora Drive	East Woodward Avenue	TWSC	D	AM	9.4	A
					PM	10.2	B
8	Memorial Lane	East Woodward Avenue	TWSC	D	AM	10.6	B
					PM	10.5	B
9	East Atherton Drive	East Woodward Avenue	AWSC	D	AM	13.0	B
					PM	10.7	B
10	Moffat Boulevard	East Woodward Avenue	TWSC	D	AM	17.1	C
					PM	19.1	C

1: AWSC = All-Way Stop-Control; TWSC = Two-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 7,** the study intersections under *Cumulative* traffic conditions are projected to continue to operate at an acceptable LOS during the AM and PM peak hours with the exception of:

- South Main Street/East Woodward Avenue at both AM and PM peak hours;

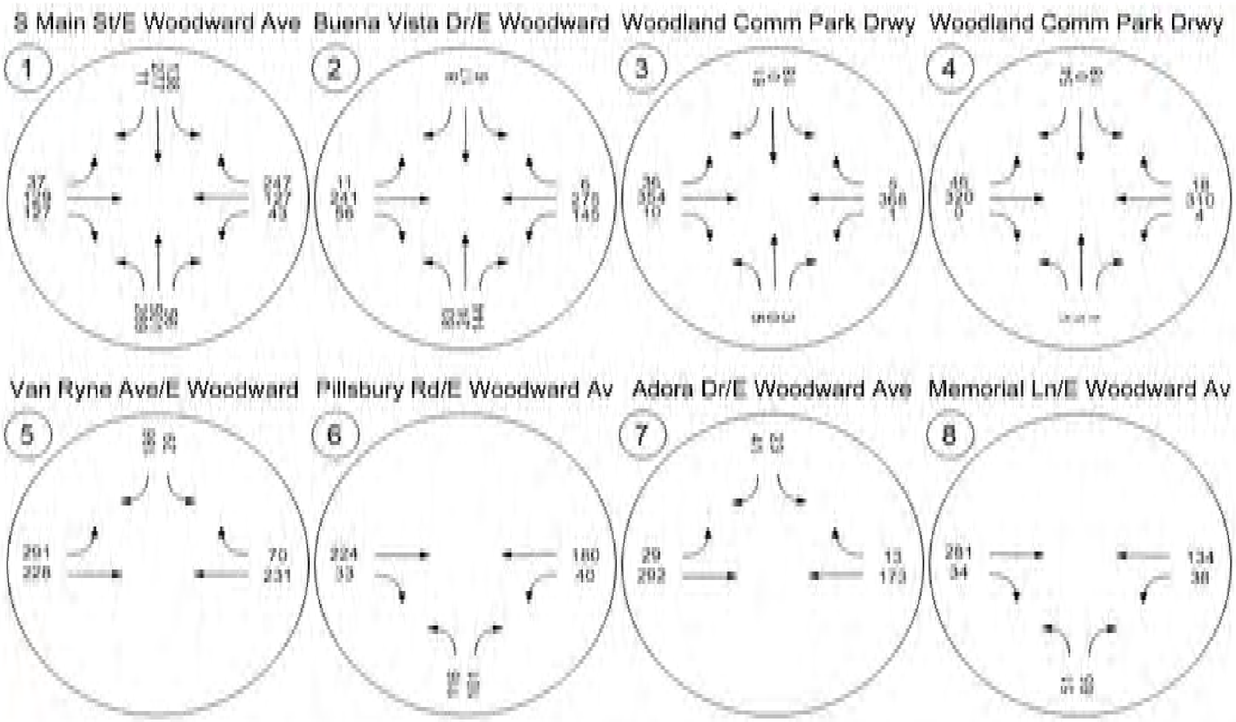


Exhibit 10: Cumulative AM Peak Hour Volumes

Traffic Impact Analysis

TJW Engineering, Inc.

BAS-23-001

Not to Scale

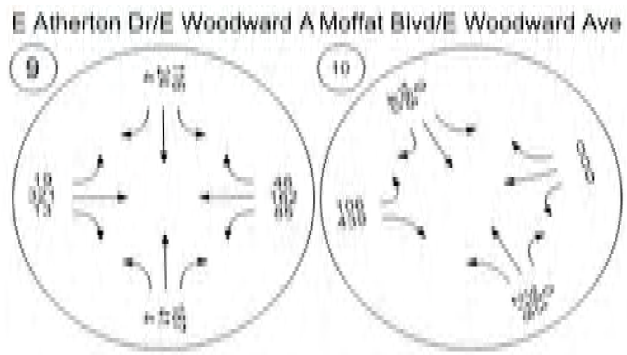
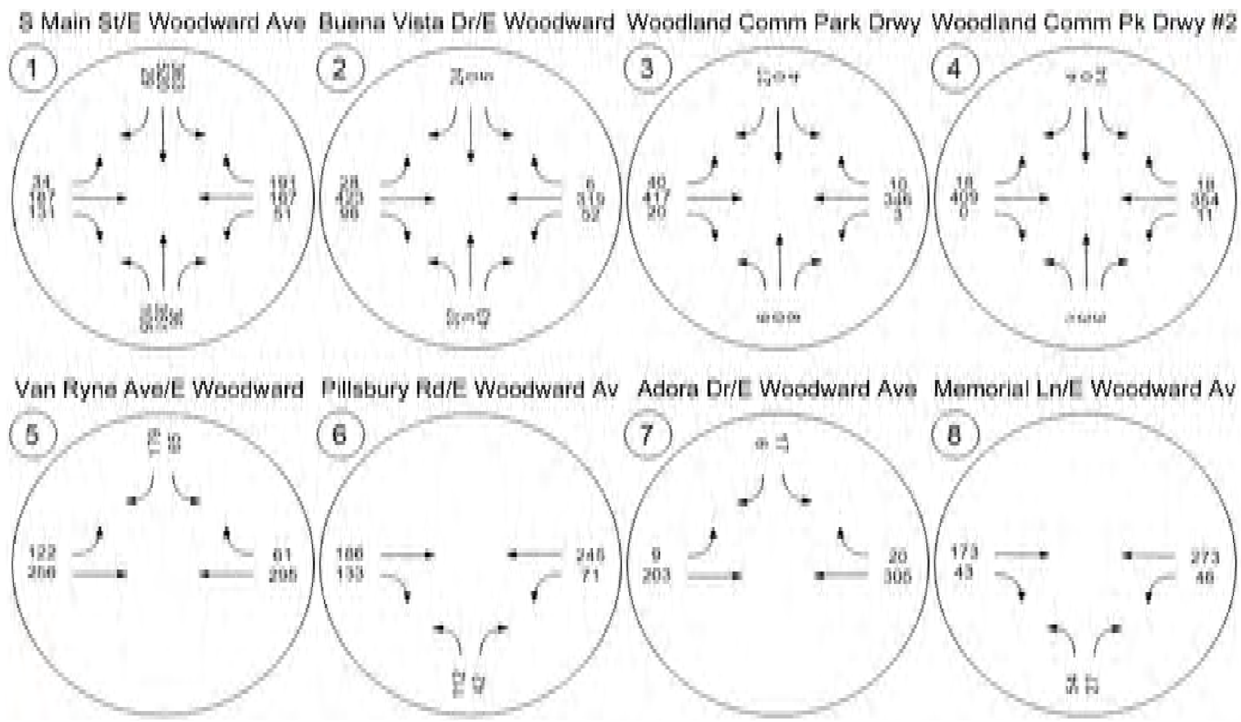


Exhibit 10: Cumulative AM Peak Hour Volumes

Traffic Impact Analysis


Main St
Queensland Ave
Wellington Ave
Van Ryn Ave
Adora Dr
Woodward Ave
Buena Vista Dr
Pillsbury Rd
Memorial Ln
1
2
3
4
5
6
7
8


S Main St/E Woodward Ave
Buena Vista Dr/E Woodward
Woodland Comm Park Drwy
Woodland Comm Pk Drwy #2
Van Ryne Ave/E Woodward
Pillsbury Rd/E Woodward Av
Adora Dr/E Woodward Ave
Memorial Ln/E Woodward Av

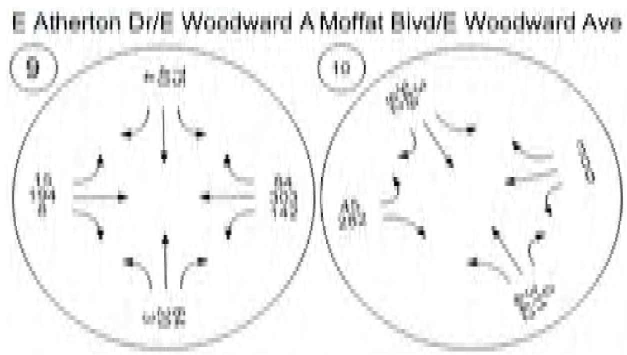


Exhibit 11: Cumulative PM Peak Hour Volumes

Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW ENGINEERING, INC.

7.0 CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

The *Cumulative Plus Project (CP)* traffic conditions analysis is intended identify traffic conditions with the addition of both pipeline projects currently under development and the proposed project.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *CP* traffic conditions scenario are consistent with those previously shown in **Exhibit 4**.

7.2 CP TRAFFIC VOLUMES

CP volumes are *Existing* volumes projected to the City of Manteca horizon year, 2040, plus the anticipated trip volumes generated by the proposed project. An annual growth rate derived from the projected population of the City of Manteca through 2040 as documented in the San Joaquin County Demographic And Employment Forecast (September 2020). This growth rate is applied to the *Existing* traffic volumes for a sixteen-year period beginning with the year 2024 through 2040. **Exhibit 12** shows *CP* AM peak hour volumes at the study intersections. **Exhibit 13** shows *CP* PM peak hour volumes at the study intersections.

CP Volumes = (Existing (2024) Counts * 1.0153^16) + Project Volumes

7.3 CP INTERSECTION LEVEL OF SERVICE ANALYSIS

The AM and PM peak hour intersection analysis for *CP* traffic conditions is shown in **Table 8**. HCM analysis reports are provided in **Appendix D.**

Table 8:
Intersection Analysis – CP Conditions

Intersection			Control Type[1]	Target LOS	Peak Hour	Cumulative Conditions		CP Conditions	
						Delay[2]	LOS	Delay[2]	LOS
1	South Main Street	East Woodward Avenue	AWSC	D	AM	67.5	F	82.5	F
					PM	101.3	F	122.7	F
2	Buena Vista Drive	East Woodward Avenue	TWSC	D	AM	18.6	C	30.9	D
					PM	15.7	C	17.1	C
3	Queensland Avenue	East Woodward Avenue	Signal	D	AM	39.0	D	38.0	D
					PM	40.5	D	39.5	D
4	Wellington Avenue	East Woodward Avenue	TWSC	D	AM	13.4	B	17.5	C
					PM	14.2	B	16.3	C
5	Van Ryn Avenue	East Woodward Avenue	TWSC	D	AM	11.1	B	14.2	C
					PM	11.1	B	12.7	B
6	Pillsbury Road	East Woodward Avenue	AWSC	D	AM	10.4	B	29.0	D
					PM	11.2	B	27.4	D
7	Adora Drive	East Woodward Avenue	TWSC	D	AM	9.4	A	9.9	A
					PM	10.2	B	10.2	B
8	Memorial Lane	East Woodward Avenue	TWSC	D	AM	10.6	B	11.6	B
					PM	10.5	B	11.1	B
9	East Atherton Drive	East Woodward Avenue	AWSC	D	AM	13.0	B	13.8	B
					PM	10.7	B	11.2	B
10	Moffat Boulevard	East Woodward Avenue	TWSC	D	AM	17.1	C	19.7	C
					PM	19.1	C	22.8	D
11	Project Driveway #1	East Woodward Avenue	TWSC	D	AM	-	-	11.1	B
					PM	-	-	10.2	B
12	Pillsbury Road	Project Driveway #2	TWSC	D	AM	-	-	11.1	B
					PM	-	-	10.2	B
13	Pillsbury Road	Project Driveway #3	TWSC	D	AM	-	-	13.5	C
					PM	-	-	12.9	B

1: AWSC = All-Way Stop-Control; TWSC = Two-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 8**, the study intersections under *CP* traffic conditions are projected to continue to operate at an acceptable LOS during the AM and PM peak hours with the exception of:

- South Main Street/East Woodward Avenue at both AM and PM peak hours;

7.4 QUEUING ANALYSIS

To ensure sufficient vehicular circulation on roadway inbound approaches to the project driveways, a queue analysis was conducted at all three proposed project driveways. The results for the 95th percentile queue lengths for both AM and PM peak hours are shown in **Table 9.** For all three driveways, inbound queue lengths of less than 20 feet, or one (1) vehicle length, were found.

Table 9:
Queuing Analysis

Intersection			Movement	AM Peak Hour 95th Percentile Queue Length (ft)	PM Peak Hour 95th Percentile Queue Length (ft)
1	Project Driveway #1	East Woodward Avenue	EBR	<20[1]	<20[1]
2	Pillsbury Drive	Project Driveway #1 (northerly)	NBR	<20[1]	<20[1]
3	Pillsbury Drive	Project Driveway #2 (southerly)	NBR	<20[1]	<20[1]
			SBL	<20[1]	<20[1]

1: If the reported queue length is less than 20 feet, a queue length of one vehicle = 20 feet is assumed.

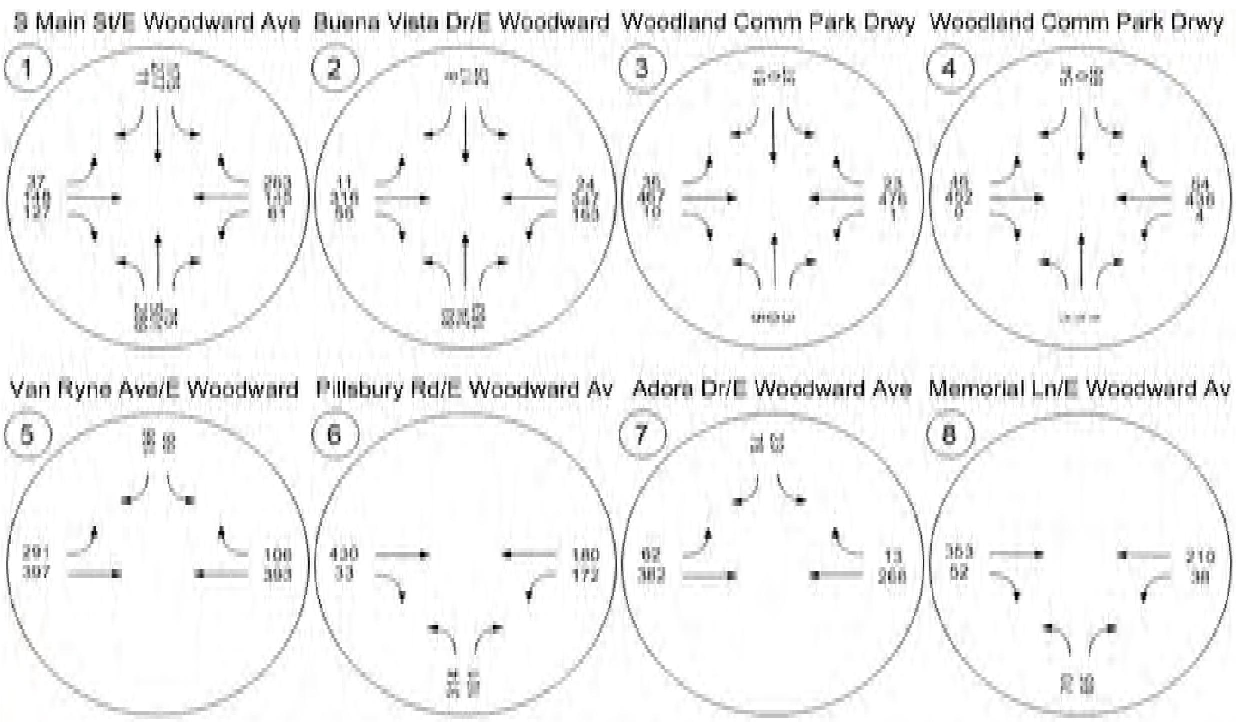


Exhibit 12: CP AM Peak Hour Volumes

Traffic Impact Analysis

TJW ENGINEERING, INC.

BAS-23-001

Not to Scale

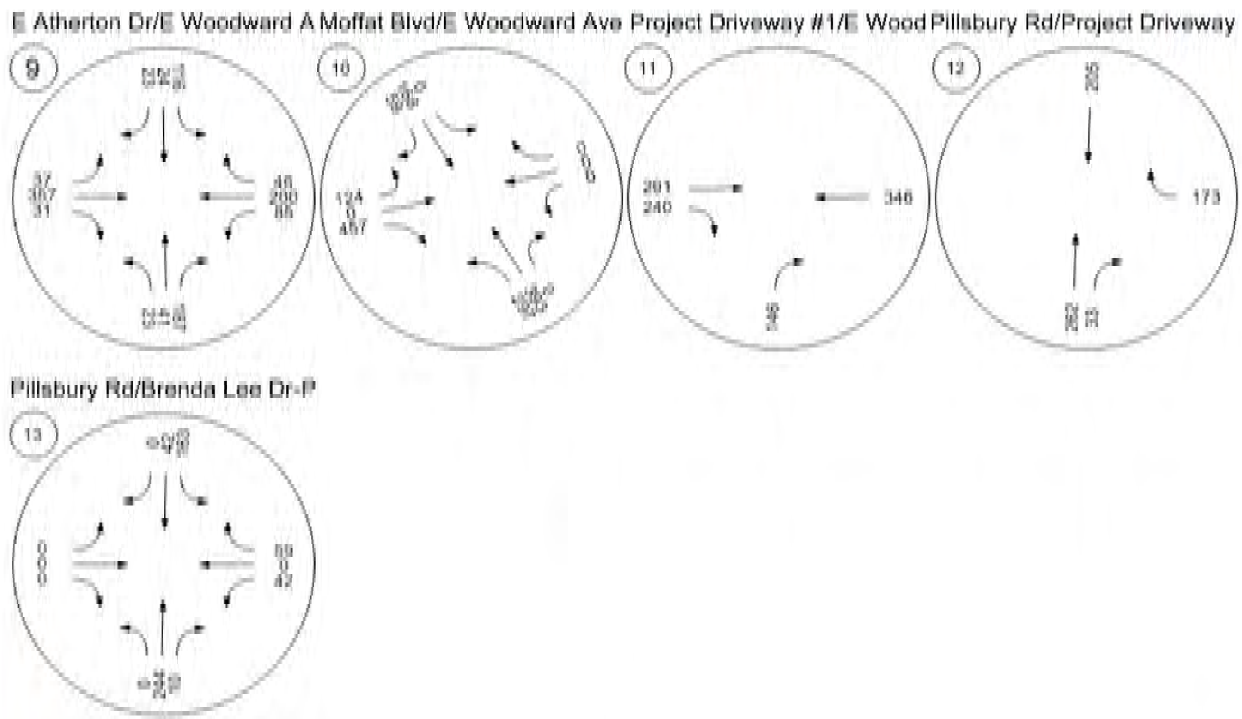


Exhibit 12: CP AM Peak Hour Volumes

Traffic Impact Analysis

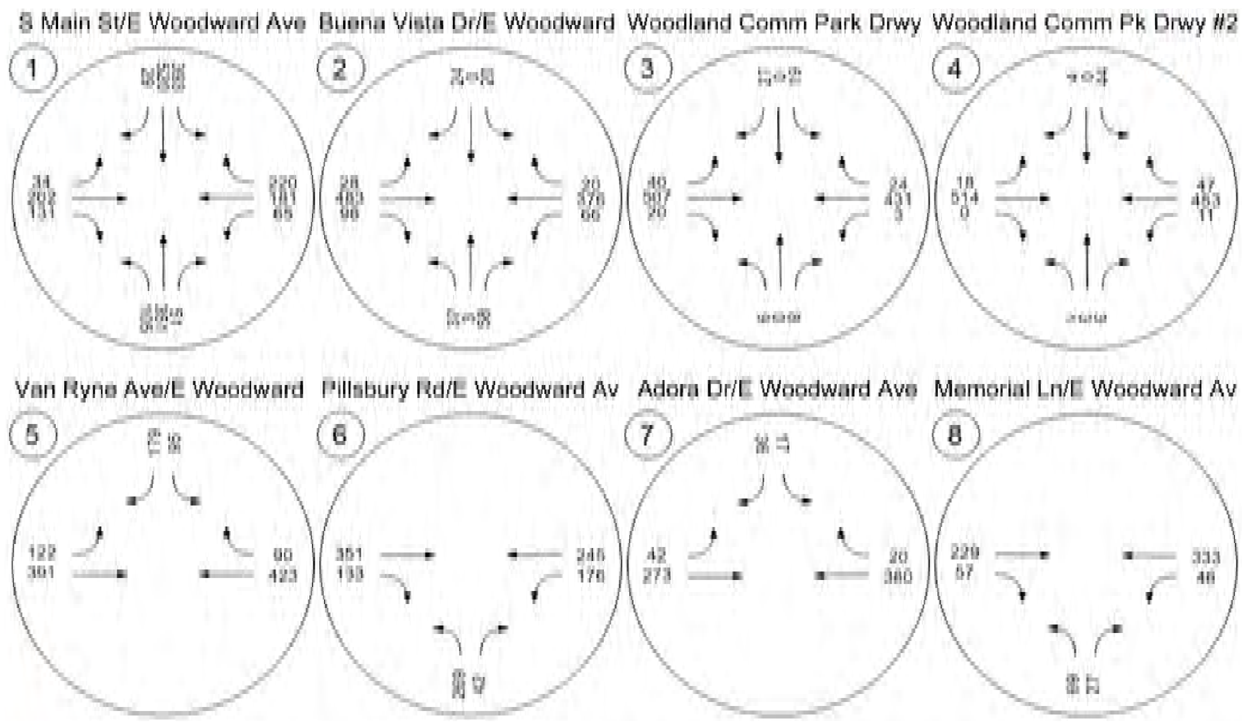


Exhibit 13: CP PM Peak Hour Volumes

Traffic Impact Analysis

TJW Engineering, Inc.

BAS-23-001

Not to Scale

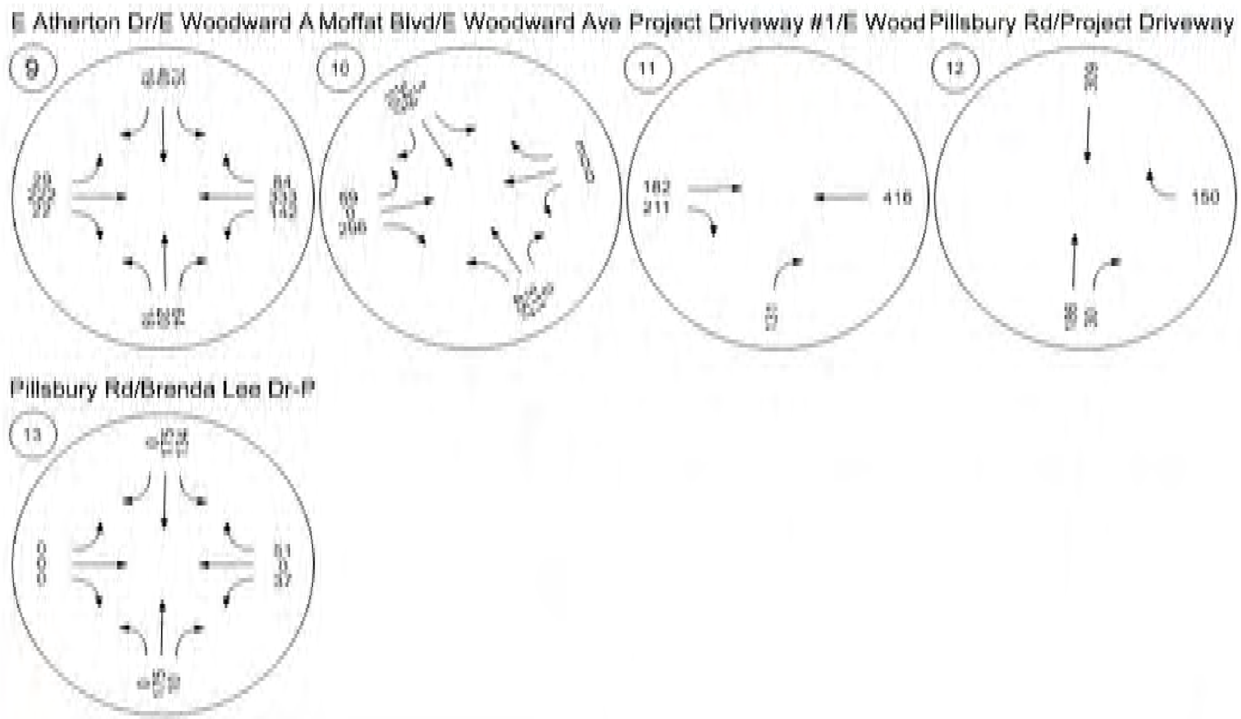


Exhibit 13: CP PM Peak Hour Volumes

Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW ENGINEERING, INC.

8.0 RECOMMENDED IMPROVEMENTS

The development of the proposed project would result in unsatisfactory impacts at the following intersection:

- South Main Street/East Woodward Avenue at both AM and PM peak hours;

8.1 SIGNAL WARRANT ANALYSIS

The development of the proposed project would result in unsatisfactory impacts at the intersection of South Main Street/East Woodward Avenue at both AM and PM peak hours. For this intersection, a traffic signal analysis was conducted. Figure 4C-3 contained in the *California Manual on Uniform Traffic Control Devices* (MUTCD) was utilized to determine if traffic signals are warranted. As shown in **Table 10**, based on AM and PM peak hour volumes, the traffic signal warrants were satisfied for both AM and PM peak hours. Signal warrant analysis worksheets are provided in **Appendix E**.

Table 10:
Signal Warrant Analysis

Intersection			Peak Hour	Signal Warrant Satisfied
1	South Main Street	East Woodward Avenue	AM	Yes
			PM	Yes

8.2 INTERSECTION WITH IMPROVEMENTS LEVEL OF SERVICE ANALYSIS

The AM and PM peak hour analysis for the intersections with the improvements of signalization is shown in. HCM analysis reports are provided in **Appendix D.**

Table 11:
Intersection with Improvements Analysis

Intersection			Control Type[1]	Target LOS	Peak Hour	CP Conditions		Control Type	CP Conditions With Improvements	
						Delay[2]	LOS		Delay[2]	LOS
1	South Main Street	East Woodward Avenue	AWSC	D	AM	67.5	F	Signal	14.0	B
					PM	101.3	F		15.9	B

1: AWSC = All-Way Stop-Control; TWSC = Two-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 11**, the study intersections with improvements are projected to continue to operate at an acceptable LOS during the AM and PM peak hours.

8.3 PROJECT FAIR SHARE

The project's fair share percentage for each recommended improvement is identified in **Table 12** below. The percentage of project fair-share at affected intersections was calculated using the total trips generated by the project divided by the total "new" traffic, which is the net increase in traffic volume in the Cumulative conditions as a result of all other proposed projects.

Table 12:
Fair Share Analysis

Intersection			Improvement	Peak Hour	Project Trips	Total Traffic	Existing Traffic	Project % of Fair Share
1	South Main Street	East Woodward Avenue	Add Signal	AM	147	2,129	1,606	28.11%
				PM	117	2,282	1,699	20.07%

APPENDIX

APPENDIX A

GLOSSARY OF TERMINOLOGY

Glossary of Terminology

ACRONYMS:

ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
LOS	Level of Service
TSF	Thousand Square Feet

TERMS

AVERAGE DAILY TRAFFIC – *The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.*

CAPACITY – T*he maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.*

CORNER SIGHT DISTANCE – *The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic travelling at a given speed to radically alter their speed or trajectory. Corner sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 36 inches above the pavement in the center of the nearest approach lane.*

CYCLE LENGTH – *The time period in seconds required for a traffic signal to complete one full cycle of indications.*

DELAY – *The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.*

FREE FLOW – *Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.*

LEVEL OF SERVICE – *A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.*

PEAK HOUR – *The 60 consecutive minutes with the highest number of vehicles.*

QUEUE LENGTH – *The length of vehicle queue, typically expressed in feet, waiting at a service area such as a Traffic signal, stop sign, or access gate.*

SIGHT DISTANCE – *The continuous length of roadway visible to a driver or roadway user.*

SIGNAL CYCLE – *The time period in seconds required for one complete sequence of signal indications.*

SIGNAL PHASE – *The part of the signal cycle allocated to one or more traffic movements.*

STARTING DELAY – *The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through an intersection.*

TRAFFIC-ACTUATED SIGNAL – *A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.*

TRIP – *The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.*

TRIP GENERATION RATE – *The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.*

TURNING RADIUS – *The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheel base as well as the steering mechanism of the vehicle.*

APPENDIX B

SCOPING AGREEMENT AND CITY DOCUMENTS

Scoping for Traffic Impact Analysis

This form acknowledges the minimum requirements for the traffic impact analysis of the following project. The analysis will follow the local jurisdiction's traffic impact analysis guidelines.

Project Name:	Pillsbury Site Plan
Project Address:	1840 Pillsbury Road, City of Manteca
Project Description:	16 pump gasoline station with 5,000 square foot convenience store, 2,600 square feet fast food with drive through, and 9,045 square feet for retail

	Consultant	Developer
Name:	TJW Engineering	Basecamp Environmental, Inc.
Address:	9841 Irvine Center Drive, Suite 200	802 West Lodi Avenue
	Irvine, CA 92618	Lodi, CA 95240
Telephone:	949-878-3509	
Email:		

Trip Generation Source: ITE Trip Generation Manual, 11th Edition (2021)

Current GP Land Use:	CMU – Commercial Mixed	Proposed Land Use:	CMU – Commercial Mixed
Current Zoning:	CMU – Commercial Mixed	Proposed Zoning:	CMU – Commercial Mixed

Is the project screened from LOS analysis? ☐ Yes ☒ No

Justification:	The *City of Manteca Transportation Impact Guidelines* indicate that any proposed project expected to generate more than 100 AM or PM weekday peak hour vehicle trips will require a TIA. The proposed project will generate more than 100 trips for both AM and PM weekday peak hours and therefore will require a TIA.

Is the project screened from VMT analysis? ☒ Yes ☐ No

Justification:	The *City of Manteca SB 743 Implementation Policy* (2022) indicates that local-serving retail 125,000 square feet or less are exempt from VMT analysis. The combined square footage of the proposed project building is less than this threshold and therefore will not require a VMT analysis.

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips				248	240	488
PM Trips				200	197	398
Daily						5,023

Internal Trip Capture: ☐ Yes ☐ No ______ % Trip Discount

Pass-By Allowance: ☒ Yes ☐ No 15% for daily & AM, 25% for PM % Trip Discount

Trip Distribution: See attached exhibit

Project Build-out Year: 2025 Annual Ambient Growth Rate: TBD

Study Intersections:

1. South Main Street/East Woodward Avenue
2. Buena Vista / East Woodward Avenue
3. Queensland / East Woodward Avenue
4. Wellington / East Woodward Avenue
5. Van Ryn Avenue/East Woodward Avenue
6. Pillsbury Road/East Woodward Avenue
7. Adora Drive/East Woodward Avenue
8. Memorial Lane/East Woodward Avenue
9. Atherton / East Woodward Avenue
10. Moffat Blvd / East Woodward Avenue
11. Project Driveway 1/East Woodward Avenue
12. Pillsbury Road/Project Driveway 2 (northerly)
13. Pillsbury Road/Project Driveway 3 (southerly)
14.

Study Roadway Segments:

1.
2.
3.
4.

Analysis Scenarios:

1. Existing Traffic Conditions
2. Existing with Project Traffic Conditions
3. Cumulative Traffic Conditions
4. Cumulative with Project Traffic Conditions
5.

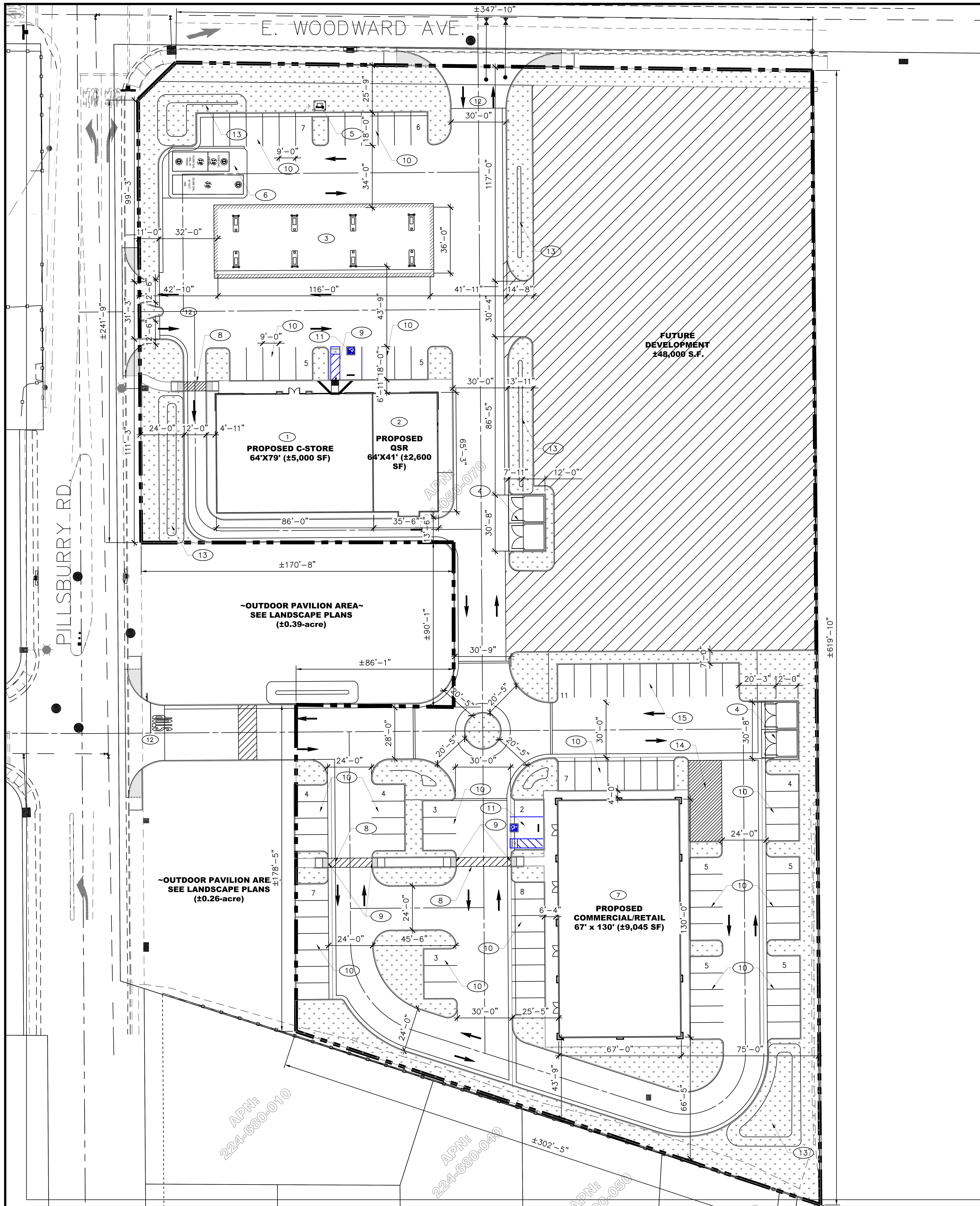
Other Jurisdiction Analyzed? ☐ Yes ☒ No Name of Jurisdiction: ______

Date of Traffic Counts: New counts will be collected

Additional Items to be Addressed:	1. Project driveway queues will be provided to evaluate potential queues onto City right-of-way

Additional Notes:	1. Saturday AM Peak scenario with be analyzed in all scenarios. Analysis peak hour time will be determined/coordinated with City staff Kevin Fant. 2. To provide a conservative analysis and due to the single point of entry, the future development (48,000 SF) portion of the site is assumed to be 12,000 SF and include retail and fast-food w/drive-through.

David Chew, PTP	
Consultant's Representative	City
Signature	Signature
July 3, 2024	
Date	Date



01 **SITE PLAN**
SCALE: 1"=30'

N

SITE INFORMATION

SITE	AREA OF PROPERTY					AREA
	GROSS AREA					177,593 SQ.FT.
	DEDICATIONS, EASEMENTS					
	NET BUILDABLE AREA					
	GROSS AREA (IN ACRES)					±4.07 ACRES
	ZONING					ZONE
	ASSESSORS PARCEL NUMBER					224-050-070
LANDS	DESCRIPTION				PERCENT	AREA
	LANDSCAPE REQUIRED					-
	LANDSCAPING PROVIDED (ON-SITE)				16.96%	30,137 SQ. FT.
STRUCTURES	DESCRIPTION	SIZE	OCC	CONS.. TYPE	STATUS	AREA
	C-STORE	65'-3" x 86'-0"	M	V-B	NEW	5,000 SQ. FT.
	Q.S.R.	65'-3" x 35'-6"	A-2	V-B	NEW	2,600 SQ. FT.
	CANOPY	116'-0" x 36'-0"	M	II-B	NEW	4,200 SQ. FT.
	RETAIL	130'-0" x 67'-0"	M	V-B	NEW	9,045 SQ. FT.
					TOTAL BUILDING AREA:	20,845 SQ.FT.
	% OF LOT COVERAGE (EXCLUDING CANOPY)	BUILDING AREA 16,645 SQ. FT.	NET LOT AREA 177,593 SQ. FT.			= (±9.37%)
PARKING	DESCRIPTION (REQUIRED PARKING)			RATIO		REQD. #
	CONVENIENCE STORE			1 PER PUMP + 1 PER SERVICE BAY		8 SPACE(S)
	Q.S.R.			1 PER 100 SQ.FT.		26 SPACE(S)
	RETAIL			4 PER 1000 SQ.FT.		36 SPACE(S)
	TOTAL PARKING SPACES REQUIRED:					70 SPACE(S)
	DESCRIPTION (PROVIDED PARKING)				SIZE	PROVIDED
	STANDARD (VEHICLE)				9'-0"X18'-0"	87
	ACCESSIBLE SPACE(S)				17'-0"X20'-0"	2
					TOTAL PARKING SPACES PROVIDED:	89 - SPACE(S)

KEY PLAN

1. NEW C- STORE ±5,000 SF
2. NEW Q.S.R. 2,600 SF
3. NEW CANOPY 8 MPD
4. NEW TRASH ENCLOSURE
5. NEW CANISTER
6. NEW UNDERGROUND GASOLINE TANKS CONCRETE SLAB: 7" CONCRETE SLAB W/#3 REBAR @ 18" O.C. EACH WAY OVER 8" COMPACT BASE MATERIAL AND GRADE OR PER SOILS REPORT AND RECOMMENDATIONS. REINFORCING BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM SURFACE.
7. NEW RETAIL ±9,045 SF
8. NEW PATH OF TRAVEL. SLOPE MAX 5% ON DIRECTION OF TRAVEL AND 2% CROSS SLOPE. VERIFY COMPLIANCE
9. NEW ACCESSIBLE RAMP WITH TRUNCATED DOMES.
10. NEW PARKING STANDARDS
11. NEW ACCESSIBLE PARKING SPACE.
12. NEW DRIVEWAY
13. BIORETENTION
14. NEW LOADING PARKING
15. NEW LANDSCAPE

AGCDC.COM
AGC DESIGN CONCEPT, INC.
24630 ORCHARD VILLAGE RD
STE. A211
Valencia, CA 91355
Phone: 661.295.1111

NO. | DATE | REVISIONS | BY

NEW DEVELOPMENT
1840 PILLSBURY RD.
MANTECA, CA
SITE PLAN

consultant job#
master release date
project exe date
master drawn by
Filename AGC
Facility/Project
sheet name
CUP-1

Table 1
Project Trip Generation

Proposed Land Use[1]	ITE Code	Qty	Unit[2]	Daily		AM Peak Hour					PM Peak Hour				
				Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
								In	Out	Total			In	Out	Total
Convenience Store/Gas Station, GFA (4-5.5k), VFP (>8)	945(4)	16	VFP	257.13	4,114	27.04	50:50	217	216	433	22.76	50:50	182	182	364
Pass-By Trips (0.15 Daily, 0.15 AM, 0.25 PM)					*-617*			*-33*	*-32*	*-65*			*-46*	*-46*	*-91*
Fast-Food Restaurant with Drive-Through Window	934	2.6	TSF	467.48	1,215	44.61	51:49	59	57	116	33.03	52:48	45	41	86
Pass-By Trips (0.15 Daily, 0.15 AM, 0.25 PM)					*-182*			*-9*	*-9*	*-17*			*-11*	*-10*	*-22*
Strip Retail Plaza (<40k)	822	9.0	TSF	54.45	493	2.36	60:40	13	8	21	6.59	50:50	30	30	60
Fast-Food Restaurant with Drive-Through Window	934	6.0	TSF	467.48	2,805	44.61	51:49	137	131	268	33.03	52:48	103	95	198
Pass-By Trips (0.15 Daily, 0.15 AM, 0.25 PM)					*-421*			*-21*	*-20*	*-40*			*-26*	*-24*	*-50*
Strip Retail Plaza (<40k)	822	6.0	TSF	54.45	327	2.36	60:40	8	6	14	6.59	50:50	20	20	40

Results	Daily	Volume	AM Peak Hour	In	Out	Total	PM Peak Hour	In	Out	Total
Subtotal		8,954		434	418	852		380	368	748
Pass-By Trips		-1,220		-62	-61	-123		-83	-80	-162
Net Total		**7,734**		**372**	**357**	**729**		**298**	**289**	**586**

1: Trip generation and pass-by rates from ITE Trip Generation (11th Edition, 2021).

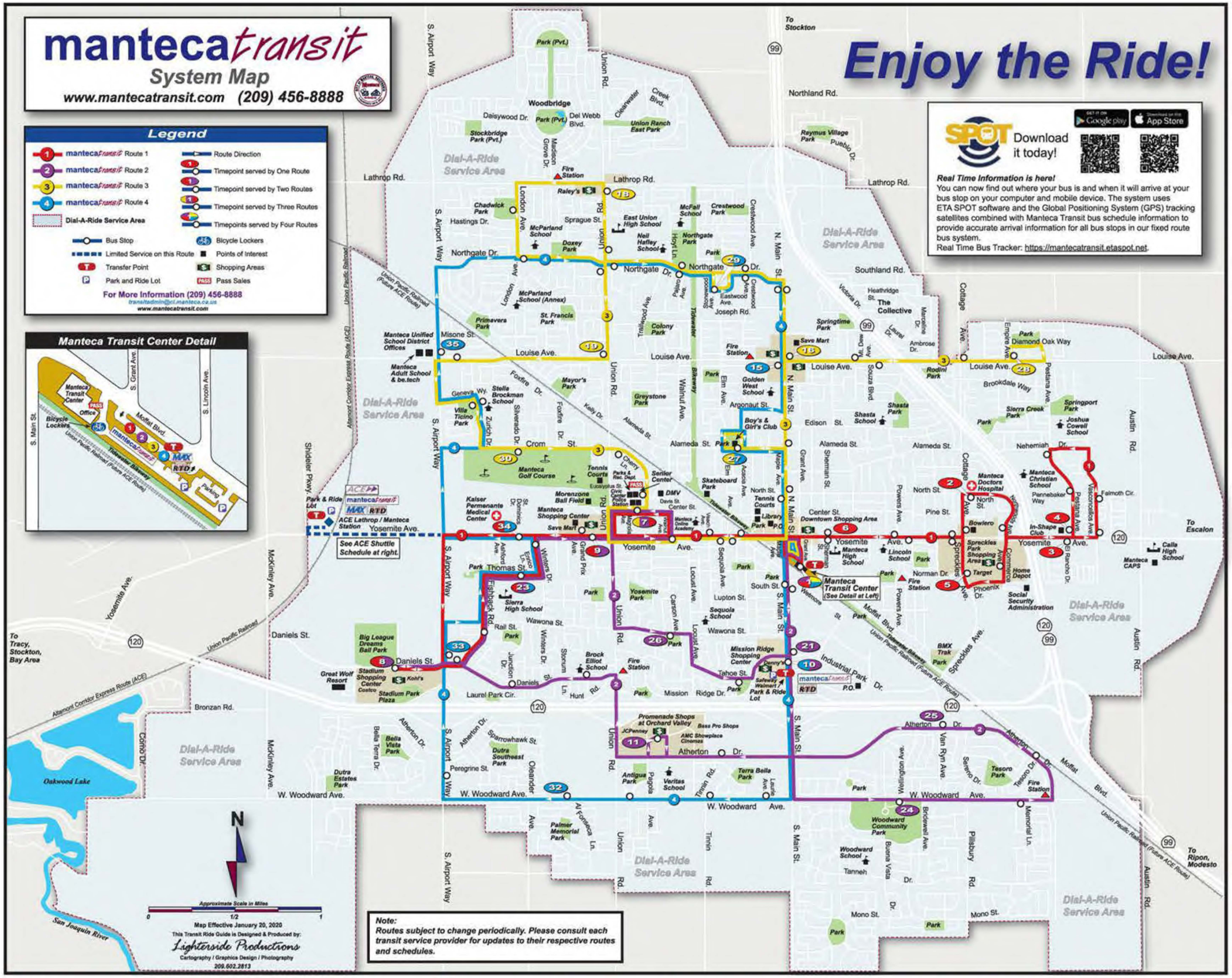
2: TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions.

Trip Distribution
Pillsbury Site
BAS-23-001
99
10%
5%
5%
10%
5%
10%
5%
5%
10%
5%
10%
5%
5%
5%
5%
5%
5%
10%
1
2
3
4
5
6
7
8
9
10
1
2
3
Google Earth
Image © 2024 Airbus
3000 ft
N

Table C-1: Street Classifications

Street Type	Description
Parkway	High-capacity thoroughfare, typically four to six lanes, focused on vehicular traffic with limited property frontages. Aesthetically appealing with landscaped median islands. Provides regional access to adjacent land uses and safe crossings for all travel modes along a regional transportation corridor. Intersections typically require a ½ mile separation. Pedestrians and bicycles accommodated in a landscape-separated path. Emphasizes regional vehicle trips through collaborations with other cities and agencies. On-street motor vehicle parking typically prohibited.
Arterial	Major thoroughfare, typically four lanes, focused on through traffic and public transit, with access for major local traffic generators, such as commercial, industrial, institutional, and large high-density housing complexes. Pedestrian sidewalks and Class II or IV bicycle facilities provided on both sides of the street. Curbside landscaping and landscaped medians encouraged. Restriping with narrower lanes allowed where necessary to close gaps in pedestrian and bicycle system. Provides access and safe crossings for all travel modes. On-street vehicle parking is typically prohibited.
Main Street Arterial	Pedestrian-oriented street, typically two lanes, with primarily retail, mixed-use, or recreation uses. Provides access to all travel modes in support of typical “main street” land uses and includes on-street motor vehicle and bicycle parking. Service to pedestrian-oriented retail is of prime importance. Provides enhancements for walking and transit, including bulb-outs to reduce pedestrian crossing distances. On-street motor vehicle parking may be permitted where feasible to enhance access to adjacent uses.
Major Collector	Major collector streets, typically two to four lanes, serve as smaller-scale parallel routes to arterial streets and provide access to neighborhoods. Examples include Center Street, Powers Avenue, and Daniels Street west of Airport Way. Major collector streets will typically provide two travel lanes, a Class II bike lane or Class IV separated bikeway and a sidewalk on both sides. Median islands and turn lanes may be appropriate in certain conditions. For newly constructed major collector streets, on-street parking should be prohibited to reduce pavement width, pedestrian crossing distances, and maintenance costs. On-street parking for existing major collector streets should be restricted or limited by eliminating the parking lane or through the use of bulb-outs to minimize the cross section and discourage speeding.

Street Type	Description
Minor Collector	Minor collector streets, typically two lanes, serve as the backbone circulation routes within larger neighborhoods and commercial/industrial areas, providing primary access to commercial and industrial uses and linking low volume residential streets to major collector and arterial streets. Minor collector streets should be small scale, two lane streets. The streets should be wide enough to safely accommodate traffic flows, but not so wide as to encourage high-speed travel. Depending on the surrounding land uses (e.g., office, commercial, or residential areas), the minor collector may accommodate Class II bike lanes. Sidewalks should be provided on each side of the street.
Residential Streets	While they carry relatively light traffic loads, residential streets, typically two lanes, constitute the majority of Manteca's street system. These streets are intended to serve residential driveways, providing access between homes and larger streets. These streets should include narrow travel and parking lanes to slow travel and discourage through trips and sidewalks on both sides of the street. Features like corner bulb-outs and traffic circles (a smaller version of a roundabout) should be incorporated to improve the aesthetic quality of the street, while calming traffic. Class III bike routes and special pavement markings for bicycles should be provided where appropriate to provide continuity for the bicycle system. Where a residential street ends in a cul-de-sac, a shared bicycle/pedestrian path should be constructed to connect the cul-de-sac to other residential, collector, or arterial streets to shorten travel distances and encourage the use of these modes.
Intersections of City Streets	Intersections are critical components of the street network since they tend to define how well the system operates. Drivers and transit users typically experience most of their traveling delay at intersections. Intersections are important for pedestrians and bicycles since they provide controlled points where these modes can cross major roadways. In general, intersections should have minimum lane widths to serve the type of vehicles expected on the roadway (e.g., lanes should be sufficiently wide to accommodate trucks in industrial areas). Narrower lanes pose less of a barrier for pedestrians to cross and reduce maintenance costs. Where there is demand, u-turn movements should be accommodated in the intersection design to the extent feasible to extend the length of landscaped medians. Bus bays should be included in intersection designs for expressways, arterials, and major collectors to maintain traffic flow while buses are loading and unloading.



![SPOT] Download it today!

Real Time Information is here!
You can now find out where your bus is and when it will arrive at your bus stop on your computer and mobile device. The system uses ETA SPOT software and the Global Positioning System (GPS) tracking satellites combined with Manteca Transit bus schedule information to provide accurate arrival information for all bus stops in our fixed route bus system.
Real Time Bus Tracker: https://mantecatransit.etaspot.net.

EZHub The EZ Way to Plan, Pay and Ride
Find EZHub on the Vamos Mobility app

EZHub
Plan, Pay and Ride!
MantecaTransit passes can now be purchased straight from your mobile phone. Passengers can access the Vamos Mobility app by scanning the QR Code above or downloading it from the Apple App Store or Google Play.

Connections to Other Transportation Services

Contact the following providers listed below for transportation options outside the City of Manteca:

- **Dibs**: 1-800-52-SHARE -- www.dibsmyway.com.
Ridesharing and vanpooling information for San Joaquin County.
- **San Joaquin Regional Transit District (RTD):** 1-800-HOW-TO-RIDE – www.sjRTD.com.
Operates County Hopper, Commuter and specialized services to/from Manteca to other areas of San Joaquin County, as well as Alameda and Santa Clara counties.
- **Altamont Corridor Express (ACE):** 1-800-411-RAIL – www.acerail.com.
Operates commuter rail service between Stockton and San Jose. Station is located at: 17800 Shideler Parkway, Lathrop, CA 95330. ACE is also a part of the Amtrak San Joaquins Thruway network. Visit www.amtrak.com or call 1-800-USA-RAIL for more details.
- **Modesto Area Express (MAX):** (209) 521-1274 – www.modestoareaexpress.com.
Operates express bus service between Modesto and Lathrop/Manteca ACE Station and the Manteca Transit Center, Monday-Friday during commuter hours.

mantecatransit
Dial-A-Ride & ADA Paratransit Services
Monday-Saturday

Manteca Transit ADA Complementary Paratransit service is a origin to destination transportation service for individuals who are ADA-Certified and are unable to use some or all of the fixed route bus services. Manteca Transit ADA Complementary Paratransit services provides comparable sservice to the regular fixed route system in terms of trips schedules during the same times and within three-quarters of a mile of the fixed route service.

Manteca Transit Dial-A-Ride service operates within the City of Manteca for seniors, persons with disabilities, and Medicare cardholders.

Monday through Friday Service Hours

Priority service for ADA certified, first come, first served basis for Dial-A-Ride riders from 6 a.m. to 7 p.m. (last reservations at 5 p.m.)

Saturday Service Hours

Dial-A-Ride Demand Response Services and Paratransit service operates during the same days and hours as the regular fixed route service. Priority Service for ADA certified, first come, first served basis for Dial-A-Ride riders from 9 a.m. to 4 p.m.

To make a reservation, please call (209) 456-8888 1 to 14 days in advance during reservation hours.. If you no longer need service, please cancel you trip as soon as possible, but no less than 1 day in advance by calling (209) 456-8888.

Connections to RTD County Hopper for route deviation trips outside of Manteca is possible for those whom have Paratranist certification.

mantecatransit SHUTTLE TO ACE
ALTAMONT CORRIDOR EXPRESS

Morning Shuttle to ACE Station Schedule

Shuttle to ACE Train #	Leave Transit Center	Arrive - Lathrop / Manteca ACE Station	*ACE Trains Depart to South Bay Area*	Depart - Lathrop / Manteca ACE Station	Arrive Transit Center
5	6:40	6:55	6:59	6:59	7:14
7	7:23	7:38	7:51	7:39	7:54

Afternoon Shuttle to ACE Station Schedule

Shuttle to ACE Train #	Leave Transit Center	Arrive - Lathrop / Manteca ACE Station	*ACE Trains Arrives from South Bay Area*	Depart - Lathrop / Manteca ACE Station	Arrive Transit Center
4	**5:05**	**5:20**	**5:23**	**5:23**	**5:43**
6	**6:05**	**6:20**	**6:23**	**6:23**	**6:43**
8	**7:05**	**7:20**	**7:23**	**7:23**	**7:43**

Avoid parking at the ACE Station!
Take the ACE Shuttle from the Manteca Transit Center to the ACE Station.

The Shuttle meets trains #5 & #7 in the morning and trains #4, #6 & #8 in the evening.

Only $1.00 to ride each way with discounts for youth, seniors and persons with disabilities.

Please consult the ACE Schedule for times of arrivals and departures from; Tracy, Vasco Rd., Livermore, Pleasanton, Fremont, Great America and Santa Clara.

mantecatransit Route 1 (Ruta 1) Weekday & Saturday Schedule
(Horario de días de Semana y Sábados)

Transit Center (1)	North St. at Cottage Ave (2)	Yosemite Ave. at El Rancho Dr. (3)	Pestana Ave. at Yosemite Ave. (4)	Spreckles Ave. at Norman Dr. (5)	Yosemite Ave. at Sherman St. (6)	Center St. at Magnolia Ave. (7)	Yosemite Ave. at St. Dominics Dr. (34)	Daniels St. at (Stadium Center) (8)	Thomas St. at Enrico Ln. (23)	Yosemite Ave. at Union Rd. (9)	Transit Center (1)
6:00	6:06	6:09	6:14	6:19	6:23	6:29	6:32	6:39	6:42	6:46	6:54
7:00	7:06	7:09	7:14	7:19	7:23	7:29	7:32	7:39	7:42	7:46	7:54
8:00	8:06	8:09	8:14	8:19	8:23	8:29	8:32	8:39	8:42	8:46	8:54
9:00	9:06	9:09	9:14	9:19	9:23	9:29	9:32	9:39	9:42	9:46	9:54
10:00	10:06	10:09	10:14	10:19	10:23	10:29	10:32	10:39	10:42	10:46	10:54
11:00	11:06	11:09	11:14	11:19	11:23	11:29	11:32	11:39	11:42	11:46	11:54
12:00	**12:06**	**12:09**	**12:14**	**12:19**	**12:23**	**12:29**	**12:32**	**12:39**	**12:42**	**12:46**	**12:54**
1:00	**1:06**	**1:09**	**1:14**	**1:19**	**1:23**	**1:29**	**1:32**	**1:39**	**1:42**	**1:46**	**1:54**
2:00	**2:06**	**2:09**	**2:14**	**2:19**	**2:23**	**2:29**	**2:32**	**2:39**	**2:42**	**2:46**	**2:54**
3:00	**3:06**	**3:09**	**3:14**	**3:19**	**3:23**	**3:29**	**3:32**	**3:39**	**3:42**	**3:46**	**3:54**
4:00	**4:06**	**4:09**	**4:14**	**4:19**	**4:23**	**4:29**	**4:32**	**4:39**	**4:42**	**4:46**	**4:54**
5:00	**5:06**	**5:09**	**5:14**	**5:19**	**5:23**	**5:29**	**5:32**	**5:39**	**5:42**	**5:46**	**5:54**
6:00	**6:06**	**6:09**	**6:14**	**6:19**	**6:23**	**6:29**	**6:32**	**6:39**	**6:42**	**6:46**	**6:54**

Saturday Service is Shaded in Gray (El Servicio del Sábado está Sombreado en Gris)

Times shown in BOLD are P.M. (Los tiempos mostrados en color mas oscuro son P.M.)

mantecatransit Route 2 (Ruta 2) Weekday & Saturday Schedule
(Horario de días de Semana y Sábados)

Transit Center (1)	Main St. at Mission Ridge Dr. (10)	Woodward Ave. at Wellington Ave. (24)	Atherton Dr. at Van Ryn Ave. (25)	Promenade Shops at Orchard Valley (11)	Daniels St. at (Staduim Center) (8)	Thomas St. at Enrico Ln. (23)	Yosemite Ave. at Union Rd. (9)	Center St. at Magnolia Ave. (7)	Wawona St. at Carson Ave. (26)	Main St. at Industrial Park Dr. (21)	Transit Center (1)
6:00	6:03	6:06	6:11	6:15	6:26	6:29	6:32	6:34	6:38	6:41	6:45
7:00	7:03	7:06	7:11	7:15	7:26	7:29	7:32	7:34	7:38	7:41	7:45
8:00	8:03	8:06	8:11	8:15	8:26	8:29	8:32	8:34	8:38	8:41	8:45
9:00	9:03	9:06	9:11	9:15	9:26	9:29	9:32	9:34	9:38	9:41	9:45
10:00	10:03	10:06	10:11	10:15	10:26	10:29	10:32	10:34	10:38	10:41	10:45
11:00	11:03	11:06	11:11	11:15	11:26	11:29	11:32	11:34	11:38	11:41	11:45
12:00	**12:03**	**12:06**	**12:11**	**12:15**	**12:26**	**12:29**	**12:32**	**12:34**	**12:38**	**12:41**	**12:45**
1:00	**1:03**	**1:06**	**1:11**	**1:15**	**1:26**	**1:29**	**1:32**	**1:34**	**1:38**	**1:41**	**1:45**
2:00	**2:03**	**2:06**	**2:11**	**2:15**	**2:26**	**2:29**	**2:32**	**2:34**	**2:38**	**2:41**	**2:45**
3:00	**3:03**	**3:06**	**3:11**	**3:15**	**3:26**	**3:29**	**3:32**	**3:34**	**3:38**	**3:41**	**3:45**
4:00	**4:03**	**4:06**	**4:11**	**4:15**	**4:26**	**4:29**	**4:32**	**4:34**	**4:38**	**4:41**	**4:45**
5:00	**5:03**	**5:06**	**5:11**	**5:15**	**5:26**	**5:29**	**5:32**	**5:34**	**5:38**	**5:41**	**5:45**
6:00	**6:03**	**6:06**	**6:11**	**6:15**	**6:26**	**6:29**	**6:32**	**6:34**	**6:38**	**6:41**	**6:45**

Saturday Service is Shaded in Gray (El Servicio del Sábado está Sombreado en Gris)

Times shown in BOLD are P.M. (Los tiempos mostrados en color mas oscuro son P.M.)

mantecatransit Route 3 (Ruta 3) Weekday & Saturday Schedule
(Horario de días de Semana y Sábados)

Transit Center (1)	Alameda St. at Acacia Ave. (27)	Empire Ave. at Louise Ave. (28)	Main St. at Louise Ave. (15)	Eastwood Ave. at Stonewood Ave. (29)	Union Rd. at Lathrop Rd. (18)	Union Rd. at Louise Ave. (19)	Crom St. at Silverado St. (30)	Center St. at Magnolia Ave. (7)	Transit Center (1)
6:00	6:06	6:13	6:18	6:21	6:25	6:31	6:37	6:39	6:48
7:00	7:06	7:13	7:18	7:21	7:25	7:31	7:37	7:39	7:48
8:00	8:06	8:13	8:18	8:21	8:25	8:31	8:37	8:39	8:48
9:00	9:06	9:13	9:18	9:21	9:25	9:31	9:37	9:39	9:48
10:00	10:06	10:13	10:18	10:21	10:25	10:31	10:37	10:39	10:48
11:00	11:06	11:13	11:18	11:21	11:25	11:31	11:37	11:39	11:48
12:00	**12:06**	**12:13**	**12:18**	**12:21**	**12:25**	**12:31**	**12:37**	**12:39**	**12:48**
1:00	**1:06**	**1:13**	**1:18**	**1:21**	**1:25**	**1:31**	**1:37**	**1:39**	**1:48**
2:00	**2:06**	**2:13**	**2:18**	**2:21**	**2:25**	**2:31**	**2:37**	**2:39**	**2:48**
3:00	**3:06**	**3:13**	**3:18**	**3:21**	**3:25**	**3:31**	**3:37**	**3:39**	**3:48**
4:00	**4:06**	**4:13**	**4:18**	**4:21**	**4:25**	**4:31**	**4:37**	**4:39**	**4:48**
5:00	**5:06**	**5:13**	**5:18**	**5:21**	**5:25**	**5:31**	**5:37**	**5:39**	**5:48**
6:00	**6:06**	**6:13**	**6:18**	**6:21**	**6:25**	**6:31**	**6:37**	**6:39**	**6:48**

Saturday Service is Shaded in Gray (El Servicio del Sábado está Sombreado en Gris)

Times shown in BOLD are P.M. (Los tiempos mostrados en color mas oscuro son P.M.)

mantecatransit Route 4 (Ruta 4) Weekday Only Schedule
(Sólo días de Semana)

Transit Center (1)	Main St. at Mission Ridge Dr. (10)	Woodward Ave. at Al Fonseca Ln. (32)	Airport Wy at Daniels St. (33)	Thomas St. at Enrico Ln. (23)	Yosemite Ave. at St. Dominics Dr. (34)	Airport Wy. at Louise Ave. (35)	Eastwood Ave. at Stonewood Ave. (29)	Main St. at Louise Ave. (15)	Alameda St. at Acacia Ave. (27)	Transit Center (1)
6:00	6:03	6:09	6:12	6:18	6:21	6:29	6:36	6:40	6:42	6:52
7:00	7:03	7:09	7:12	7:18	7:21	7:29	7:36	7:40	7:42	7:52
8:00	8:03	8:09	8:12	8:18	8:21	8:29	8:36	8:40	8:42	8:52
9:00	9:03	9:09	9:12	9:18	9:21	9:29	9:36	9:40	9:42	9:52
10:00	10:03	10:09	10:12	10:18	10:21	10:29	10:36	10:40	10:42	10:52
11:00	11:03	11:09	11:12	11:18	11:21	11:29	11:36	11:40	11:42	11:52
12:00	**12:03**	**12:09**	**12:12**	**12:18**	**12:21**	**12:29**	**12:36**	**12:40**	**12:42**	**12:52**
1:00	**1:03**	**1:09**	**1:12**	**1:18**	**1:21**	**1:29**	**1:36**	**1:40**	**1:42**	**1:52**
2:00	**2:03**	**2:09**	**2:12**	**2:18**	**2:21**	**2:29**	**2:36**	**2:40**	**2:42**	**2:52**
3:00	**3:03**	**3:09**	**3:12**	**3:18**	**3:21**	**3:29**	**3:36**	**3:40**	**3:42**	**3:52**
4:00	**4:03**	**4:09**	**4:12**	**4:18**	**4:21**	**4:29**	**4:36**	**4:40**	**4:42**	**4:52**
5:00	**5:03**	**5:09**	**5:12**	**5:18**	**5:21**	**5:29**	**5:36**	**5:40**	**5:42**	**5:52**
6:00	**6:03**	**6:09**	**6:12**	**6:18**	**6:21**	**6:29**	**6:36**	**6:40**	**6:42**	**6:52**

Times shown in BOLD are P.M. (Los tiempos mostrados en color mas oscuro son P.M.)

APPENDIX C

EXISTING TRAFFIC COUNTS

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: S Main Street
E/W: E Woodward Avenue
Weather: Clear

File Name : 01_MTC_Main_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

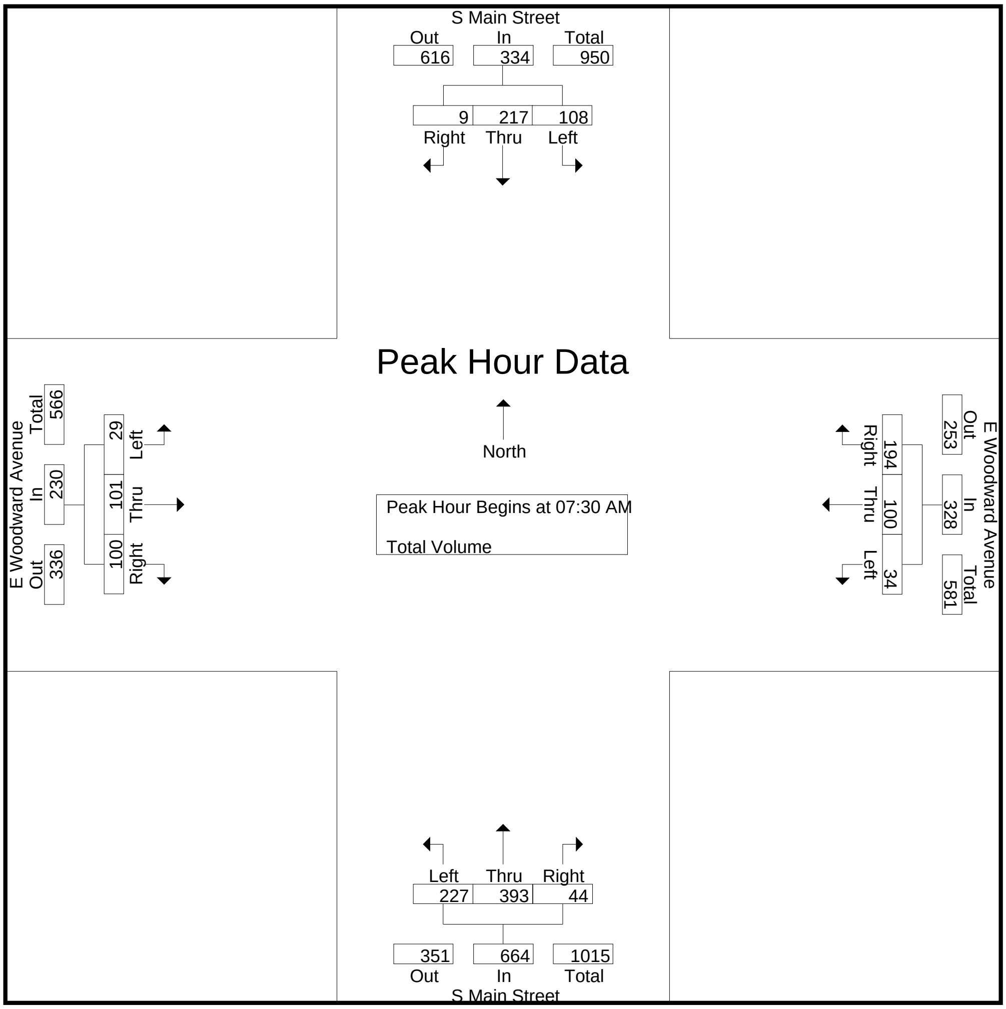
	S Main Street Southbound				E Woodward Avenue Westbound				S Main Street Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	14	40	6	60	5	26	48	79	14	76	3	93	5	16	10	31	263
07:15 AM	17	26	4	47	13	31	48	92	36	90	6	132	3	15	28	46	317
07:30 AM	24	61	1	86	14	32	58	104	73	92	10	175	11	19	35	65	430
07:45 AM	29	61	0	90	7	30	56	93	64	101	15	180	8	29	36	73	436
Total	84	188	11	283	39	119	210	368	187	359	34	580	27	79	109	215	1446
08:00 AM	26	44	7	77	9	17	37	63	44	114	10	168	5	30	17	52	360
08:15 AM	29	51	1	81	4	21	43	68	46	86	9	141	5	23	12	40	330
08:30 AM	42	68	4	114	3	15	38	56	15	68	4	87	5	22	33	60	317
08:45 AM	32	35	3	70	8	14	27	49	12	67	5	84	10	16	13	39	242
Total	129	198	15	342	24	67	145	236	117	335	28	480	25	91	75	191	1249
Grand Total	213	386	26	625	63	186	355	604	304	694	62	1060	52	170	184	406	2695
Apprch %	34.1	61.8	4.2		10.4	30.8	58.8		28.7	65.5	5.8		12.8	41.9	45.3		
Total %	7.9	14.3	1	23.2	2.3	6.9	13.2	22.4	11.3	25.8	2.3	39.3	1.9	6.3	6.8	15.1	

	S Main Street Southbound				E Woodward Avenue Westbound				S Main Street Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	24	**61**	1	86	**14**	**32**	**58**	**104**	**73**	92	10	175	**11**	19	35	65	430
07:45 AM	**29**	61	0	**90**	7	30	56	93	64	101	**15**	**180**	8	29	**36**	**73**	**436**
08:00 AM	26	44	**7**	77	9	17	37	63	44	**114**	10	168	5	**30**	17	52	360
08:15 AM	29	51	1	81	4	21	43	68	46	86	9	141	5	23	12	40	330
Total Volume	108	217	9	334	34	100	194	328	227	393	44	664	29	101	100	230	1556
% App. Total	32.3	65	2.7		10.4	30.5	59.1		34.2	59.2	6.6		12.6	43.9	43.5		
PHF	.931	.889	.321	.928	.607	.781	.836	.788	.777	.862	.733	.922	.659	.842	.694	.788	.892

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: S Main Street
E/W: E Woodward Avenue
Weather: Clear

File Name : 01_MTC_Main_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:00 AM				07:30 AM				07:15 AM			
+0 mins.	29	61	0	90	5	26	48	79	**73**	92	10	175	3	15	28	46
+15 mins.	26	44	**7**	77	13	31	48	92	64	101	**15**	**180**	**11**	19	35	65
+30 mins.	29	51	1	81	**14**	**32**	**58**	**104**	44	**114**	10	168	8	29	**36**	**73**
+45 mins.	**42**	**68**	4	**114**	7	30	56	93	46	86	9	141	5	**30**	17	52
Total Volume	126	224	12	362	39	119	210	368	227	393	44	664	27	93	116	236
% App. Total	34.8	61.9	3.3		10.6	32.3	57.1		34.2	59.2	6.6		11.4	39.4	49.2	
PHF	.750	.824	.429	.794	.696	.930	.905	.885	.777	.862	.733	.922	.614	.775	.806	.808

Counts Unlimited, Inc.
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City of Manteca
N/S: S Main Street
E/W: E Woodward Avenue
Weather: Clear

File Name : 01_MTC_Main_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	S Main Street Southbound				E Woodward Avenue Westbound				S Main Street Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	61	89	4	154	6	18	25	49	18	74	8	100	4	29	35	68	371
04:15 PM	57	91	6	154	11	16	37	64	18	65	8	91	7	23	32	62	371
04:30 PM	53	96	6	155	6	20	45	71	15	68	3	86	4	25	39	68	380
04:45 PM	58	98	4	160	11	22	31	64	17	90	6	113	10	38	24	72	409
Total	229	374	20	623	34	76	138	248	68	297	25	390	25	115	130	270	1531
05:00 PM	79	111	6	196	12	39	36	87	14	55	8	77	3	27	26	56	416
05:15 PM	77	91	2	170	11	27	37	75	24	70	11	105	10	44	22	76	426
05:30 PM	59	108	6	173	9	18	33	60	24	80	4	108	8	28	23	59	400
05:45 PM	70	98	9	177	8	47	44	99	20	70	5	95	6	48	32	86	457
Total	285	408	23	716	40	131	150	321	82	275	28	385	27	147	103	277	1699
Grand Total	514	782	43	1339	74	207	288	569	150	572	53	775	52	262	233	547	3230
Apprch %	38.4	58.4	3.2		13	36.4	50.6		19.4	73.8	6.8		9.5	47.9	42.6		
Total %	15.9	24.2	1.3	41.5	2.3	6.4	8.9	17.6	4.6	17.7	1.6	24	1.6	8.1	7.2	16.9	

	S Main Street Southbound				E Woodward Avenue Westbound				S Main Street Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**79**	**111**	6	**196**	**12**	39	36	87	14	55	8	77	3	27	26	56	416
05:15 PM	77	91	2	170	11	27	37	75	**24**	70	**11**	105	**10**	44	22	76	426
05:30 PM	59	108	6	173	9	18	33	60	24	**80**	4	**108**	8	28	23	59	400
05:45 PM	70	98	**9**	177	8	**47**	**44**	**99**	20	70	5	95	6	**48**	**32**	**86**	**457**
Total Volume	285	408	23	716	40	131	150	321	82	275	28	385	27	147	103	277	1699
% App. Total	39.8	57	3.2		12.5	40.8	46.7		21.3	71.4	7.3		9.7	53.1	37.2		
PHF	.902	.919	.639	.913	.833	.697	.852	.811	.854	.859	.636	.891	.675	.766	.805	.805	.929

Counts Unlimited, Inc.
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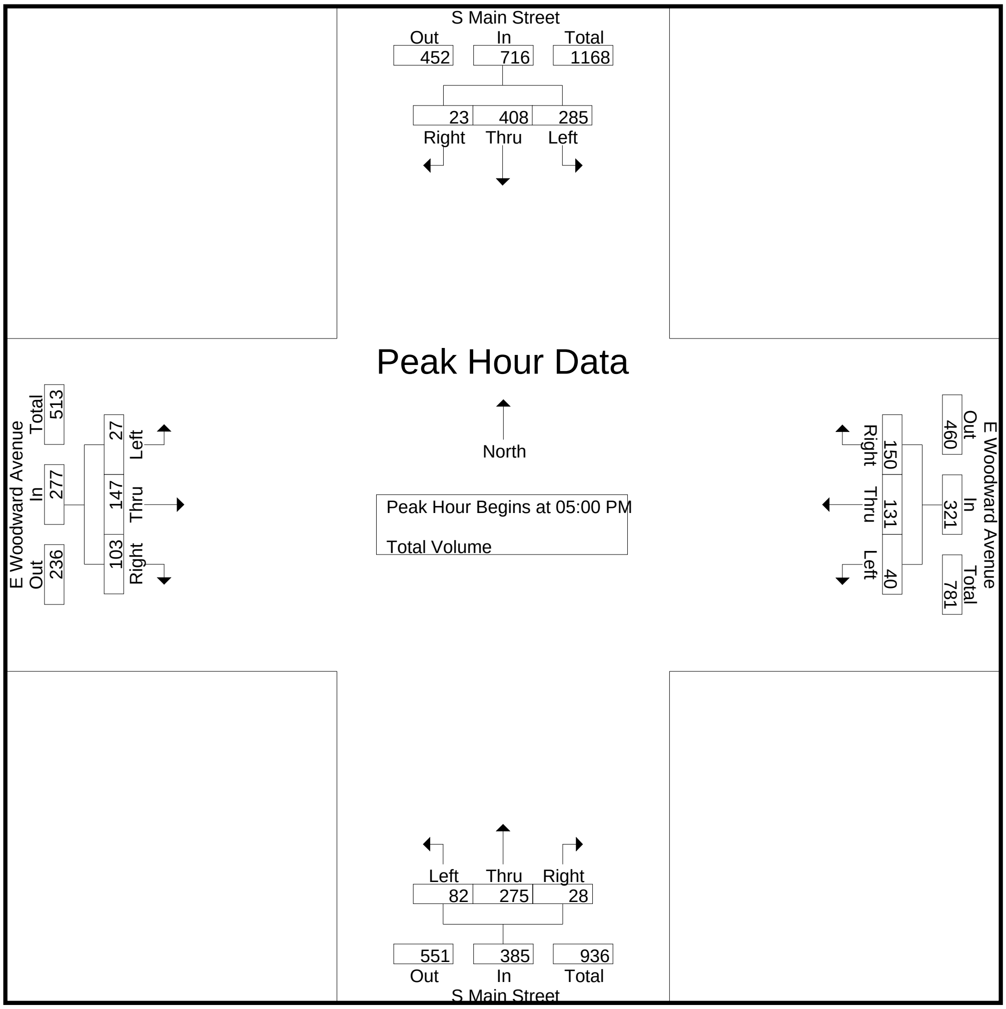
City of Manteca
N/S: S Main Street
E/W: E Woodward Avenue
Weather: Clear

File Name : 01_MTC_Main_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:45 PM				05:00 PM			
+0 mins.	**79**	**111**	6	**196**	**12**	39	36	87	17	**90**	6	**113**	3	27	26	56
+15 mins.	77	91	2	170	11	27	37	75	14	55	8	77	**10**	44	22	76
+30 mins.	59	108	6	173	9	18	33	60	**24**	70	**11**	105	8	28	23	59
+45 mins.	70	98	**9**	177	8	**47**	**44**	**99**	24	80	4	108	6	**48**	**32**	**86**
Total Volume	285	408	23	716	40	131	150	321	79	295	29	403	27	147	103	277
% App. Total	39.8	57	3.2		12.5	40.8	46.7		19.6	73.2	7.2		9.7	53.1	37.2	
PHF	.902	.919	.639	.913	.833	.697	.852	.811	.823	.819	.659	.892	.675	.766	.805	.805

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City of Manteca
N/S: Buena Vista Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 02_MTC_Buena_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Buena Vista Drive Southbound				E Woodward Avenue Westbound				Buena Vista Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	3	60	0	63	9	0	6	15	1	27	2	30	108
07:15 AM	0	2	6	8	9	67	0	76	13	0	4	17	2	28	7	37	138
07:30 AM	0	6	2	8	51	75	2	128	13	1	11	25	2	36	15	53	214
07:45 AM	2	7	1	10	47	52	1	100	23	11	49	83	1	47	19	67	260
Total	2	15	9	26	110	254	3	367	58	12	70	140	6	138	43	187	720
08:00 AM	3	0	0	3	9	39	1	49	21	6	32	59	2	61	3	66	177
08:15 AM	0	0	3	3	7	50	1	58	8	1	21	30	4	45	7	56	147
08:30 AM	2	0	3	5	19	40	1	60	5	0	8	13	4	47	11	62	140
08:45 AM	2	0	3	5	7	39	1	47	5	0	5	10	1	40	12	53	115
Total	7	0	9	16	42	168	4	214	39	7	66	112	11	193	33	237	579
Grand Total	9	15	18	42	152	422	7	581	97	19	136	252	17	331	76	424	1299
Apprch %	21.4	35.7	42.9		26.2	72.6	1.2		38.5	7.5	54		4	78.1	17.9		
Total %	0.7	1.2	1.4	3.2	11.7	32.5	0.5	44.7	7.5	1.5	10.5	19.4	1.3	25.5	5.9	32.6	

	Buena Vista Drive Southbound				E Woodward Avenue Westbound				Buena Vista Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	6	2	8	**51**	**75**	**2**	**128**	13	1	11	25	2	36	15	53	214
07:45 AM	2	**7**	1	**10**	47	52	1	100	**23**	**11**	**49**	**83**	1	47	**19**	**67**	**260**
08:00 AM	**3**	0	0	3	9	39	1	49	21	6	32	59	2	**61**	3	66	177
08:15 AM	0	0	**3**	3	7	50	1	58	8	1	21	30	**4**	45	7	56	147
Total Volume	5	13	6	24	114	216	5	335	65	19	113	197	9	189	44	242	798
% App. Total	20.8	54.2	25		34	64.5	1.5		33	9.6	57.4		3.7	78.1	18.2		
PHF	.417	.464	.500	.600	.559	.720	.625	.654	.707	.432	.577	.593	.563	.775	.579	.903	.767

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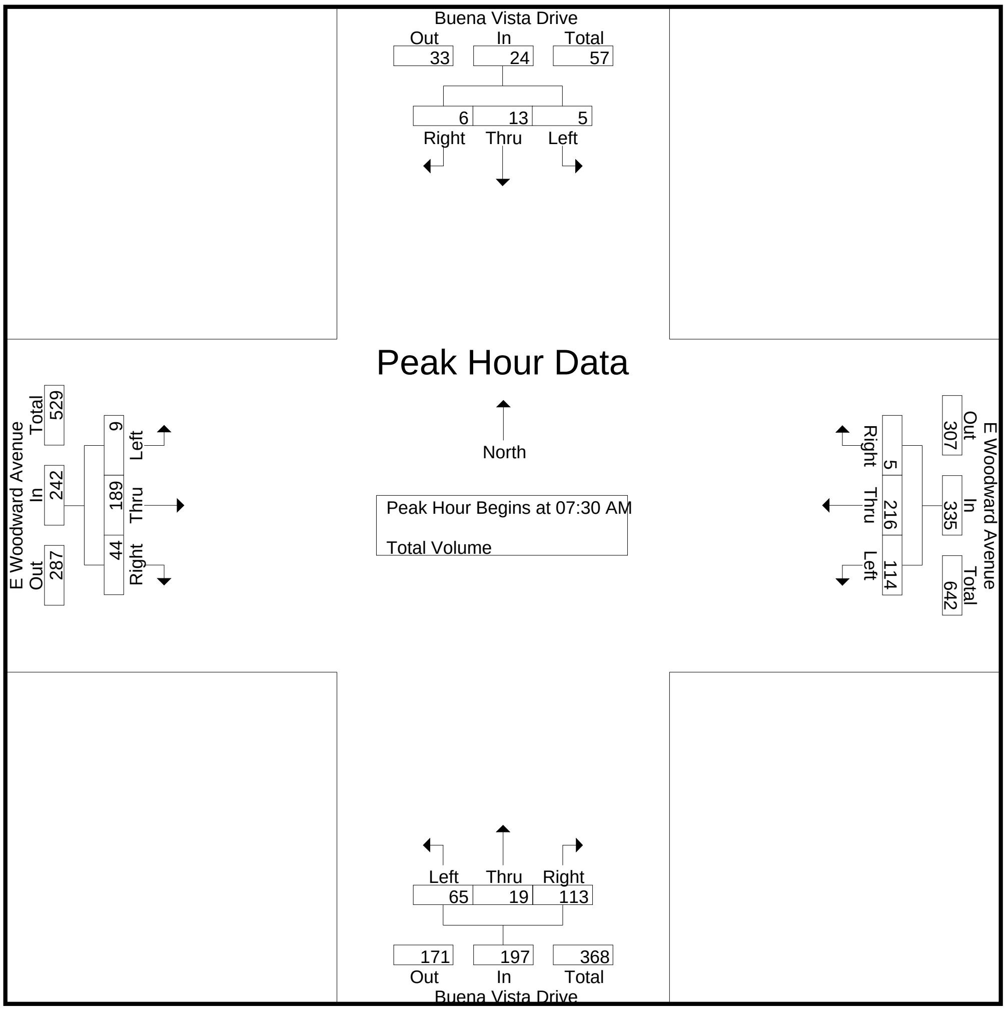
City of Manteca
N/S: Buena Vista Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 02_MTC_Buena_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:30 AM				07:45 AM			
+0 mins.	0	2	**6**	8	3	60	0	63	13	1	11	25	1	47	**19**	**67**
+15 mins.	0	6	2	8	9	67	0	76	**23**	**11**	**49**	**83**	2	**61**	3	66
+30 mins.	2	**7**	1	**10**	**51**	**75**	**2**	**128**	21	6	32	59	**4**	45	7	56
+45 mins.	**3**	0	0	3	47	52	1	100	8	1	21	30	4	47	11	62
Total Volume	5	15	9	29	110	254	3	367	65	19	113	197	11	200	40	251
% App. Total	17.2	51.7	31		30	69.2	0.8		33	9.6	57.4		4.4	79.7	15.9	
PHF	.417	.536	.375	.725	.539	.847	.375	.717	.707	.432	.577	.593	.688	.820	.526	.937

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City of Manteca
N/S: Buena Vista Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 02_MTC_Buena_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Buena Vista Drive Southbound				E Woodward Avenue Westbound				Buena Vista Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	1	1	11	38	1	50	1	0	8	9	3	74	14	91	151
04:15 PM	0	0	4	4	10	47	1	58	8	1	4	13	2	71	12	85	160
04:30 PM	0	0	5	5	11	54	0	65	8	1	6	15	3	65	6	74	159
04:45 PM	1	1	7	9	12	56	1	69	1	2	11	14	3	74	13	90	182
Total	1	1	17	19	44	195	3	242	18	4	29	51	11	284	45	340	652
05:00 PM	2	0	3	5	11	67	0	78	10	1	14	25	4	75	25	104	212
05:15 PM	0	0	6	6	11	57	2	70	4	0	9	13	6	94	19	119	208
05:30 PM	0	0	3	3	12	65	2	79	6	0	2	8	9	65	12	86	176
05:45 PM	2	0	7	9	7	61	1	69	9	1	9	19	3	98	19	120	217
Total	4	0	19	23	41	250	5	296	29	2	34	65	22	332	75	429	813
Grand Total	5	1	36	42	85	445	8	538	47	6	63	116	33	616	120	769	1465
Apprch %	11.9	2.4	85.7		15.8	82.7	1.5		40.5	5.2	54.3		4.3	80.1	15.6		
Total %	0.3	0.1	2.5	2.9	5.8	30.4	0.5	36.7	3.2	0.4	4.3	7.9	2.3	42	8.2	52.5	

	Buena Vista Drive Southbound				E Woodward Avenue Westbound				Buena Vista Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**2**	0	3	5	11	**67**	0	78	**10**	**1**	**14**	**25**	4	75	**25**	104	212
05:15 PM	0	0	6	6	11	57	**2**	70	4	0	9	13	6	94	19	119	208
05:30 PM	0	0	3	3	**12**	65	2	**79**	6	0	2	8	**9**	65	12	86	176
05:45 PM	2	0	**7**	**9**	7	61	1	69	9	1	9	19	3	**98**	19	**120**	**217**
Total Volume	4	0	19	23	41	250	5	296	29	2	34	65	22	332	75	429	813
% App. Total	17.4	0	82.6		13.9	84.5	1.7		44.6	3.1	52.3		5.1	77.4	17.5		
PHF	.500	.000	.679	.639	.854	.933	.625	.937	.725	.500	.607	.650	.611	.847	.750	.894	.937

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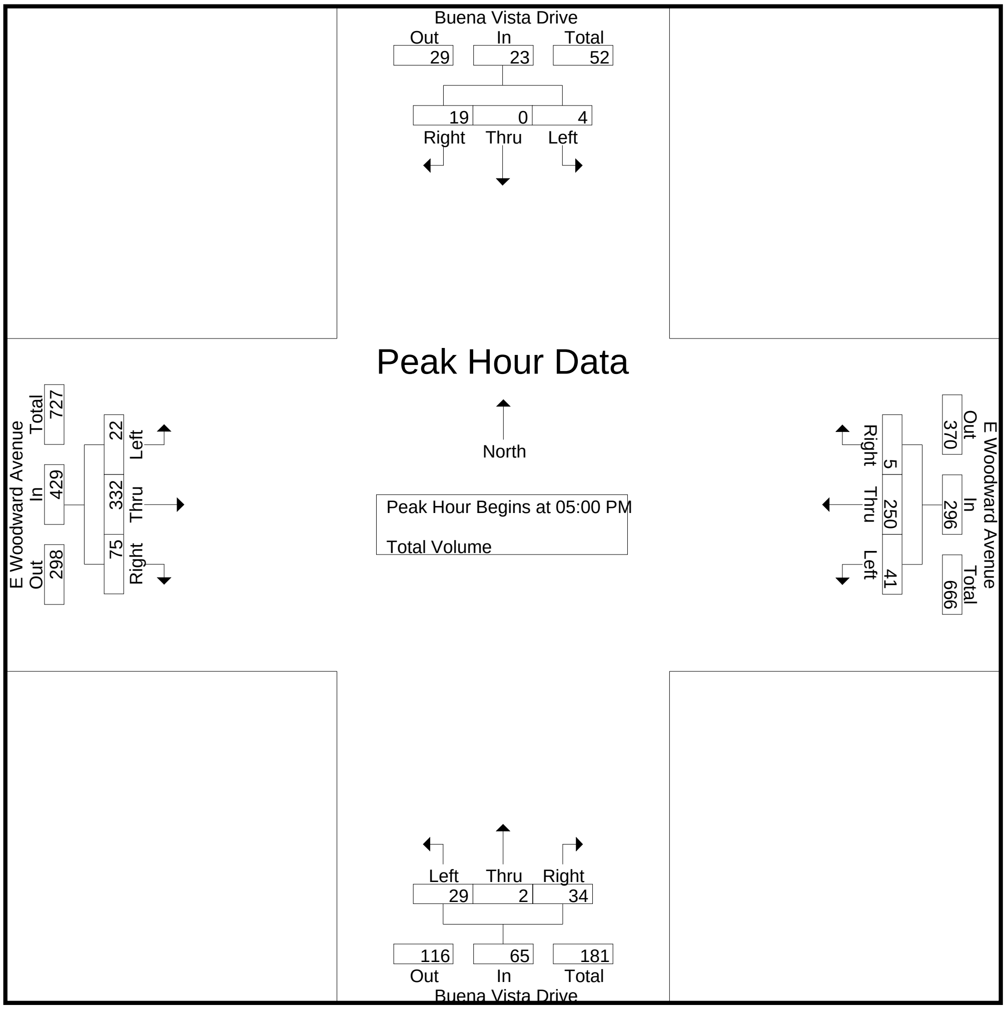
City of Manteca
N/S: Buena Vista Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 02_MTC_Buena_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:45 PM				04:15 PM				05:00 PM			
+0 mins.	0	0	5	5	**12**	56	1	69	8	1	4	13	4	75	**25**	104
+15 mins.	1	**1**	**7**	**9**	11	**67**	0	78	8	1	6	15	6	94	19	119
+30 mins.	**2**	0	3	5	11	57	**2**	70	1	**2**	11	14	**9**	65	12	86
+45 mins.	0	0	6	6	12	65	2	**79**	**10**	1	**14**	**25**	3	**98**	19	**120**
Total Volume	3	1	21	25	46	245	5	296	27	5	35	67	22	332	75	429
% App. Total	12	4	84		15.5	82.8	1.7		40.3	7.5	52.2		5.1	77.4	17.5	
PHF	.375	.250	.750	.694	.958	.914	.625	.937	.675	.625	.625	.670	.611	.847	.750	.894

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City of Manteca
N/S: Queensland Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 03_MTC_Queens_WW AM
Site Code : 23624682
Start Date : 8/13/2024

Groups Printed- Total Volume

	Queensland Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	0	3	6	0	59	2	61	1	0	0	1	2	32	0	34	102
07:15 AM	2	1	7	10	0	74	2	76	0	0	1	1	4	27	0	31	118
07:30 AM	4	0	24	28	1	113	1	115	1	0	2	3	4	44	0	48	194
07:45 AM	1	0	16	17	0	83	1	84	0	0	0	0	13	87	2	102	203
Total	10	1	50	61	1	329	6	336	2	0	3	5	23	190	2	215	617
08:00 AM	2	0	3	5	0	45	2	47	1	0	0	1	9	88	3	100	153
08:15 AM	7	0	5	12	0	48	0	48	2	0	0	2	2	59	3	64	126
08:30 AM	2	0	5	7	1	53	4	58	0	0	1	1	5	49	3	57	123
08:45 AM	0	0	1	1	2	46	2	50	1	1	1	3	6	37	3	46	100
Total	11	0	14	25	3	192	8	203	4	1	2	7	22	233	12	267	502
Grand Total	21	1	64	86	4	521	14	539	6	1	5	12	45	423	14	482	1119
Apprch %	24.4	1.2	74.4		0.7	96.7	2.6		50	8.3	41.7		9.3	87.8	2.9		
Total %	1.9	0.1	5.7	7.7	0.4	46.6	1.3	48.2	0.5	0.1	0.4	1.1	4	37.8	1.3	43.1	

	Queensland Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	4	0	**24**	**28**	**1**	**113**	1	**115**	1	0	**2**	**3**	4	44	0	48	194
07:45 AM	1	0	16	17	0	83	1	84	0	0	0	0	**13**	87	2	**102**	**203**
08:00 AM	2	0	3	5	0	45	**2**	47	1	0	0	1	9	**88**	**3**	100	153
08:15 AM	**7**	0	5	12	0	48	0	48	**2**	0	0	2	2	59	3	64	126
Total Volume	14	0	48	62	1	289	4	294	4	0	2	6	28	278	8	314	676
% App. Total	22.6	0	77.4		0.3	98.3	1.4		66.7	0	33.3		8.9	88.5	2.5		
PHF	.500	.000	.500	.554	.250	.639	.500	.639	.500	.000	.250	.500	.538	.790	.667	.770	.833

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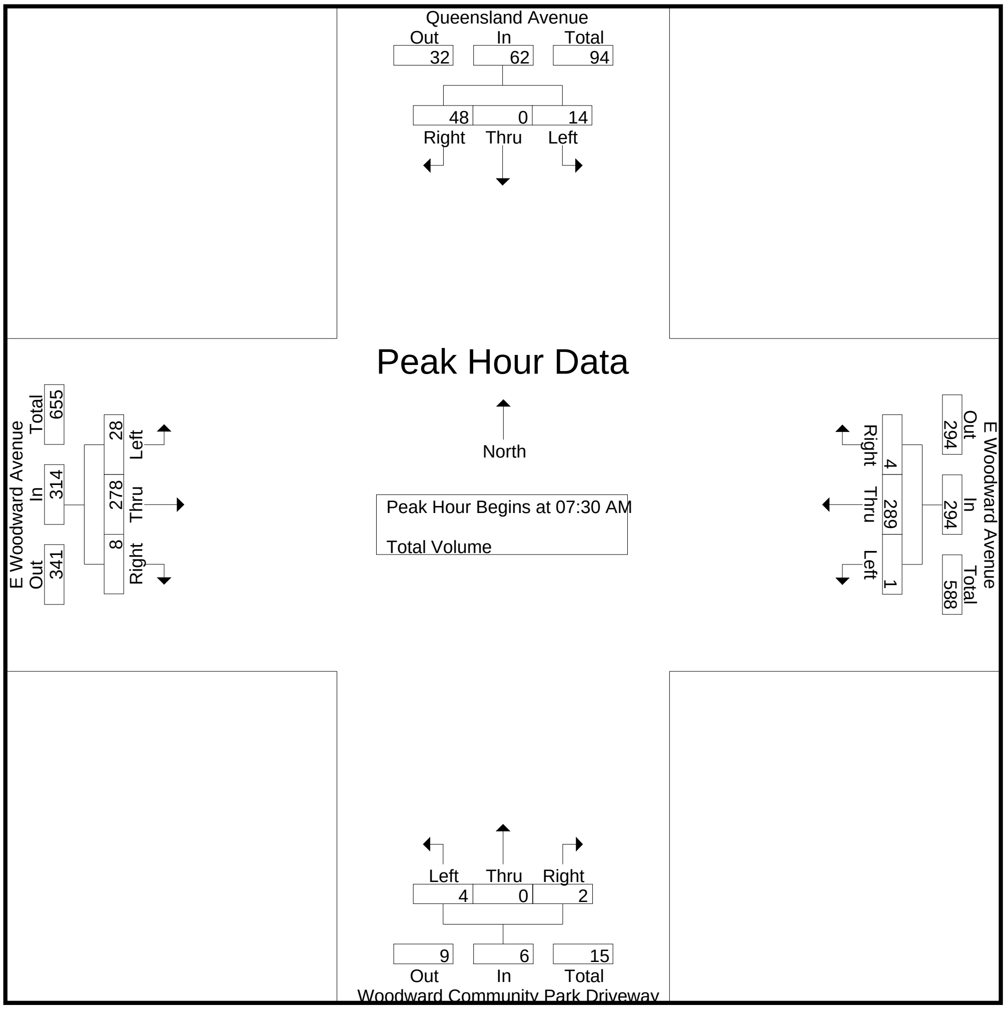
City of Manteca
N/S: Queensland Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 03_MTC_Queens_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:00 AM				08:00 AM				07:45 AM			
+0 mins.	4	0	**24**	**28**	0	59	**2**	61	1	0	0	1	**13**	87	2	**102**
+15 mins.	1	0	16	17	0	74	2	76	**2**	0	0	2	9	**88**	**3**	100
+30 mins.	2	0	3	5	**1**	**113**	1	**115**	0	0	**1**	1	2	59	3	64
+45 mins.	**7**	0	5	12	0	83	1	84	1	**1**	1	**3**	5	49	3	57
Total Volume	14	0	48	62	1	329	6	336	4	1	2	7	29	283	11	323
% App. Total	22.6	0	77.4		0.3	97.9	1.8		57.1	14.3	28.6		9	87.6	3.4	
PHF	.500	.000	.500	.554	.250	.728	.750	.730	.500	.250	.500	.583	.558	.804	.917	.792

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City of Manteca
N/S: Queensland Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 03_MTC_Queens_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Queensland Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	7	7	0	41	5	46	1	0	0	1	11	71	2	84	138
04:15 PM	1	0	5	6	0	53	3	56	2	0	0	2	9	68	0	77	141
04:30 PM	0	0	8	8	0	54	1	55	0	0	3	3	2	59	3	64	130
04:45 PM	1	0	7	8	1	63	3	67	2	0	0	2	2	84	7	93	170
Total	2	0	27	29	1	211	12	224	5	0	3	8	24	282	12	318	579
05:00 PM	1	0	2	3	1	70	3	74	0	0	2	2	7	81	4	92	171
05:15 PM	2	0	5	7	0	64	2	66	1	0	0	1	13	84	4	101	175
05:30 PM	0	0	7	7	0	74	1	75	3	0	0	3	3	63	3	69	154
05:45 PM	0	0	7	7	1	63	2	66	3	0	4	7	8	99	5	112	192
Total	3	0	21	24	2	271	8	281	7	0	6	13	31	327	16	374	692
Grand Total	5	0	48	53	3	482	20	505	12	0	9	21	55	609	28	692	1271
Apprch %	9.4	0	90.6		0.6	95.4	4		57.1	0	42.9		7.9	88	4		
Total %	0.4	0	3.8	4.2	0.2	37.9	1.6	39.7	0.9	0	0.7	1.7	4.3	47.9	2.2	54.4	

	Queensland Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	1	0	2	3	**1**	70	**3**	74	0	0	2	2	7	81	4	92	171
05:15 PM	**2**	0	5	**7**	0	64	2	66	1	0	0	1	**13**	84	4	101	175
05:30 PM	0	0	**7**	7	0	**74**	1	**75**	**3**	0	0	3	3	63	3	69	154
05:45 PM	0	0	7	7	1	63	2	66	3	0	**4**	**7**	8	**99**	**5**	**112**	**192**
Total Volume	3	0	21	24	2	271	8	281	7	0	6	13	31	327	16	374	692
% App. Total	12.5	0	87.5		0.7	96.4	2.8		53.8	0	46.2		8.3	87.4	4.3		
PHF	.375	.000	.750	.857	.500	.916	.667	.937	.583	.000	.375	.464	.596	.826	.800	.835	.901

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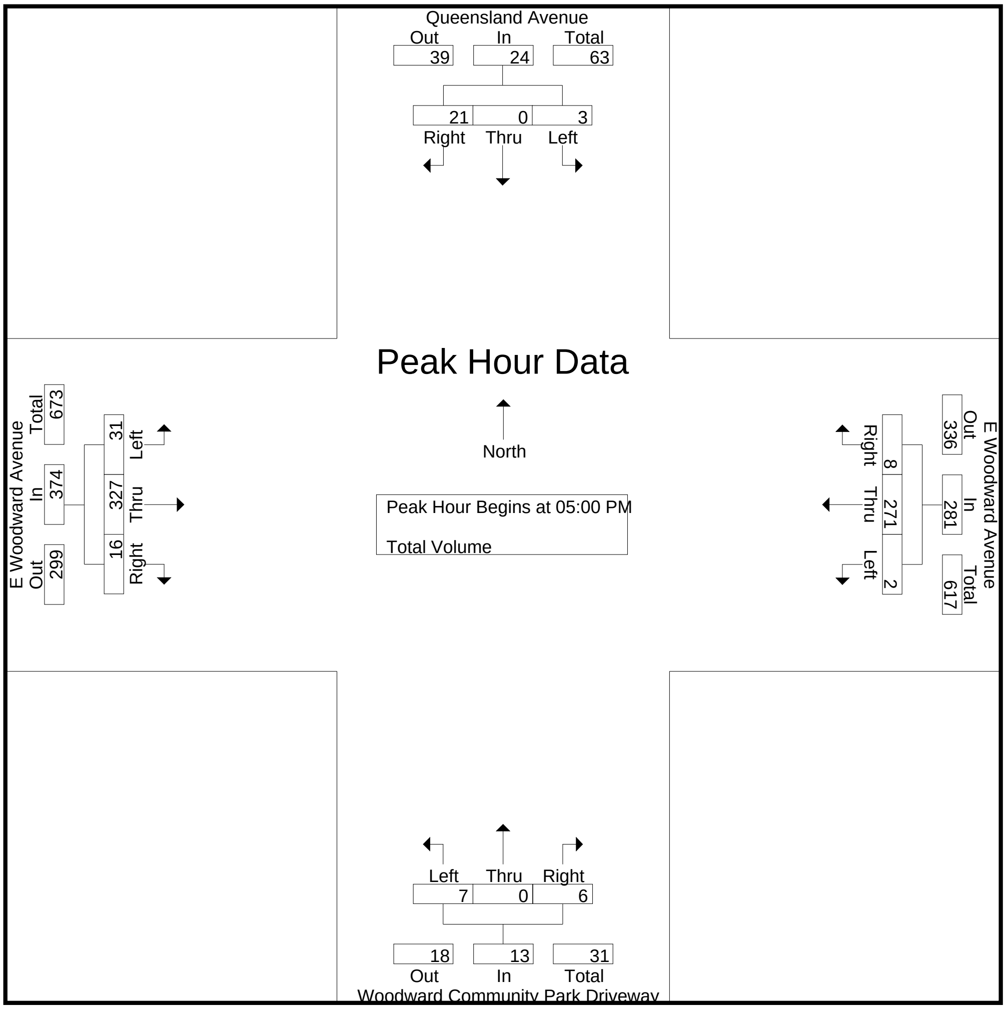
City of Manteca
N/S: Queensland Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 03_MTC_Queens_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	7	7	**1**	63	**3**	67	0	0	2	2	7	81	4	92
+15 mins.	**1**	0	5	6	1	70	3	74	1	0	0	1	**13**	84	4	101
+30 mins.	0	0	**8**	**8**	0	64	2	66	**3**	0	0	3	3	63	3	69
+45 mins.	1	0	7	8	0	**74**	1	**75**	3	0	**4**	**7**	8	**99**	**5**	**112**
Total Volume	2	0	27	29	2	271	9	282	7	0	6	13	31	327	16	374
% App. Total	6.9	0	93.1		0.7	96.1	3.2		53.8	0	46.2		8.3	87.4	4.3	
PHF	.500	.000	.844	.906	.500	.916	.750	.940	.583	.000	.375	.464	.596	.826	.800	.835

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City of Manteca
N/S: Wellington Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 04_MTC_Wellington_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Wellington Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	0	3	5	1	58	1	60	1	0	0	1	1	30	0	31	97
07:15 AM	6	0	7	13	0	70	0	70	0	0	1	1	1	26	0	27	111
07:30 AM	7	0	25	32	1	85	3	89	1	0	0	1	5	45	0	50	172
07:45 AM	5	0	16	21	0	62	4	66	0	0	0	0	16	61	0	77	164
Total	20	0	51	71	2	275	8	285	2	0	1	3	23	162	0	185	544
08:00 AM	2	0	1	3	2	47	5	54	0	1	0	1	13	76	0	89	147
08:15 AM	0	0	0	0	0	49	2	51	0	0	1	1	2	69	0	71	123
08:30 AM	1	0	2	3	0	59	2	61	0	0	0	0	1	50	0	51	115
08:45 AM	0	0	4	4	1	44	0	45	1	0	0	1	0	38	0	38	88
Total	3	0	7	10	3	199	9	211	1	1	1	3	16	233	0	249	473
Grand Total	23	0	58	81	5	474	17	496	3	1	2	6	39	395	0	434	1017
Apprch %	28.4	0	71.6		1	95.6	3.4		50	16.7	33.3		9	91	0		
Total %	2.3	0	5.7	8	0.5	46.6	1.7	48.8	0.3	0.1	0.2	0.6	3.8	38.8	0	42.7	

	Wellington Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**7**	0	**25**	**32**	1	**85**	3	**89**	**1**	0	0	**1**	5	45	0	50	**172**
07:45 AM	5	0	16	21	0	62	4	66	0	0	0	0	**16**	61	0	77	164
08:00 AM	2	0	1	3	**2**	47	**5**	54	0	**1**	0	1	13	**76**	0	**89**	147
08:15 AM	0	0	0	0	0	49	2	51	0	0	**1**	1	2	69	0	71	123
Total Volume	14	0	42	56	3	243	14	260	1	1	1	3	36	251	0	287	606
% App. Total	25	0	75		1.2	93.5	5.4		33.3	33.3	33.3		12.5	87.5	0		
PHF	.500	.000	.420	.438	.375	.715	.700	.730	.250	.250	.250	.750	.563	.826	.000	.806	.881

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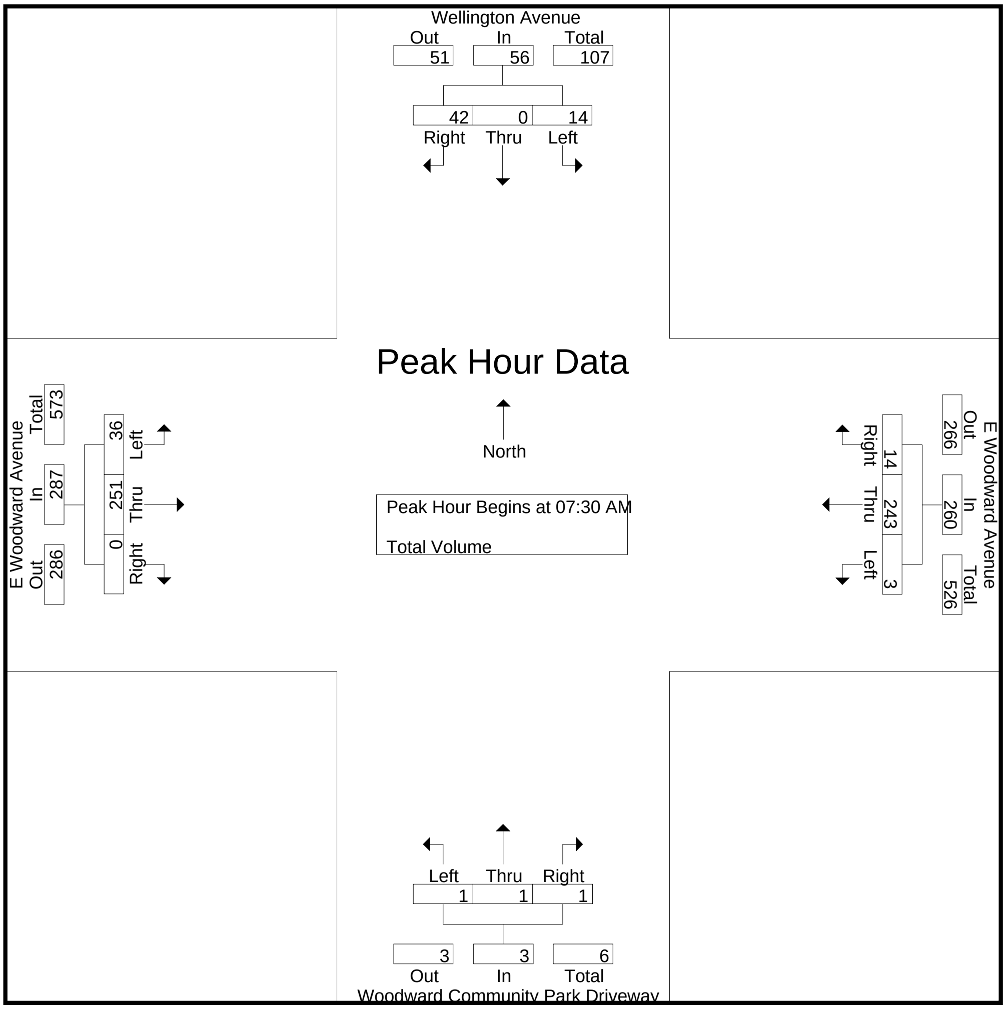
City of Manteca
N/S: Wellington Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 04_MTC_Wellington_WW AM
Site Code : 23624682
Start Date : 8/13/2024



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:45 AM			
+0 mins.	2	0	3	5	**1**	58	1	60	**1**	0	0	**1**	**16**	61	0	77
+15 mins.	6	0	7	13	0	70	0	70	0	0	**1**	1	13	**76**	0	**89**
+30 mins.	**7**	0	**25**	**32**	1	**85**	3	**89**	1	0	0	1	2	69	0	71
+45 mins.	5	0	16	21	0	62	**4**	66	0	0	0	0	1	50	0	51
Total Volume	20	0	51	71	2	275	8	285	2	0	1	3	32	256	0	288
% App. Total	28.2	0	71.8		0.7	96.5	2.8		66.7	0	33.3		11.1	88.9	0	
PHF	.714	.000	.510	.555	.500	.809	.500	.801	.500	.000	.250	.750	.500	.842	.000	.809

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City of Manteca
N/S: Wellington Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 04_MTC_Wellington_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Wellington Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	0	2	3	2	46	2	50	0	1	1	2	9	62	0	71	126
04:15 PM	0	0	9	9	0	46	5	51	0	0	1	1	2	66	0	68	129
04:30 PM	3	0	1	4	2	51	3	56	0	0	0	0	1	62	0	63	123
04:45 PM	1	0	3	4	1	66	1	68	0	0	0	0	0	83	0	83	155
Total	5	0	15	20	5	209	11	225	0	1	2	3	12	273	0	285	533
05:00 PM	5	0	1	6	3	74	3	80	0	2	1	3	6	78	0	84	173
05:15 PM	0	0	1	1	1	66	4	71	0	0	0	0	3	87	0	90	162
05:30 PM	3	0	1	4	2	75	4	81	1	0	1	2	5	58	0	63	150
05:45 PM	3	0	0	3	3	63	3	69	0	0	0	0	0	98	0	98	170
Total	11	0	3	14	9	278	14	301	1	2	2	5	14	321	0	335	655
Grand Total	16	0	18	34	14	487	25	526	1	3	4	8	26	594	0	620	1188
Apprch %	47.1	0	52.9		2.7	92.6	4.8		12.5	37.5	50		4.2	95.8	0		
Total %	1.3	0	1.5	2.9	1.2	41	2.1	44.3	0.1	0.3	0.3	0.7	2.2	50	0	52.2	

	Wellington Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**5**	0	**1**	**6**	**3**	74	3	80	0	**2**	**1**	**3**	**6**	78	0	84	**173**
05:15 PM	0	0	1	1	1	66	**4**	71	0	0	0	0	3	87	0	90	162
05:30 PM	3	0	1	4	2	**75**	4	**81**	**1**	0	1	2	5	58	0	63	150
05:45 PM	3	0	0	3	3	63	3	69	0	0	0	0	0	**98**	0	**98**	170
Total Volume	11	0	3	14	9	278	14	301	1	2	2	5	14	321	0	335	655
% App. Total	78.6	0	21.4		3	92.4	4.7		20	40	40		4.2	95.8	0		
PHF	.550	.000	.750	.583	.750	.927	.875	.929	.250	.250	.500	.417	.583	.819	.000	.855	.947

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City of Manteca
N/S: Wellington Avenue
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Weather: Clear

File Name : 04_MTC_Wellington_WW PM
Site Code : 23624682
Start Date : 8/13/2024
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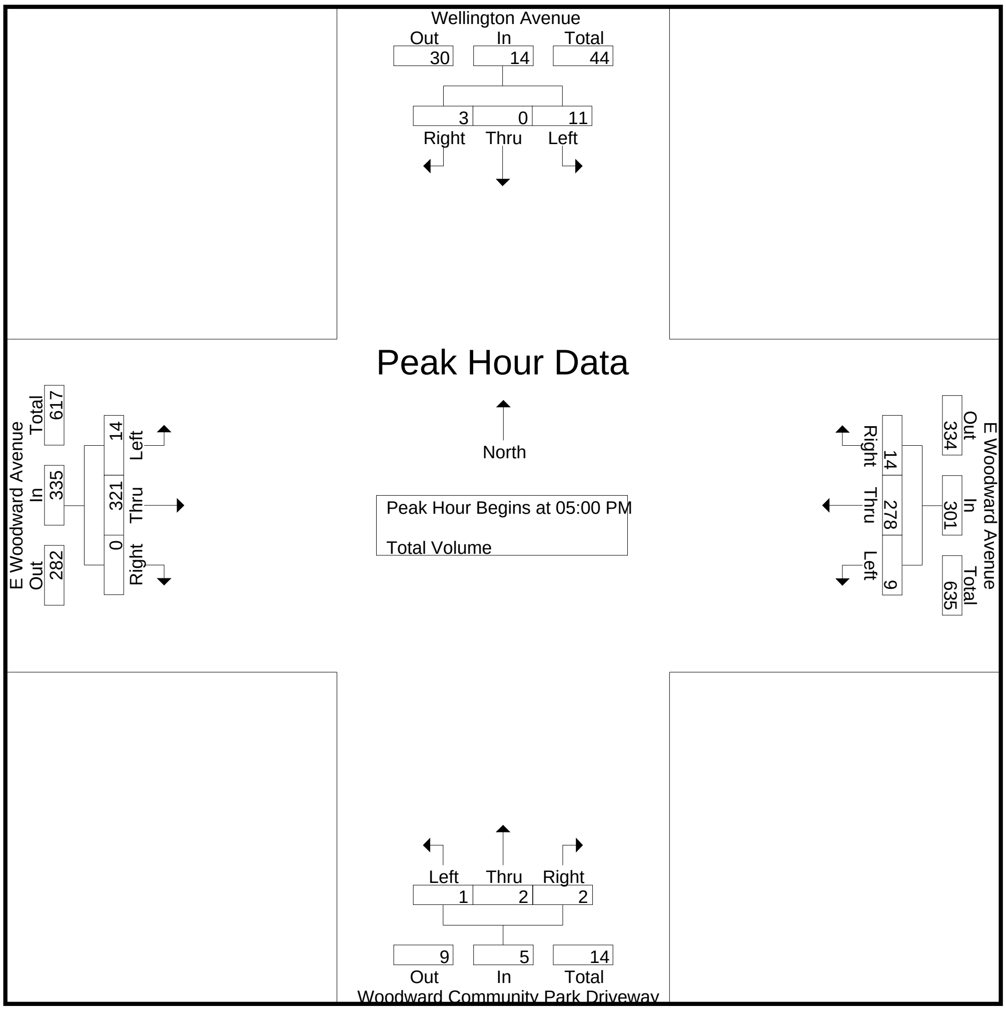

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				05:00 PM				04:45 PM				05:00 PM			
+0 mins.	0	0	**9**	**9**	**3**	74	3	80	0	0	0	0	**6**	78	0	84
+15 mins.	3	0	1	4	1	66	**4**	71	0	**2**	**1**	**3**	3	87	0	90
+30 mins.	1	0	3	4	2	**75**	4	**81**	0	0	0	0	5	58	0	63
+45 mins.	**5**	0	1	6	3	63	3	69	**1**	0	1	2	0	**98**	0	**98**
Total Volume	9	0	14	23	9	278	14	301	1	2	2	5	14	321	0	335
% App. Total	39.1	0	60.9		3	92.4	4.7		20	40	40		4.2	95.8	0	
PHF	.450	.000	.389	.639	.750	.927	.875	.929	.250	.250	.500	.417	.583	.819	.000	.855

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City of Manteca
N/S: Van Ryn Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 05_MTC_Van Ryn_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Van Ryn Avenue Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	5	11	16	42	8	50	13	34	47	113
07:15 AM	4	20	24	51	12	63	15	27	42	129
07:30 AM	3	57	60	65	18	83	30	39	69	212
07:45 AM	9	42	51	39	13	52	77	41	118	221
Total	21	130	151	197	51	248	135	141	276	675
08:00 AM	5	24	29	32	12	44	63	56	119	192
08:15 AM	6	23	29	45	12	57	58	43	101	187
08:30 AM	18	36	54	40	6	46	23	40	63	163
08:45 AM	9	20	29	34	15	49	21	28	49	127
Total	38	103	141	151	45	196	165	167	332	669
Grand Total	59	233	292	348	96	444	300	308	608	1344
Apprch %	20.2	79.8		78.4	21.6		49.3	50.7		
Total %	4.4	17.3	21.7	25.9	7.1	33	22.3	22.9	45.2	

	Van Ryn Avenue Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	3	**57**	**60**	**65**	**18**	**83**	30	39	69	212
07:45 AM	**9**	42	51	39	13	52	**77**	41	118	**221**
08:00 AM	5	24	29	32	12	44	63	**56**	**119**	192
08:15 AM	6	23	29	45	12	57	58	43	101	187
Total Volume	23	146	169	181	55	236	228	179	407	812
% App. Total	13.6	86.4		76.7	23.3		56	44		
PHF	.639	.640	.704	.696	.764	.711	.740	.799	.855	.919

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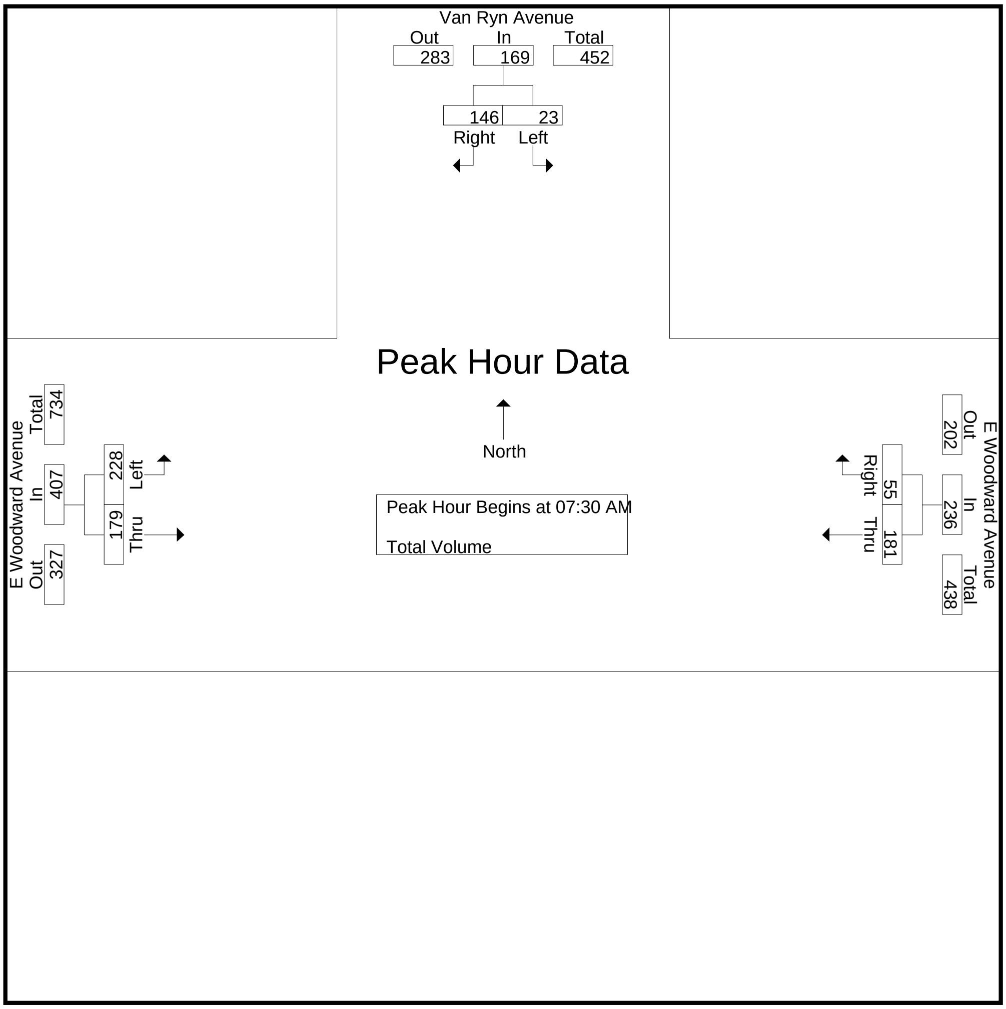
City of Manteca
N/S: Van Ryn Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 05_MTC_Van Ryn_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:00 AM			07:30 AM		
+0 mins.	3	**57**	**60**	42	8	50	30	39	69
+15 mins.	**9**	42	51	51	12	63	**77**	41	118
+30 mins.	5	24	29	**65**	**18**	**83**	63	**56**	**119**
+45 mins.	6	23	29	39	13	52	58	43	101
Total Volume	23	146	169	197	51	248	228	179	407
% App. Total	13.6	86.4		79.4	20.6		56	44	
PHF	.639	.640	.704	.758	.708	.747	.740	.799	.855

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City of Manteca
N/S: Van Ryn Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 05_MTC_Van Ryn_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Van Ryn Avenue Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	13	29	42	38	13	51	18	40	58	151
04:15 PM	15	25	40	49	13	62	17	42	59	161
04:30 PM	10	27	37	43	6	49	17	44	61	147
04:45 PM	15	33	48	47	6	53	32	48	80	181
Total	53	114	167	177	38	215	84	174	258	640
05:00 PM	16	33	49	62	8	70	22	56	78	197
05:15 PM	17	28	45	64	7	71	24	56	80	196
05:30 PM	7	41	48	55	16	71	15	37	52	171
05:45 PM	11	38	49	50	17	67	35	52	87	203
Total	51	140	191	231	48	279	96	201	297	767
Grand Total	104	254	358	408	86	494	180	375	555	1407
Apprch %	29.1	70.9		82.6	17.4		32.4	67.6		
Total %	7.4	18.1	25.4	29	6.1	35.1	12.8	26.7	39.4	

	Van Ryn Avenue Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	16	33	**49**	62	8	70	22	**56**	78	197
05:15 PM	**17**	28	45	**64**	7	**71**	24	56	80	196
05:30 PM	7	**41**	48	55	16	71	15	37	52	171
05:45 PM	11	38	49	50	**17**	67	**35**	52	**87**	**203**
Total Volume	51	140	191	231	48	279	96	201	297	767
% App. Total	26.7	73.3		82.8	17.2		32.3	67.7		
PHF	.750	.854	.974	.902	.706	.982	.686	.897	.853	.945

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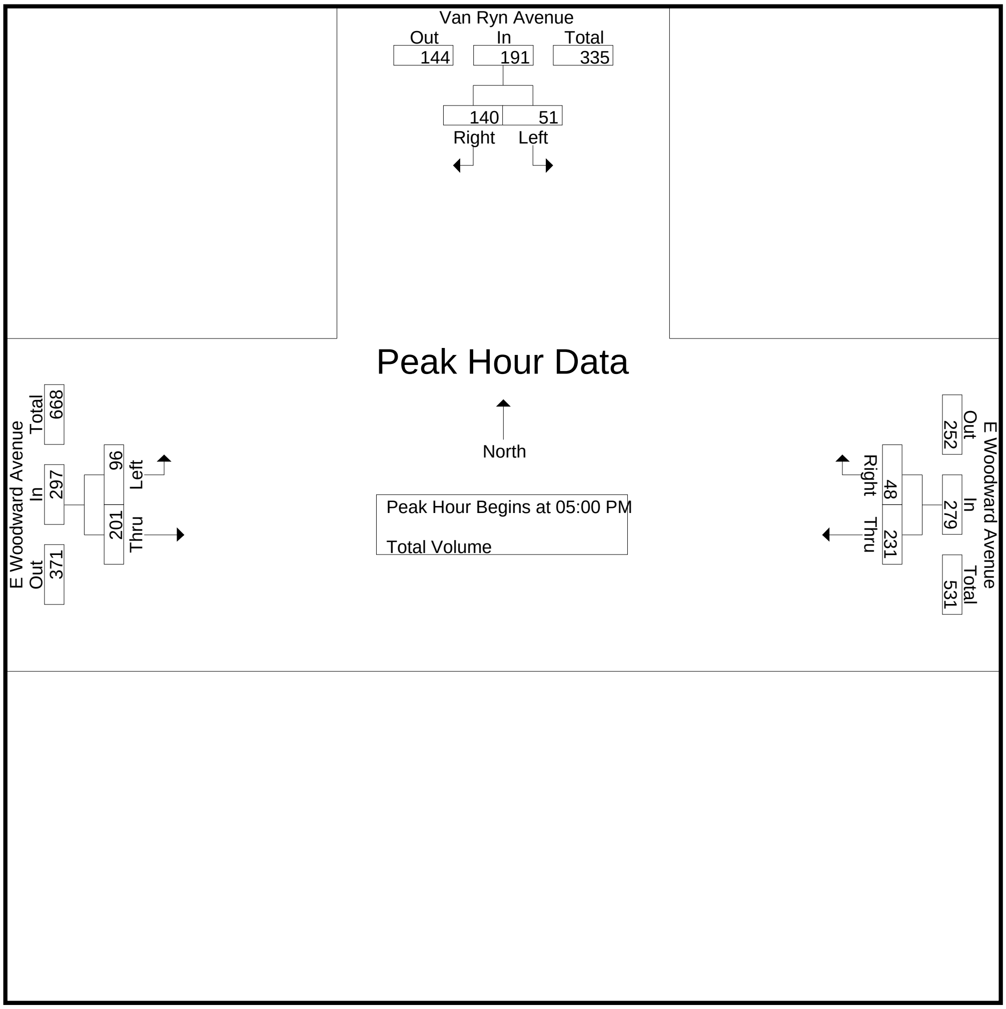
City of Manteca
N/S: Van Ryn Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 05_MTC_Van Ryn_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			04:30 PM		
+0 mins.	16	33	**49**	62	8	70	17	44	61
+15 mins.	**17**	28	45	**64**	7	**71**	**32**	48	**80**
+30 mins.	7	**41**	48	55	16	71	22	**56**	78
+45 mins.	11	38	49	50	**17**	67	24	56	80
Total Volume	51	140	191	231	48	279	95	204	299
% App. Total	26.7	73.3		82.8	17.2		31.8	68.2	
PHF	.750	.854	.974	.902	.706	.982	.742	.911	.934

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City of Manteca
N/S: Pillsbury Road
E/W: E Woodward Avenue
Weather: Clear

File Name : 06_MTC_Pillsbury_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	E Woodward Avenue Westbound			Pillsbury Road Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	5	36	41	15	13	28	31	7	38	107
07:15 AM	6	39	45	22	16	38	26	4	30	113
07:30 AM	14	47	61	33	22	55	41	2	43	159
07:45 AM	3	30	33	22	27	49	44	6	50	132
Total	28	152	180	92	78	170	142	19	161	511
08:00 AM	4	27	31	19	16	35	51	7	58	124
08:15 AM	10	37	47	17	14	31	40	11	51	129
08:30 AM	9	30	39	17	15	32	40	16	56	127
08:45 AM	4	26	30	23	8	31	21	15	36	97
Total	27	120	147	76	53	129	152	49	201	477
Grand Total	55	272	327	168	131	299	294	68	362	988
Apprch %	16.8	83.2		56.2	43.8		81.2	18.8		
Total %	5.6	27.5	33.1	17	13.3	30.3	29.8	6.9	36.6	

	E Woodward Avenue Westbound			Pillsbury Road Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	**14**	**47**	**61**	**33**	22	**55**	41	2	43	**159**
07:45 AM	3	30	33	22	**27**	49	44	6	50	132
08:00 AM	4	27	31	19	16	35	**51**	7	**58**	124
08:15 AM	10	37	47	17	14	31	40	**11**	51	129
Total Volume	31	141	172	91	79	170	176	26	202	544
% App. Total	18	82		53.5	46.5		87.1	12.9		
PHF	.554	.750	.705	.689	.731	.773	.863	.591	.871	.855

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City of Manteca
N/S: Pillsbury Road
E/W: E Woodward Avenue
Weather: Clear

File Name : 06_MTC_Pillsbury_WW AM
Site Code : 23624682
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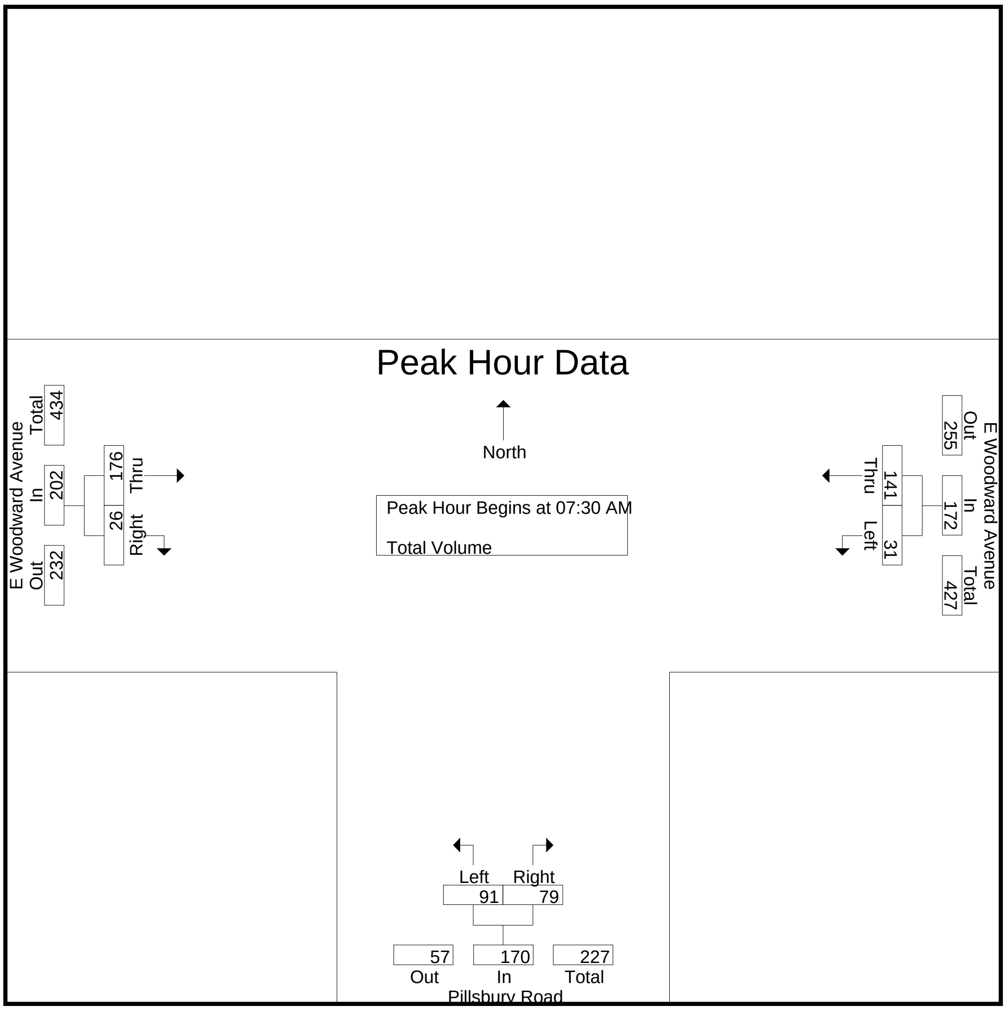

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:15 AM			07:45 AM		
+0 mins.	5	36	41	22	16	38	44	6	50
+15 mins.	6	39	45	**33**	22	**55**	**51**	7	**58**
+30 mins.	**14**	**47**	**61**	22	**27**	49	40	11	51
+45 mins.	3	30	33	19	16	35	40	**16**	56
Total Volume	28	152	180	96	81	177	175	40	215
% App. Total	15.6	84.4		54.2	45.8		81.4	18.6	
PHF	.500	.809	.738	.727	.750	.805	.858	.625	.927

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City of Manteca
N/S: Pillsbury Road
E/W: E Woodward Avenue
Weather: Clear

File Name : 06_MTC_Pillsbury_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	E Woodward Avenue Westbound			Pillsbury Road Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	9	39	48	11	4	15	32	21	53	116
04:15 PM	15	46	61	15	10	25	36	20	56	142
04:30 PM	10	27	37	22	7	29	36	19	55	121
04:45 PM	11	44	55	8	13	21	33	30	63	139
Total	45	156	201	56	34	90	137	90	227	518
05:00 PM	7	55	62	17	8	25	48	23	71	158
05:15 PM	14	45	59	25	7	32	37	33	70	161
05:30 PM	14	47	61	26	11	37	27	19	46	144
05:45 PM	21	45	66	20	7	27	34	29	63	156
Total	56	192	248	88	33	121	146	104	250	619
Grand Total	101	348	449	144	67	211	283	194	477	1137
Apprch %	22.5	77.5		68.2	31.8		59.3	40.7		
Total %	8.9	30.6	39.5	12.7	5.9	18.6	24.9	17.1	42	

	E Woodward Avenue Westbound			Pillsbury Road Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	7	**55**	62	17	8	25	**48**	23	**71**	158
05:15 PM	14	45	59	25	7	32	37	**33**	70	**161**
05:30 PM	14	47	61	**26**	**11**	**37**	27	19	46	144
05:45 PM	**21**	45	**66**	20	7	27	34	29	63	156
Total Volume	56	192	248	88	33	121	146	104	250	619
% App. Total	22.6	77.4		72.7	27.3		58.4	41.6		
PHF	.667	.873	.939	.846	.750	.818	.760	.788	.880	.961

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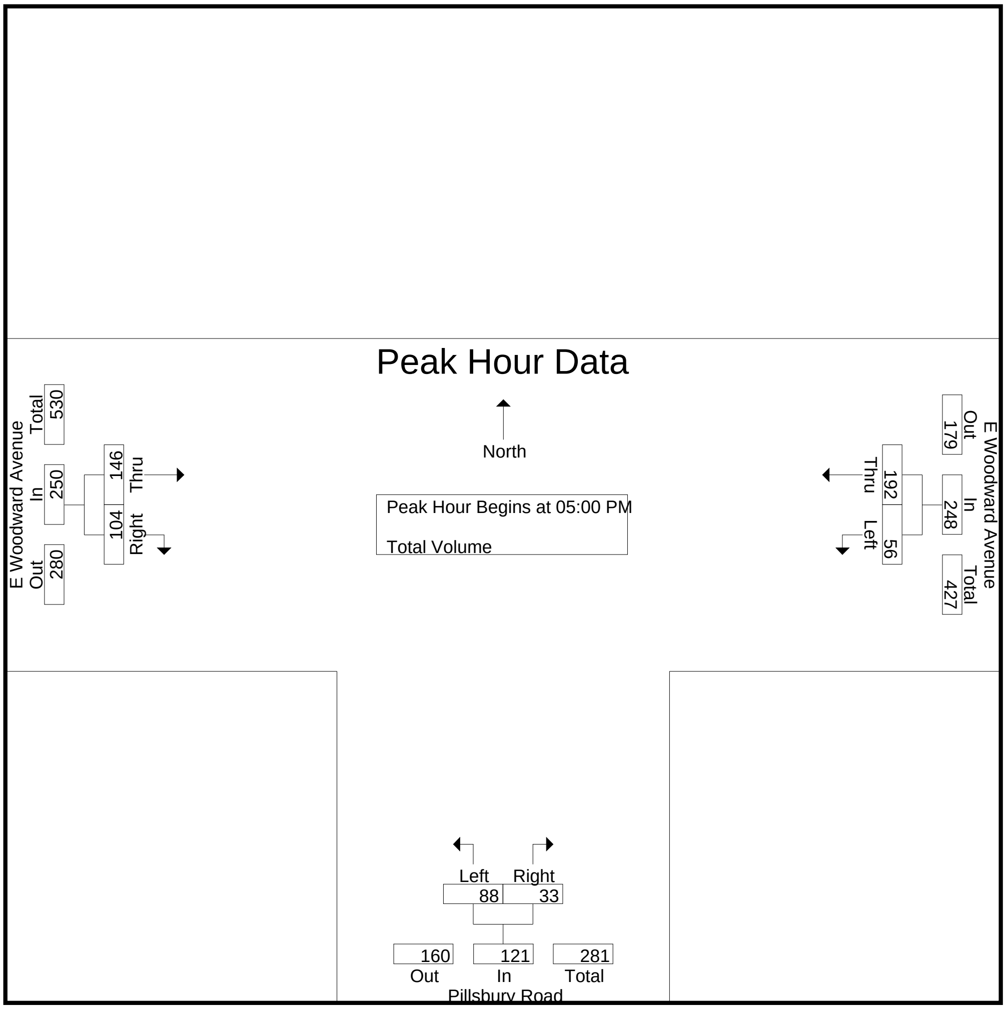
City of Manteca
N/S: Pillsbury Road
E/W: E Woodward Avenue
Weather: Clear

File Name : 06_MTC_Pillsbury_WW PM
Site Code : 23624682
Start Date : 8/13/2024



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			04:30 PM		
+0 mins.	7	**55**	62	17	8	25	36	19	55
+15 mins.	14	45	59	25	7	32	33	30	63
+30 mins.	14	47	61	**26**	**11**	**37**	**48**	23	**71**
+45 mins.	**21**	45	**66**	20	7	27	37	**33**	70
Total Volume	56	192	248	88	33	121	154	105	259
% App. Total	22.6	77.4		72.7	27.3		59.5	40.5	
PHF	.667	.873	.939	.846	.750	.818	.802	.795	.912

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City of Manteca
N/S: Adora Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 07_MTC_Adora_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Adora Drive Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	1	3	4	39	0	39	1	38	39	82
07:15 AM	4	4	8	38	3	41	2	39	41	90
07:30 AM	9	24	33	35	1	36	3	55	58	127
07:45 AM	1	6	7	28	3	31	10	62	72	110
Total	15	37	52	140	7	147	16	194	210	409
08:00 AM	2	2	4	30	3	33	9	59	68	105
08:15 AM	6	0	6	43	3	46	1	53	54	106
08:30 AM	0	0	0	40	4	44	1	51	52	96
08:45 AM	1	2	3	24	2	26	1	29	30	59
Total	9	4	13	137	12	149	12	192	204	366
Grand Total	24	41	65	277	19	296	28	386	414	775
Apprch %	36.9	63.1		93.6	6.4		6.8	93.2		
Total %	3.1	5.3	8.4	35.7	2.5	38.2	3.6	49.8	53.4	

	Adora Drive Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	**9**	**24**	**33**	35	1	36	3	55	58	**127**
07:45 AM	1	6	7	28	**3**	31	**10**	**62**	**72**	110
08:00 AM	2	2	4	30	3	33	9	59	68	105
08:15 AM	6	0	6	**43**	3	**46**	1	53	54	106
Total Volume	18	32	50	136	10	146	23	229	252	448
% App. Total	36	64		93.2	6.8		9.1	90.9		
PHF	.500	.333	.379	.791	.833	.793	.575	.923	.875	.882

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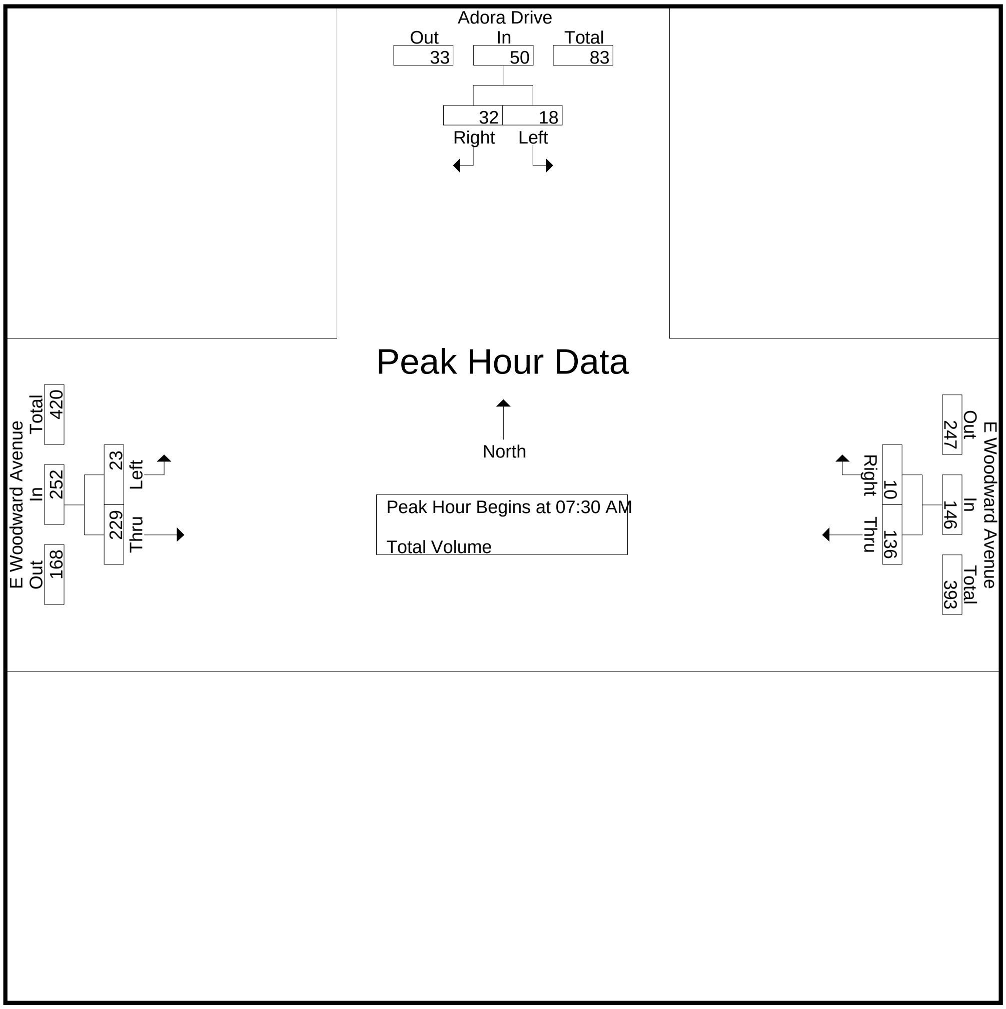
City of Manteca
N/S: Adora Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 07_MTC_Adora_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:45 AM			07:30 AM		
+0 mins.	1	3	4	28	3	31	3	55	58
+15 mins.	4	4	8	30	3	33	**10**	**62**	**72**
+30 mins.	**9**	**24**	**33**	**43**	3	**46**	9	59	68
+45 mins.	1	6	7	40	**4**	44	1	53	54
Total Volume	15	37	52	141	13	154	23	229	252
% App. Total	28.8	71.2		91.6	8.4		9.1	90.9	
PHF	.417	.385	.394	.820	.813	.837	.575	.923	.875

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City of Manteca
N/S: Adora Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 07_MTC_Adora_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Adora Drive Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	4	1	5	47	9	56	0	32	32	93
04:15 PM	5	0	5	58	1	59	1	44	45	109
04:30 PM	1	2	3	36	2	38	1	36	37	78
04:45 PM	5	2	7	52	4	56	2	39	41	104
Total	15	5	20	193	16	209	4	151	155	384
05:00 PM	6	3	9	57	5	62	2	48	50	121
05:15 PM	3	0	3	58	6	64	3	40	43	110
05:30 PM	2	0	2	62	4	66	1	34	35	103
05:45 PM	2	2	4	62	1	63	1	37	38	105
Total	13	5	18	239	16	255	7	159	166	439
Grand Total	28	10	38	432	32	464	11	310	321	823
Apprch %	73.7	26.3		93.1	6.9		3.4	96.6		
Total %	3.4	1.2	4.6	52.5	3.9	56.4	1.3	37.7	39	

	Adora Drive Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	**6**	**3**	**9**	57	5	62	2	**48**	**50**	**121**
05:15 PM	3	0	3	58	**6**	64	**3**	40	43	110
05:30 PM	2	0	2	**62**	4	**66**	1	34	35	103
05:45 PM	2	2	4	62	1	63	1	37	38	105
Total Volume	13	5	18	239	16	255	7	159	166	439
% App. Total	72.2	27.8		93.7	6.3		4.2	95.8		
PHF	.542	.417	.500	.964	.667	.966	.583	.828	.830	.907

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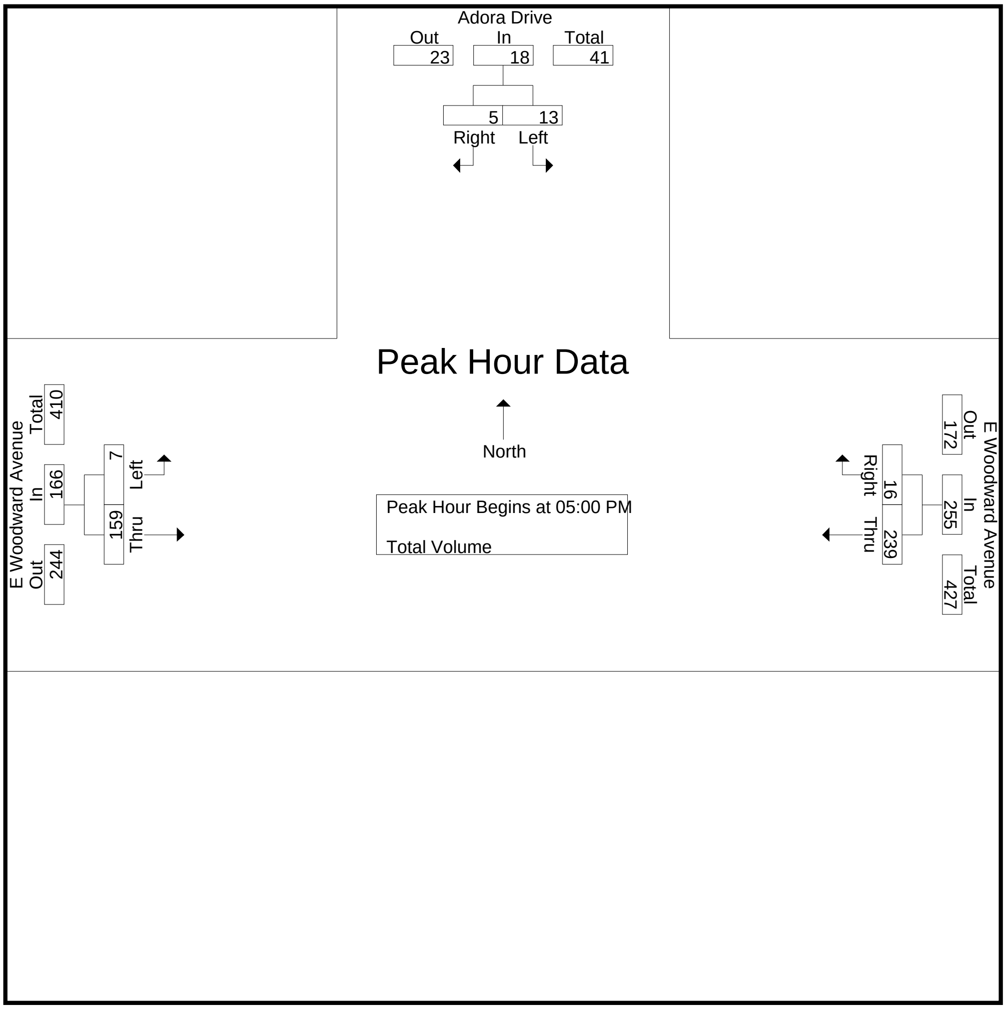
City of Manteca
N/S: Adora Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 07_MTC_Adora_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			05:00 PM			04:15 PM		
+0 mins.	5	0	5	57	5	62	1	44	45
+15 mins.	1	2	3	58	**6**	64	1	36	37
+30 mins.	5	2	7	**62**	4	**66**	**2**	39	41
+45 mins.	**6**	**3**	**9**	62	1	63	2	**48**	**50**
Total Volume	17	7	24	239	16	255	6	167	173
% App. Total	70.8	29.2		93.7	6.3		3.5	96.5	
PHF	.708	.583	.667	.964	.667	.966	.750	.870	.865

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City of Manteca
N/S: Memorial Lane
E/W: E Woodward Avenue
Weather: Clear

File Name : 08_MTC_Memorial_WW AM
Site Code : 23624682
Start Date : 8/13/2024

Groups Printed- Total Volume

	E Woodward Avenue Westbound			Memorial Lane Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	5	28	33	10	8	18	38	1	39	90
07:15 AM	2	29	31	11	14	25	39	2	41	97
07:30 AM	8	22	30	15	16	31	60	5	65	126
07:45 AM	8	22	30	7	11	18	55	7	62	110
Total	23	101	124	43	49	92	192	15	207	423
08:00 AM	6	25	31	11	9	20	51	10	61	112
08:15 AM	8	36	44	7	15	22	54	5	59	125
08:30 AM	14	35	49	8	7	15	32	17	49	113
08:45 AM	5	19	24	7	8	15	24	8	32	71
Total	33	115	148	33	39	72	161	40	201	421
Grand Total	56	216	272	76	88	164	353	55	408	844
Apprch %	20.6	79.4		46.3	53.7		86.5	13.5		
Total %	6.6	25.6	32.2	9	10.4	19.4	41.8	6.5	48.3	

	E Woodward Avenue Westbound			Memorial Lane Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	**8**	22	30	**15**	**16**	**31**	**60**	5	**65**	**126**
07:45 AM	8	22	30	7	11	18	55	7	62	110
08:00 AM	6	25	31	11	9	20	51	**10**	61	112
08:15 AM	8	**36**	**44**	7	15	22	54	5	59	125
Total Volume	30	105	135	40	51	91	220	27	247	473
% App. Total	22.2	77.8		44	56		89.1	10.9		
PHF	.938	.729	.767	.667	.797	.734	.917	.675	.950	.938

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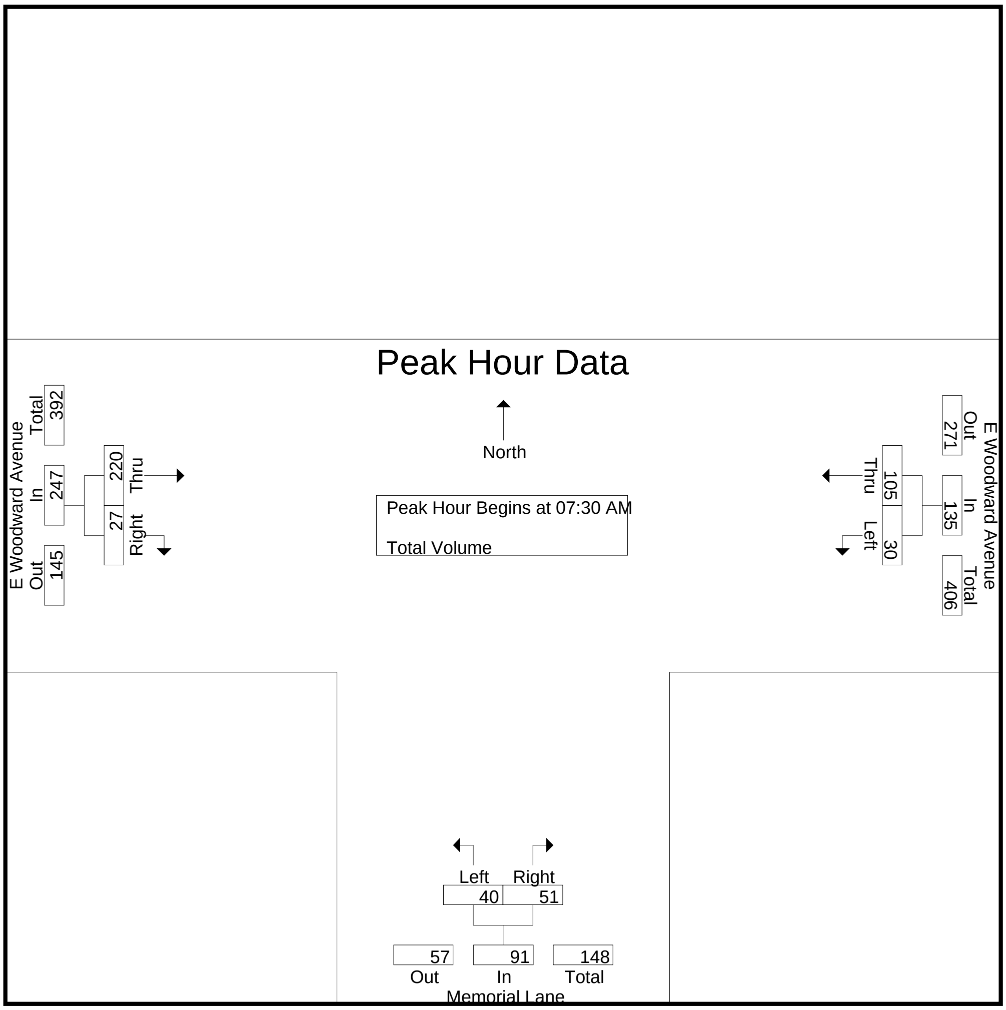
City of Manteca
N/S: Memorial Lane
E/W: E Woodward Avenue
Weather: Clear

File Name : 08_MTC_Memorial_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:15 AM			07:30 AM		
+0 mins.	8	22	30	11	14	25	**60**	5	**65**
+15 mins.	6	25	31	**15**	**16**	**31**	55	7	62
+30 mins.	8	**36**	44	7	11	18	51	**10**	61
+45 mins.	**14**	35	**49**	11	9	20	54	5	59
Total Volume	36	118	154	44	50	94	220	27	247
% App. Total	23.4	76.6		46.8	53.2		89.1	10.9	
PHF	.643	.819	.786	.733	.781	.758	.917	.675	.950

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City of Manteca
N/S: Memorial Lane
E/W: E Woodward Avenue
Weather: Clear

File Name : 08_MTC_Memorial_WW PM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	E Woodward Avenue Westbound			Memorial Lane Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	8	50	58	6	5	11	31	5	36	105
04:15 PM	6	54	60	7	5	12	36	13	49	121
04:30 PM	10	33	43	4	6	10	29	6	35	88
04:45 PM	7	47	54	9	4	13	37	8	45	112
Total	31	184	215	26	20	46	133	32	165	426
05:00 PM	9	47	56	14	2	16	46	7	53	125
05:15 PM	9	55	64	11	7	18	38	5	43	125
05:30 PM	9	58	67	8	7	15	26	8	34	116
05:45 PM	9	54	63	9	5	14	26	14	40	117
Total	36	214	250	42	21	63	136	34	170	483
Grand Total	67	398	465	68	41	109	269	66	335	909
Apprch %	14.4	85.6		62.4	37.6		80.3	19.7		
Total %	7.4	43.8	51.2	7.5	4.5	12	29.6	7.3	36.9	

	E Woodward Avenue Westbound			Memorial Lane Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	**9**	47	56	**14**	2	16	**46**	7	**53**	**125**
05:15 PM	9	55	64	11	**7**	**18**	38	5	43	125
05:30 PM	9	**58**	**67**	8	7	15	26	8	34	116
05:45 PM	9	54	63	9	5	14	26	**14**	40	117
Total Volume	36	214	250	42	21	63	136	34	170	483
% App. Total	14.4	85.6		66.7	33.3		80	20		
PHF	1.00	.922	.933	.750	.750	.875	.739	.607	.802	.966

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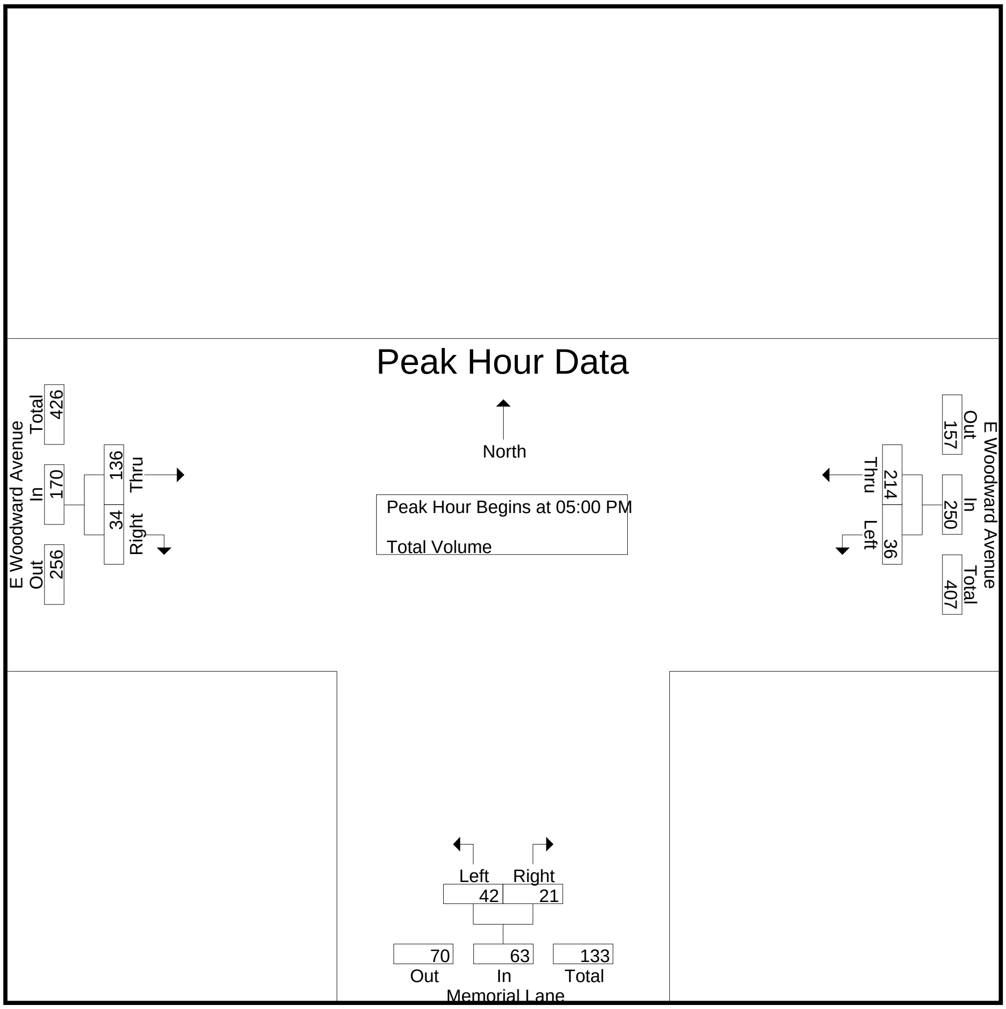
City of Manteca
N/S: Memorial Lane
E/W: E Woodward Avenue
Weather: Clear

File Name : 08_MTC_Memorial_WW PM
Site Code : 23624682
Start Date : 8/13/2024



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			04:15 PM		
+0 mins.	**9**	47	56	**14**	2	16	36	**13**	49
+15 mins.	9	55	64	11	**7**	**18**	29	6	35
+30 mins.	9	**58**	**67**	8	7	15	37	8	45
+45 mins.	9	54	63	9	5	14	**46**	7	**53**
Total Volume	36	214	250	42	21	63	148	34	182
% App. Total	14.4	85.6		66.7	33.3		81.3	18.7	
PHF	1.000	.922	.933	.750	.750	.875	.804	.654	.858

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City of Manteca
N/S: E Atherton Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 09_MTC_Atherton_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	E Atherton Drive Southbound				E Woodward Avenue Westbound				E Atherton Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	15	2	0	17	4	30	10	44	1	5	27	33	2	42	0	44	138
07:15 AM	22	4	0	26	9	31	4	44	1	10	32	43	2	52	1	55	168
07:30 AM	20	0	0	20	11	29	6	46	1	8	46	55	3	69	6	78	199
07:45 AM	27	4	0	31	13	29	8	50	0	8	55	63	5	61	0	66	210
Total	84	10	0	94	37	119	28	184	3	31	160	194	12	224	7	243	715
08:00 AM	23	9	2	34	23	28	10	61	0	10	17	27	2	56	4	62	184
08:15 AM	21	6	1	28	20	41	12	73	2	6	29	37	5	66	0	71	209
08:30 AM	17	4	4	25	16	46	7	69	1	10	27	38	2	37	0	39	171
08:45 AM	6	9	0	15	10	24	4	38	2	7	8	17	3	30	1	34	104
Total	67	28	7	102	69	139	33	241	5	33	81	119	12	189	5	206	668
Grand Total	151	38	7	196	106	258	61	425	8	64	241	313	24	413	12	449	1383
Apprch %	77	19.4	3.6		24.9	60.7	14.4		2.6	20.4	77		5.3	92	2.7		
Total %	10.9	2.7	0.5	14.2	7.7	18.7	4.4	30.7	0.6	4.6	17.4	22.6	1.7	29.9	0.9	32.5	

	E Atherton Drive Southbound				E Woodward Avenue Westbound				E Atherton Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	20	0	0	20	11	29	6	46	1	8	46	55	3	**69**	**6**	**78**	199
07:45 AM	**27**	4	0	31	13	29	8	50	0	8	**55**	**63**	**5**	61	0	66	**210**
08:00 AM	23	**9**	**2**	**34**	**23**	28	10	61	0	**10**	17	27	2	56	4	62	184
08:15 AM	21	6	1	28	20	**41**	**12**	**73**	**2**	6	29	37	5	66	0	71	209
Total Volume	91	19	3	113	67	127	36	230	3	32	147	182	15	252	10	277	802
% App. Total	80.5	16.8	2.7		29.1	55.2	15.7		1.6	17.6	80.8		5.4	91	3.6		
PHF	.843	.528	.375	.831	.728	.774	.750	.788	.375	.800	.668	.722	.750	.913	.417	.888	.955

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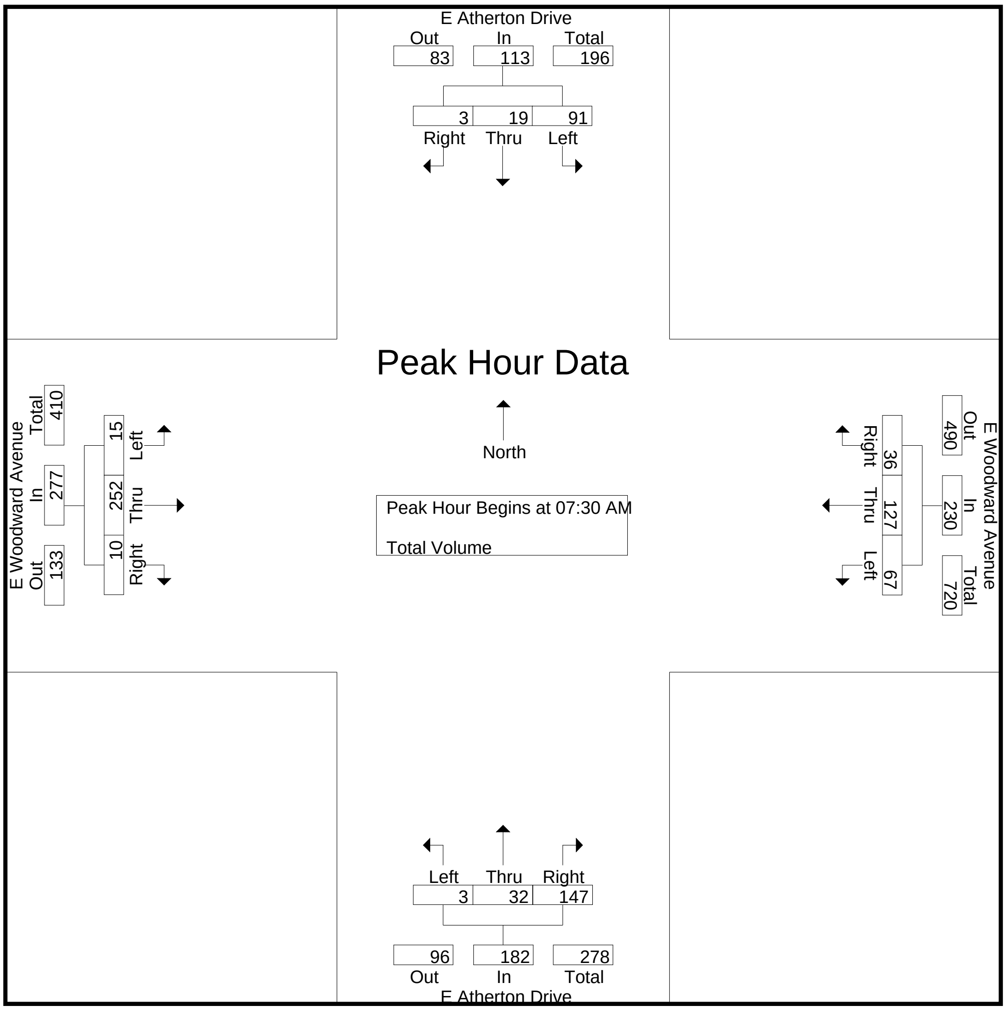
City of Manteca
N/S: E Atherton Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 09_MTC_Atherton_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:00 AM				07:30 AM			
+0 mins.	**27**	4	0	31	13	29	8	50	**1**	5	27	33	3	**69**	**6**	**78**
+15 mins.	23	**9**	2	**34**	**23**	28	10	61	1	**10**	32	43	**5**	61	0	66
+30 mins.	21	6	1	28	20	41	**12**	**73**	1	8	46	55	2	56	4	62
+45 mins.	17	4	**4**	25	16	**46**	7	69	0	8	**55**	**63**	5	66	0	71
Total Volume	88	23	7	118	72	144	37	253	3	31	160	194	15	252	10	277
% App. Total	74.6	19.5	5.9		28.5	56.9	14.6		1.5	16	82.5		5.4	91	3.6	
PHF	.815	.639	.438	.868	.783	.783	.771	.866	.750	.775	.727	.770	.750	.913	.417	.888

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: E Atherton Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 09_MTC_Atherton_WW PM
Site Code : 23624682
Start Date : 8/13/2024

Groups Printed- Total Volume

	E Atherton Drive Southbound				E Woodward Avenue Westbound				E Atherton Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	8	12	3	23	23	53	14	90	1	3	13	17	2	33	3	38	168
04:15 PM	15	9	1	25	18	58	14	90	1	6	16	23	2	37	1	40	178
04:30 PM	12	5	1	18	13	43	18	74	0	5	14	19	2	33	0	35	146
04:45 PM	14	9	1	24	32	54	16	102	0	4	12	16	1	39	1	41	183
Total	49	35	6	90	86	208	62	356	2	18	55	75	7	142	5	154	675
05:00 PM	17	9	0	26	31	59	15	105	0	1	13	14	3	43	1	47	192
05:15 PM	13	3	0	16	20	63	18	101	0	8	12	20	5	41	2	48	185
05:30 PM	15	10	2	27	28	62	17	107	2	3	13	18	3	29	2	34	186
05:45 PM	17	6	1	24	19	61	18	98	1	12	13	26	2	29	0	31	179
Total	62	28	3	93	98	245	68	411	3	24	51	78	13	142	5	160	742
Grand Total	111	63	9	183	184	453	130	767	5	42	106	153	20	284	10	314	1417
Apprch %	60.7	34.4	4.9		24	59.1	16.9		3.3	27.5	69.3		6.4	90.4	3.2		
Total %	7.8	4.4	0.6	12.9	13	32	9.2	54.1	0.4	3	7.5	10.8	1.4	20	0.7	22.2	

	E Atherton Drive Southbound				E Woodward Avenue Westbound				E Atherton Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	14	9	1	24	**32**	54	16	102	0	4	12	16	1	39	1	41	183
05:00 PM	**17**	9	0	26	31	59	15	105	0	1	**13**	14	3	**43**	1	47	**192**
05:15 PM	13	3	0	16	20	**63**	**18**	101	0	**8**	12	**20**	**5**	41	**2**	**48**	185
05:30 PM	15	**10**	**2**	**27**	28	62	17	**107**	**2**	3	13	18	3	29	2	34	186
Total Volume	59	31	3	93	111	238	66	415	2	16	50	68	12	152	6	170	746
% App. Total	63.4	33.3	3.2		26.7	57.3	15.9		2.9	23.5	73.5		7.1	89.4	3.5		
PHF	.868	.775	.375	.861	.867	.944	.917	.970	.250	.500	.962	.850	.600	.884	.750	.885	.971

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File Name : 09_MTC_Atherton_WW PM
Site Code : 23624682
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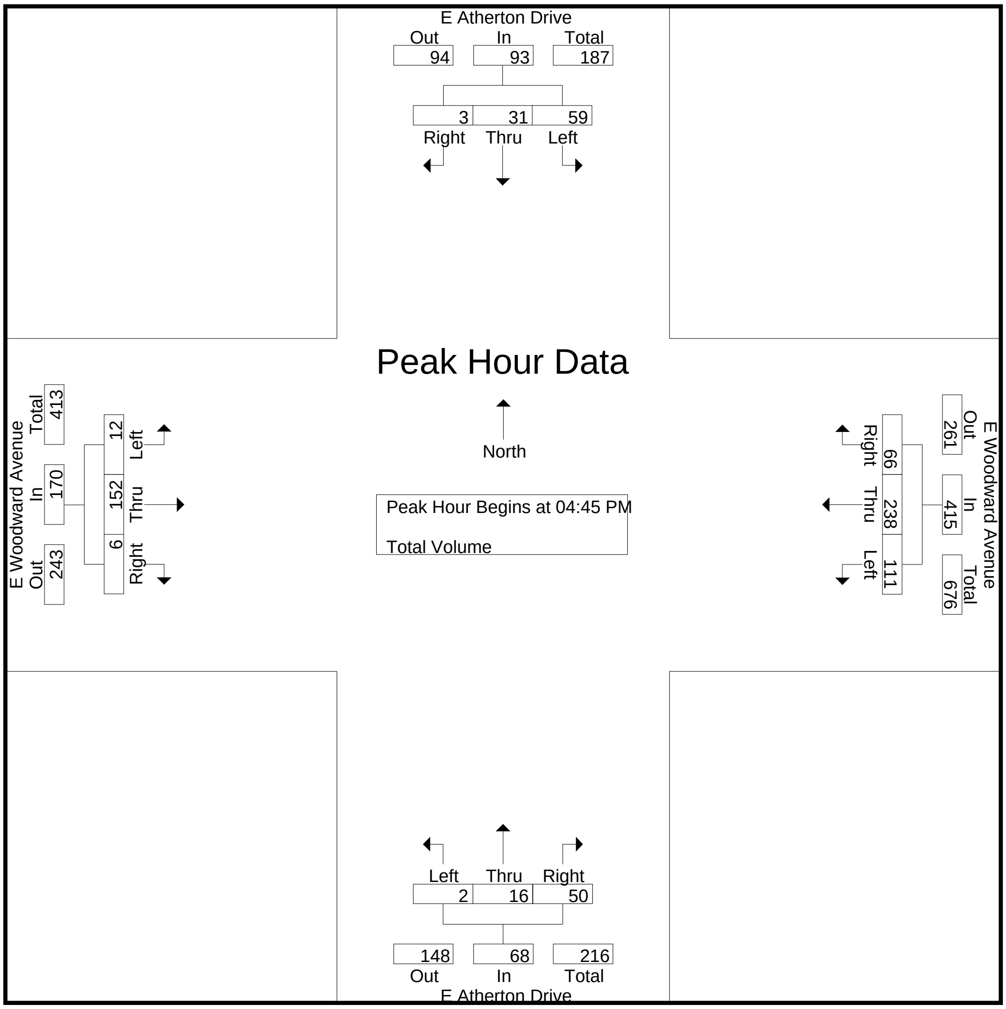

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:45 PM				05:00 PM				04:30 PM			
+0 mins.	15	**9**	**1**	25	**32**	54	16	102	0	1	**13**	14	2	33	0	35
+15 mins.	12	5	1	18	31	59	15	105	0	8	12	20	1	39	1	41
+30 mins.	14	9	1	24	20	**63**	**18**	101	**2**	3	13	18	3	**43**	1	47
+45 mins.	**17**	9	0	**26**	28	62	17	**107**	1	**12**	13	**26**	**5**	41	**2**	**48**
Total Volume	58	32	3	93	111	238	66	415	3	24	51	78	11	156	4	171
% App. Total	62.4	34.4	3.2		26.7	57.3	15.9		3.8	30.8	65.4		6.4	91.2	2.3	
PHF	.853	.889	.750	.894	.867	.944	.917	.970	.375	.500	.981	.750	.550	.907	.500	.891

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City of Manteca
N/S: Moffat Boulevard
E/W: E Woodward Avenue
Weather: Clear

File Name : 10_MTC_Moffat_WW AM
Site Code : 23624682
Start Date : 8/13/2024
Page No : 1

Groups Printed- Total Volume

	Moffat Boulevard Southbound				The Veranda Gardens Driveway Westbound				Moffat Boulevard Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	36	1	37	0	0	0	0	45	47	0	92	3	0	78	81	210
07:15 AM	0	23	4	27	0	0	0	0	40	49	0	89	4	0	105	109	225
07:30 AM	0	24	2	26	0	0	0	0	40	54	1	95	12	0	122	134	255
07:45 AM	0	30	4	34	0	0	0	0	48	72	0	120	16	0	128	144	298
Total	0	113	11	124	0	0	0	0	173	222	1	396	35	0	433	468	988
08:00 AM	0	41	9	50	0	0	0	0	53	66	0	119	10	0	85	95	264
08:15 AM	0	21	7	28	0	0	0	0	59	97	0	156	33	0	72	105	289
08:30 AM	0	40	11	51	0	0	0	0	58	73	0	131	24	0	59	83	265
08:45 AM	0	32	8	40	0	0	0	0	33	64	0	97	6	0	38	44	181
Total	0	134	35	169	0	0	0	0	203	300	0	503	73	0	254	327	999
Grand Total	0	247	46	293	0	0	0	0	376	522	1	899	108	0	687	795	1987
Apprch %	0	84.3	15.7		0	0	0		41.8	58.1	0.1		13.6	0	86.4		
Total %	0	12.4	2.3	14.7	0	0	0	0	18.9	26.3	0.1	45.2	5.4	0	34.6	40	

	Moffat Boulevard Southbound				The Veranda Gardens Driveway Westbound				Moffat Boulevard Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	30	4	34	0	0	0	0	48	72	0	120	16	0	**128**	**144**	**298**
08:00 AM	0	**41**	9	50	0	0	0	0	53	66	0	119	10	0	85	95	264
08:15 AM	0	21	7	28	0	0	0	0	**59**	**97**	0	**156**	**33**	0	72	105	289
08:30 AM	0	40	**11**	**51**	0	0	0	0	58	73	0	131	24	0	59	83	265
Total Volume	0	132	31	163	0	0	0	0	218	308	0	526	83	0	344	427	1116
% App. Total	0	81	19		0	0	0		41.4	58.6	0		19.4	0	80.6		
PHF	.000	.805	.705	.799	.000	.000	.000	.000	.924	.794	.000	.843	.629	.000	.672	.741	.936

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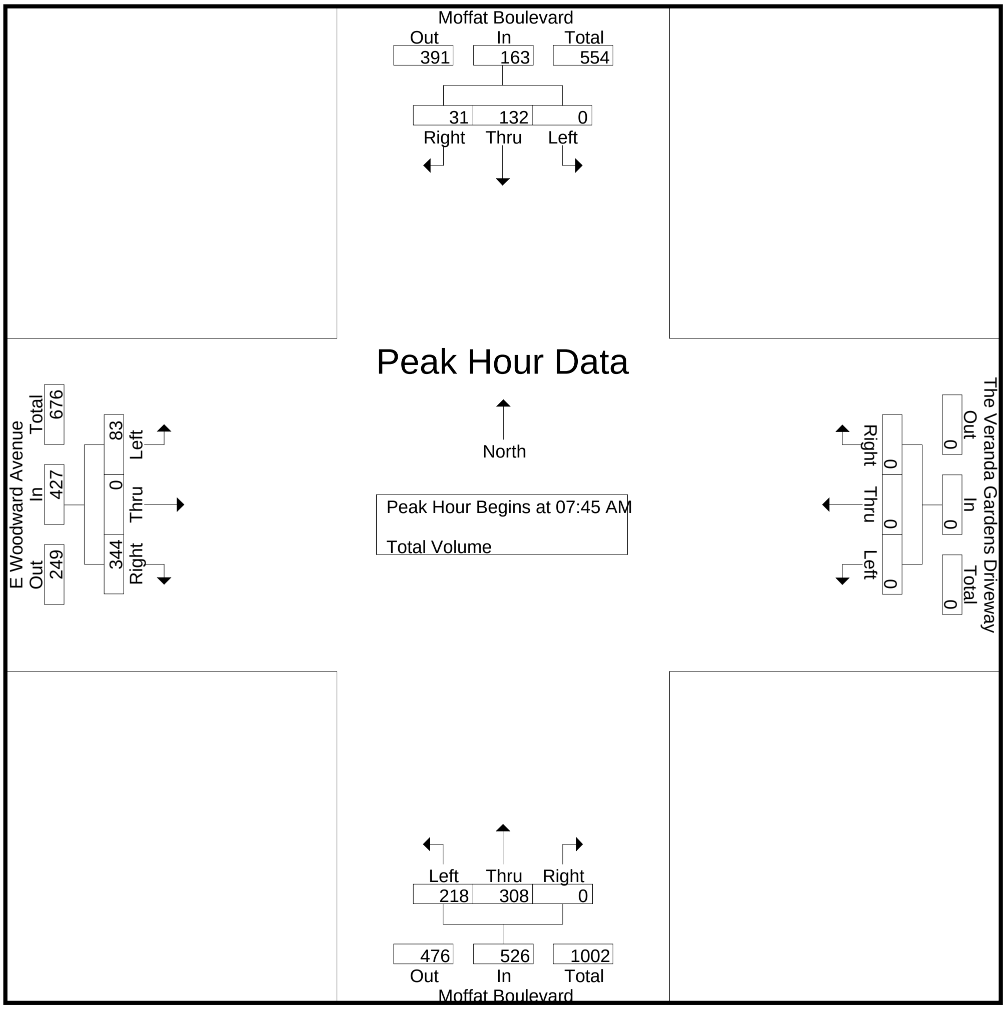

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				07:00 AM				07:45 AM				07:15 AM			
+0 mins.	0	**41**	9	50	0	0	0	0	48	72	0	120	4	0	105	109
+15 mins.	0	21	7	28	0	0	0	0	53	66	0	119	12	0	122	134
+30 mins.	0	40	**11**	**51**	0	0	0	0	**59**	**97**	0	**156**	**16**	0	**128**	**144**
+45 mins.	0	32	8	40	0	0	0	0	58	73	0	131	10	0	85	95
Total Volume	0	134	35	169	0	0	0	0	218	308	0	526	42	0	440	482
% App. Total	0	79.3	20.7		0	0	0		41.4	58.6	0		8.7	0	91.3	
PHF	.000	.817	.795	.828	.000	.000	.000	.000	.924	.794	.000	.843	.656	.000	.859	.837

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File Name : 10_MTC_Moffat_WW PM
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Groups Printed- Total Volume

	Moffat Boulevard Southbound				The Veranda Gardens Driveway Westbound				Moffat Boulevard Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	53	6	59	0	0	0	0	83	58	0	141	4	0	49	53	253
04:15 PM	0	52	13	65	0	0	0	0	78	46	0	124	10	0	59	69	258
04:30 PM	0	86	9	95	0	0	0	0	67	48	0	115	9	0	52	61	271
04:45 PM	0	68	21	89	0	0	1	1	78	63	0	141	13	0	50	63	294
Total	0	259	49	308	0	0	1	1	306	215	0	521	36	0	210	246	1076
05:00 PM	0	78	18	96	0	0	1	1	91	61	0	152	7	0	59	66	315
05:15 PM	2	57	10	69	0	0	0	0	91	74	0	165	6	0	61	67	301
05:30 PM	0	71	23	94	0	0	0	0	87	46	0	133	9	0	51	60	287
05:45 PM	0	75	8	83	0	0	0	0	94	48	0	142	12	0	48	60	285
Total	2	281	59	342	0	0	1	1	363	229	0	592	34	0	219	253	1188
Grand Total	2	540	108	650	0	0	2	2	669	444	0	1113	70	0	429	499	2264
Apprch %	0.3	83.1	16.6		0	0	100		60.1	39.9	0		14	0	86		
Total %	0.1	23.9	4.8	28.7	0	0	0.1	0.1	29.5	19.6	0	49.2	3.1	0	18.9	22	

	Moffat Boulevard Southbound				The Veranda Gardens Driveway Westbound				Moffat Boulevard Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	68	21	89	0	0	**1**	**1**	78	63	0	141	**13**	0	50	63	294
05:00 PM	0	**78**	18	**96**	0	0	1	1	**91**	61	0	152	7	0	59	66	**315**
05:15 PM	**2**	57	10	69	0	0	0	0	91	**74**	0	**165**	6	0	**61**	**67**	301
05:30 PM	0	71	**23**	94	0	0	0	0	87	46	0	133	9	0	51	60	287
Total Volume	2	274	72	348	0	0	2	2	347	244	0	591	35	0	221	256	1197
% App. Total	0.6	78.7	20.7		0	0	100		58.7	41.3	0		13.7	0	86.3		
PHF	.250	.878	.783	.906	.000	.000	.500	.500	.953	.824	.000	.895	.673	.000	.906	.955	.950

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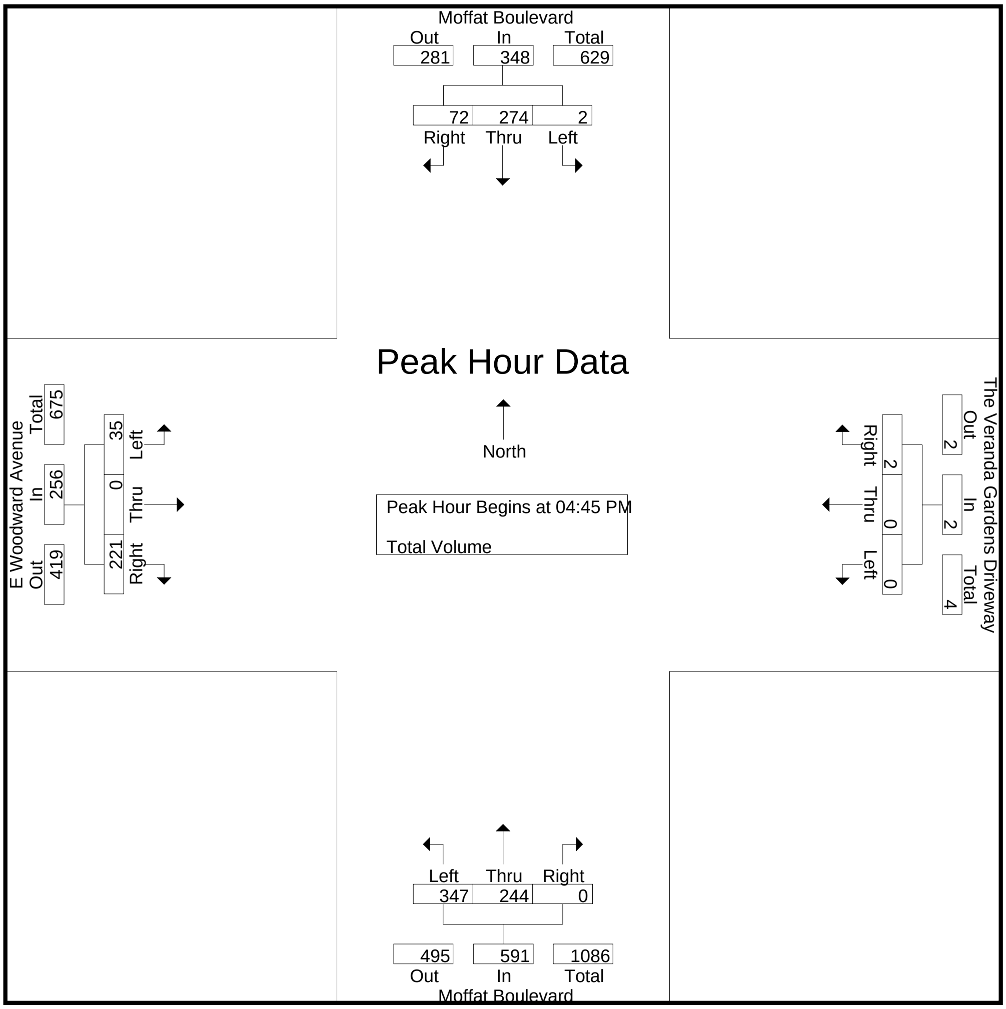


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:15 PM				05:00 PM				04:15 PM			
+0 mins.	0	**86**	9	95	0	0	0	0	91	61	0	152	10	0	**59**	**69**
+15 mins.	0	68	**21**	89	0	0	0	0	91	**74**	0	**165**	9	0	52	61
+30 mins.	0	78	18	**96**	0	0	**1**	**1**	87	46	0	133	**13**	0	50	63
+45 mins.	**2**	57	10	69	0	0	1	1	**94**	48	0	142	7	0	59	66
Total Volume	2	289	58	349	0	0	2	2	363	229	0	592	39	0	220	259
% App. Total	0.6	82.8	16.6		0	0	100		61.3	38.7	0		15.1	0	84.9	
PHF	.250	.840	.690	.909	.000	.000	.500	.500	.965	.774	.000	.897	.750	.000	.932	.938

APPENDIX D

HCM ANALYSIS WORKSHEETS

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	38.9
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.064

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	227	393	44	108	217	9	29	101	100	34	100	194
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	227	393	44	108	217	9	29	101	100	34	100	194
Peak Hour Factor	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	110	12	30	61	3	8	28	28	10	28	54
Total Analysis Volume [veh/h]	254	441	49	121	243	10	33	113	112	38	112	217
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	430	490	397	420	389	425	381	401	434
Degree of Utilization, x	0.59	1.06	0.31	0.60	0.08	0.53	0.10	0.28	0.50

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.70	15.52	1.27	3.85	0.28	3.01	0.33	1.13	2.73
95th-Percentile Queue Length [ft]	92.60	388.01	31.81	96.31	6.90	75.23	8.25	28.17	68.18
Approach Delay [s/veh]	65.45		21.00		19.33		17.22		
Approach LOS	F		C		C		C		
Intersection Delay [s/veh]	38.93								
Intersection LOS	E								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	21.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.067

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	65	19	113	5	13	6	9	189	44	114	216	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	19	113	5	13	6	9	189	44	114	216	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	5	31	1	4	2	2	51	12	31	59	1
Total Analysis Volume [veh/h]	71	21	123	5	14	7	10	205	48	124	235	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.07	0.14	0.02	0.05	0.01	0.01	0.00	0.00	0.09	0.00	0.00
d_M, Delay for Movement [s/veh]	20.70	20.98	9.59	18.83	17.59	9.70	7.71	0.00	0.00	8.00	0.00	0.00
Movement LOS	C	C	A	C	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.17	1.17	0.47	0.23	0.23	0.23	0.02	0.00	0.00	0.31	0.00	0.00
95th-Percentile Queue Length [ft/ln]	29.15	29.15	11.72	5.77	5.77	5.77	0.56	0.00	0.00	7.73	0.00	0.00
d_A, Approach Delay [s/veh]	14.37			15.70			0.29			2.73		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	5.26											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	39.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.194

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	4	0	2	14	0	48	28	278	8	1	289	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	0	2	14	0	48	28	278	8	1	289	4
Peak Hour Factor	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	1	4	0	14	8	83	2	0	87	1
Total Analysis Volume [veh/h]	5	0	2	17	0	58	34	334	10	1	347	5
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	10	19	0	11	20	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	30	30	3	13	13	0	11	11
g / C, Green / Cycle	0.34	0.34	0.34	0.03	0.15	0.15	0.00	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.05	0.02	0.09	0.01	0.00	0.09	0.09
s, saturation flow rate [veh/h]	1810	1615	1655	1810	3618	1615	1810	1900	1891
c, Capacity [veh/h]	606	541	555	60	542	242	5	227	225
d1, Uniform Delay [s]	19.99	19.96	20.88	42.95	35.91	32.80	44.87	38.56	38.56
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	0.01	0.51	8.11	1.15	0.07	19.71	5.70	5.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.00	0.14	0.57	0.62	0.04	0.21	0.78	0.78
d, Delay for Lane Group [s/veh]	20.02	19.97	21.39	51.06	37.06	32.87	64.58	44.25	44.33
Lane Group LOS	C	B	C	D	D	C	E	D	D
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.07	0.03	1.18	0.85	3.35	0.18	0.05	3.95	3.94
50th-Percentile Queue Length [ft/ln]	1.86	0.75	29.39	21.27	83.67	4.57	1.20	98.74	98.57
95th-Percentile Queue Length [veh/ln]	0.13	0.05	2.12	1.53	6.02	0.33	0.09	7.11	7.10
95th-Percentile Queue Length [ft/ln]	3.34	1.34	52.90	38.28	150.61	8.23	2.16	177.74	177.42

Movement, Approach, & Intersection Results

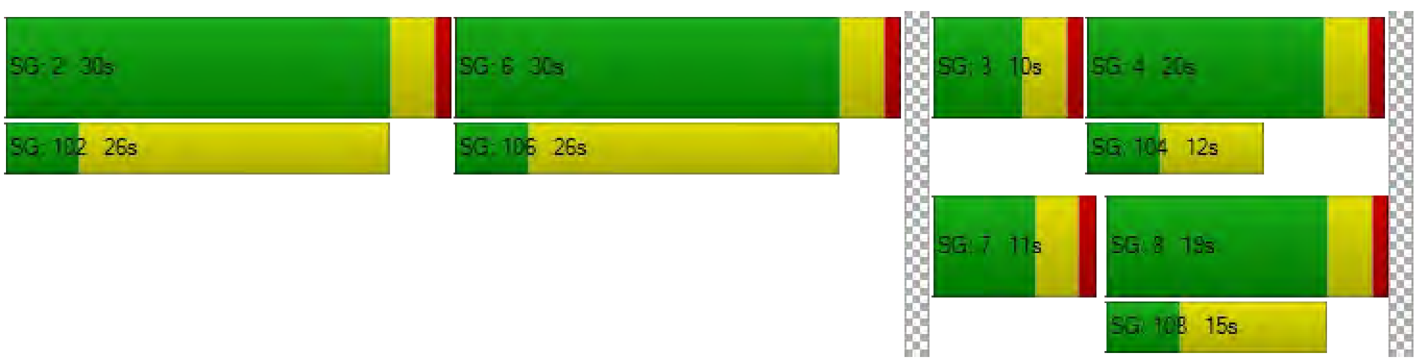
d_M, Delay for Movement [s/veh]	20.02	20.02	19.97	21.39	21.39	21.39	51.06	37.06	32.87	64.58	44.29	44.33
Movement LOS	C	C	B	C	C	C	D	D	C	E	D	D
d_A, Approach Delay [s/veh]	20.00			21.39			38.21			44.35		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.17											
Intersection LOS	D											
Intersection V/C	0.194											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.947	1.763	2.646	2.627
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	577	333	355
d_b, Bicycle Delay [s]	22.80	22.80	31.29	30.47
I_b,int, Bicycle LOS Score for Intersection	1.571	1.683	1.871	1.851
Bicycle LOS	A	A	A	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Park Drwy #2- Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	1	1	1	14	0	42	36	251	0	3	243	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1	1	14	0	42	36	251	0	3	243	14
Peak Hour Factor	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	4	0	12	10	71	0	1	69	4
Total Analysis Volume [veh/h]	1	1	1	16	0	48	41	285	0	3	276	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.04	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.81	14.78	9.11	13.89	15.15	9.61	7.90	0.00	0.00	7.80	0.00	0.00
Movement LOS	B	B	A	B	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.30	0.30	0.30	0.10	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.47	0.47	0.47	7.54	7.54	7.54	2.48	0.00	0.00	0.17	0.00	0.00
d_A, Approach Delay [s/veh]	12.56			10.68			0.99			0.08		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.55											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.064

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	23	146	228	179	181	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	146	228	179	181	55
Peak Hour Factor	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	40	62	49	49	15
Total Analysis Volume [veh/h]	25	159	248	195	197	60
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.18	0.19	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.85	9.83	8.36	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.64	0.69	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.11	15.90	17.27	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.51		4.68		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	4.53					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.359

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	91	79	176	26	31	141
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	79	176	26	31	141
Peak Hour Factor	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	23	51	8	9	41
Total Analysis Volume [veh/h]	106	92	206	30	36	165
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	580	718	657	617	676	676
Degree of Utilization, x	0.18	0.13	0.36	0.06	0.12	0.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.66	0.44	1.63	0.19	0.41	0.41
95th-Percentile Queue Length [ft]	16.60	10.97	40.78	4.63	10.37	10.37
Approach Delay [s/veh]	9.44		11.52	8.79		
Approach LOS	A		B	A		
Intersection Delay [s/veh]	10.01					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.027

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	18	32	23	229	136	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	32	23	229	136	10
Peak Hour Factor	0.8820	0.8820	0.8820	0.8820	0.8820	0.8820
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	9	7	65	39	3
Total Analysis Volume [veh/h]	20	36	26	260	154	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.04	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.09	8.87	7.57	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.12	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.12	2.90	1.39	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.30		0.69		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.42					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.061

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	40	51	220	27	30	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	51	220	27	30	105
Peak Hour Factor	0.9380	0.9380	0.9380	0.9380	0.9380	0.9380
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	14	59	7	8	28
Total Analysis Volume [veh/h]	43	54	235	29	32	112
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.06	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	10.76	9.62	0.00	0.00	7.81	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.41	0.41	0.00	0.00	0.07	0.00
95th-Percentile Queue Length [ft/ln]	10.31	10.31	0.00	0.00	1.87	0.00
d_A, Approach Delay [s/veh]	10.13		0.00		1.74	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.44					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.439

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	3	32	147	91	19	3	15	252	10	67	127	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	32	147	91	19	3	15	252	10	67	127	36
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	8	38	24	5	1	4	66	3	18	33	9
Total Analysis Volume [veh/h]	3	34	154	95	20	3	16	264	10	70	133	38
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	526	568	638	520	559	627	555	602	680	538	583	613
Degree of Utilization, x	0.01	0.06	0.24	0.18	0.04	0.00	0.03	0.44	0.01	0.13	0.15	0.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	0.19	0.94	0.66	0.11	0.01	0.09	2.23	0.04	0.44	0.51	0.48
95th-Percentile Queue Length [ft]	0.43	4.76	23.52	16.58	2.78	0.36	2.22	55.76	1.12	11.11	12.80	12.06
Approach Delay [s/veh]	10.00			10.80			12.89			9.92		
Approach LOS	B			B			B			A		
Intersection Delay [s/veh]	11.09											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	21.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.295

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	218	308	0	0	132	31	83	0	344	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	308	0	0	132	31	83	0	344	0	0	0
Peak Hour Factor	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	1.0000	0.9360	0.9360	0.9360	0.9360
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	82	0	0	35	8	22	0	92	0	0	0
Total Analysis Volume [veh/h]	233	329	0	0	141	33	89	0	368	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.41	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.05	0.00	0.00	7.90	0.00	0.00	21.88	21.37	11.82	45.57	21.87	10.02
Movement LOS	A	A	A	A	A	A	C	C	B	E	C	B
95th-Percentile Queue Length [veh/ln]	0.59	0.00	0.00	0.00	0.00	0.00	1.20	1.20	2.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	14.73	0.00	0.00	0.00	0.00	0.00	30.08	30.08	50.97	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.34			0.00			13.78			25.82		
Approach LOS	A			A			B			D		
d_I, Intersection Delay [s/veh]	6.85											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	44.4
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.072

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	82	275	28	285	408	23	27	147	103	40	131	150
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	275	28	285	408	23	27	147	103	40	131	150
Peak Hour Factor	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	74	8	77	110	6	7	40	28	11	35	40
Total Analysis Volume [veh/h]	88	296	30	307	439	25	29	158	111	43	141	161
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	383	405	407	464	375	406	359	377	406
Degree of Utilization, x	0.23	0.80	0.75	1.07	0.08	0.66	0.12	0.37	0.40

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.88	7.15	6.17	15.29	0.25	4.63	0.40	1.70	1.86
95th-Percentile Queue Length [ft]	21.89	178.85	154.20	382.15	6.24	115.86	10.11	42.40	46.55
Approach Delay [s/veh]	34.11		69.34		25.94		17.13		
Approach LOS	D		F		D		C		
Intersection Delay [s/veh]	44.43								
Intersection LOS	E								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	18.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	29	2	34	4	0	19	22	332	75	41	250	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	2	34	4	0	19	22	332	75	41	250	5
Peak Hour Factor	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	9	1	0	5	6	89	20	11	67	1
Total Analysis Volume [veh/h]	31	2	36	4	0	20	23	354	80	44	267	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.05	0.01	0.00	0.02	0.02	0.00	0.00	0.04	0.00	0.00
d_M, Delay for Movement [s/veh]	17.36	18.16	9.75	15.20	17.68	9.20	7.81	0.00	0.00	8.30	0.00	0.00
Movement LOS	C	C	A	C	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.34	0.34	0.14	0.10	0.10	0.10	0.05	0.00	0.00	0.12	0.00	0.00
95th-Percentile Queue Length [ft/ln]	8.45	8.45	3.56	2.60	2.60	2.60	1.35	0.00	0.00	3.02	0.00	0.00
d_A, Approach Delay [s/veh]	13.41			10.20			0.39			1.16		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.98											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	40.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.148

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	7	0	6	3	0	21	31	327	16	2	271	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	0	6	3	0	21	31	327	16	2	271	8
Peak Hour Factor	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	2	1	0	6	9	91	4	1	75	2
Total Analysis Volume [veh/h]	8	0	7	3	0	23	34	363	18	2	301	9
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	13	19	0	11	17	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	31	31	3	13	13	0	10	10
g / C, Green / Cycle	0.34	0.34	0.34	0.03	0.14	0.14	0.00	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.02	0.02	0.10	0.01	0.00	0.08	0.08
s, saturation flow rate [veh/h]	1810	1615	1635	1810	3618	1615	1810	1900	1881
c, Capacity [veh/h]	613	547	554	60	509	227	7	212	210
d1, Uniform Delay [s]	19.80	19.79	20.03	42.95	37.00	33.66	44.78	38.75	38.77
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.04	0.16	8.11	1.87	0.15	19.05	4.83	4.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.01	0.05	0.57	0.71	0.08	0.27	0.73	0.74
d, Delay for Lane Group [s/veh]	19.84	19.84	20.19	51.06	38.86	33.81	63.82	43.58	43.73
Lane Group LOS	B	B	C	D	D	C	E	D	D
Critical Lane Group	Yes	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.12	0.10	0.39	0.85	3.75	0.34	0.08	3.45	3.43
50th-Percentile Queue Length [ft/ln]	2.95	2.60	9.78	21.27	93.80	8.40	2.03	86.14	85.85
95th-Percentile Queue Length [veh/ln]	0.21	0.19	0.70	1.53	6.75	0.60	0.15	6.20	6.18
95th-Percentile Queue Length [ft/ln]	5.32	4.68	17.61	38.28	168.84	15.12	3.66	155.05	154.53

Movement, Approach, & Intersection Results

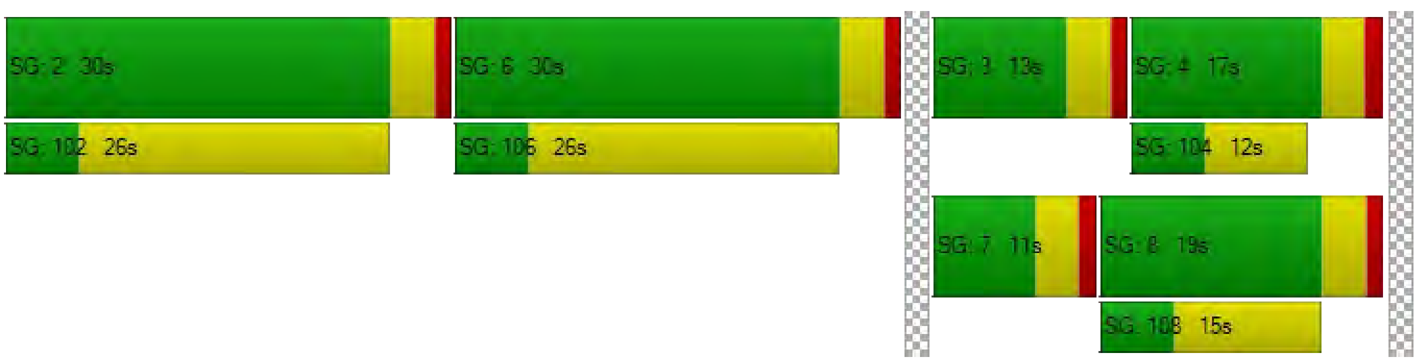
d_M, Delay for Movement [s/veh]	19.84	19.84	19.84	20.19	20.19	20.19	51.06	38.86	33.81	63.82	43.65	43.73
Movement LOS	B	B	B	C	C	C	D	D	C	E	D	D
d_A, Approach Delay [s/veh]		19.84			20.19			39.64			43.79	
Approach LOS		B			C			D			D	
d_I, Intersection Delay [s/veh]	40.28											
Intersection LOS	D											
Intersection V/C	0.148											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.951	1.744	2.637	2.621
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	577	333	289
d_b, Bicycle Delay [s]	22.80	22.80	31.29	32.98
I_b,int, Bicycle LOS Score for Intersection	1.584	1.603	1.902	1.817
Bicycle LOS	A	A	A	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Pk Drwy #2-Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	15.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	1	2	2	11	0	3	14	321	0	9	278	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	2	11	0	3	14	321	0	9	278	14
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	3	0	1	4	85	0	2	73	4
Total Analysis Volume [veh/h]	1	2	2	12	0	3	15	339	0	10	294	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.03	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	13.61	15.09	9.31	13.62	15.16	9.38	7.88	0.00	0.00	7.95	0.00	0.00
Movement LOS	B	C	A	B	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.10	0.10	0.10	0.04	0.00	0.00	0.02	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.78	0.78	0.78	2.42	2.42	2.42	0.90	0.00	0.00	0.61	0.00	0.00
d_A, Approach Delay [s/veh]	12.48			12.77			0.33			0.25		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.65											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.094

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	51	140	96	201	231	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	140	96	201	231	48
Peak Hour Factor	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	37	25	53	61	13
Total Analysis Volume [veh/h]	54	148	102	213	244	51
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.17	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.91	9.92	8.06	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.31	0.60	0.26	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.74	15.08	6.49	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.45		2.61		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.61					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.376

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	88	33	146	104	56	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	33	146	104	56	192
Peak Hour Factor	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	9	38	27	15	50
Total Analysis Volume [veh/h]	92	34	152	108	58	200
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	566	697	692	637	700	700
Degree of Utilization, x	0.16	0.05	0.38	0.09	0.14	0.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.58	0.15	1.75	0.30	0.50	0.50
95th-Percentile Queue Length [ft]	14.41	3.84	43.73	7.48	12.42	12.42
Approach Delay [s/veh]	9.71		11.30	8.75		
Approach LOS	A		B	A		
Intersection Delay [s/veh]	9.97					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	13	5	7	159	239	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	5	7	159	239	16
Peak Hour Factor	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	1	2	44	66	4
Total Analysis Volume [veh/h]	14	6	8	175	264	18
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.29	9.08	7.80	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.02	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.54	0.51	0.47	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.93		0.34		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.54					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	42	21	136	34	36	214
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	21	136	34	36	214
Peak Hour Factor	0.9660	0.9660	0.9660	0.9660	0.9660	0.9660
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	5	35	9	9	55
Total Analysis Volume [veh/h]	43	22	141	35	37	222
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.02	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	10.40	9.16	0.00	0.00	7.62	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.00	0.00	0.08	0.00
95th-Percentile Queue Length [ft/ln]	6.73	6.73	0.00	0.00	2.02	0.00
d_A, Approach Delay [s/veh]	9.98		0.00		1.09	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.86					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.252

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	2	16	50	59	31	3	12	152	6	111	238	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	16	50	59	31	3	12	152	6	111	238	66
Peak Hour Factor	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	13	15	8	1	3	39	2	29	61	17
Total Analysis Volume [veh/h]	2	16	51	61	32	3	12	157	6	114	245	68
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	538	581	654	541	584	596	574	623	707	609	665	705
Degree of Utilization, x	0.00	0.03	0.08	0.11	0.03	0.03	0.02	0.25	0.01	0.19	0.24	0.22

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.01	0.08	0.25	0.38	0.09	0.09	0.06	0.99	0.03	0.68	0.91	0.85
95th-Percentile Queue Length [ft]	0.28	2.12	6.33	9.47	2.31	2.26	1.60	24.85	0.64	17.08	22.75	21.16
Approach Delay [s/veh]	8.79			9.75			10.24			9.64		
Approach LOS	A			A			B			A		
Intersection Delay [s/veh]	9.71											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	28.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.192

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	347	244	0	2	274	72	35	0	221	0	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	347	244	0	2	274	72	35	0	221	0	0	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	91	64	0	1	72	19	9	0	58	0	0	1
Total Analysis Volume [veh/h]	365	257	0	2	288	76	37	0	233	0	0	2
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.30	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.32	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.28	0.00	0.00	7.73	0.00	0.00	28.02	26.42	12.38	72.80	39.32	9.59
Movement LOS	A	A	A	A	A	A	D	D	B	F	E	A
95th-Percentile Queue Length [veh/ln]	1.29	0.00	0.00	0.00	0.00	0.00	0.69	0.69	1.40	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	32.17	0.00	0.00	0.09	0.09	0.09	17.18	17.18	35.09	0.19	0.19	0.19
d_A, Approach Delay [s/veh]	5.44			0.04			14.52			9.59		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]	5.83											
Intersection LOS	D											

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	50.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.175

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	┐├			┐├			┐├			┐│┌		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	227	393	44	108	217	9	29	101	100	34	100	194
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	19	37	0	0	0	19	0	18	18	36
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	227	393	63	145	217	9	29	120	100	52	118	230
Peak Hour Factor	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920	0.8920
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	110	18	41	61	3	8	34	28	15	33	64
Total Analysis Volume [veh/h]	254	441	71	163	243	10	33	135	112	58	132	258
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	407	512	381	403	378	410	369	389	419
Degree of Utilization, x	0.62	1.18	0.43	0.63	0.09	0.60	0.16	0.34	0.62

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.09	19.42	2.08	4.16	0.29	3.84	0.55	1.48	4.01
95th-Percentile Queue Length [ft]	102.37	485.54	52.04	103.90	7.14	96.03	13.77	36.88	100.17
Approach Delay [s/veh]	93.41		23.04		22.74		20.63		
Approach LOS	F		C		C		C		
Intersection Delay [s/veh]	50.65								
Intersection LOS	F								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	30.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.092

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	65	19	113	5	13	6	9	189	44	114	216	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	19	19	0	0	0	75	0	18	72	18
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	19	132	24	13	6	9	264	44	132	288	23
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	5	36	7	4	2	2	72	12	36	78	6
Total Analysis Volume [veh/h]	71	21	143	26	14	7	10	287	48	143	313	25
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.30	0.09	0.17	0.14	0.06	0.01	0.01	0.00	0.00	0.12	0.00	0.00
d_M, Delay for Movement [s/veh]	29.67	30.26	10.06	27.79	25.05	13.27	7.94	0.00	0.00	8.29	0.00	0.00
Movement LOS	D	D	B	D	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.76	1.76	0.60	0.75	0.75	0.75	0.02	0.00	0.00	0.39	0.00	0.00
95th-Percentile Queue Length [ft/ln]	43.88	43.88	14.99	18.82	18.82	18.82	0.61	0.00	0.00	9.79	0.00	0.00
d_A, Approach Delay [s/veh]	17.79			24.81			0.23			2.47		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	5.97											
Intersection LOS	D											

Intersection Level Of Service Report

Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	38.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.260

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	4	0	2	14	0	48	28	278	8	1	289	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	19	0	0	0	113	0	0	108	18
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	0	2	33	0	48	28	391	8	1	397	22
Peak Hour Factor	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	1	10	0	14	8	117	2	0	119	7
Total Analysis Volume [veh/h]	5	0	2	40	0	58	34	469	10	1	477	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	10	19	0	11	20	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	28	28	3	17	17	0	14	14
g / C, Green / Cycle	0.32	0.32	0.32	0.03	0.19	0.19	0.00	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.06	0.02	0.13	0.01	0.00	0.13	0.13
s, saturation flow rate [veh/h]	1810	1615	1689	1810	3618	1615	1810	1900	1866
c, Capacity [veh/h]	570	509	532	60	688	307	5	303	298
d1, Uniform Delay [s]	21.22	21.19	22.47	42.95	33.98	29.76	44.87	36.75	36.77
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.03	0.01	0.76	8.11	1.20	0.04	19.71	6.02	6.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.00	0.18	0.57	0.68	0.03	0.21	0.84	0.84
d, Delay for Lane Group [s/veh]	21.25	21.20	23.23	51.06	35.19	29.80	64.58	42.77	43.03
Lane Group LOS	C	C	C	D	D	C	E	D	D
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.08	0.03	1.62	0.85	4.62	0.17	0.05	5.61	5.56
50th-Percentile Queue Length [ft/ln]	1.93	0.77	40.47	21.27	115.41	4.29	1.20	140.30	138.88
95th-Percentile Queue Length [veh/ln]	0.14	0.06	2.91	1.53	8.14	0.31	0.09	9.50	9.42
95th-Percentile Queue Length [ft/ln]	3.47	1.39	72.85	38.28	203.50	7.73	2.16	237.43	235.51

Movement, Approach, & Intersection Results

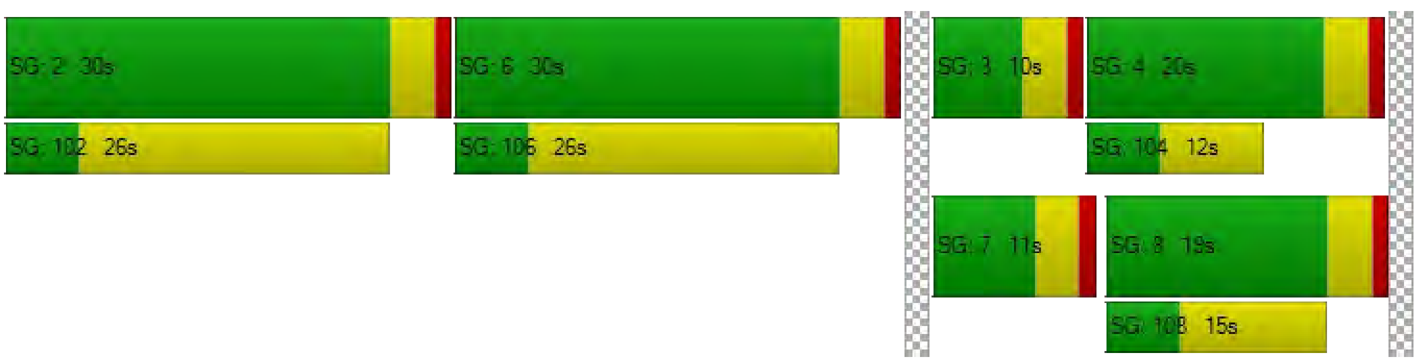
d_M, Delay for Movement [s/veh]	21.25	21.25	21.20	23.23	23.23	23.23	51.06	35.19	29.80	64.58	42.89	43.03
Movement LOS	C	C	C	C	C	C	D	D	C	E	D	D
d_A, Approach Delay [s/veh]	21.24			23.23			36.13			42.94		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.97											
Intersection LOS	D											
Intersection V/C	0.260											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.947	1.781	2.711	2.702
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	577	333	355
d_b, Bicycle Delay [s]	22.80	22.80	31.29	30.47
I_b,int, Bicycle LOS Score for Intersection	1.571	1.721	1.983	1.975
Bicycle LOS	A	A	A	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Park Drwy #2- Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	20.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.201

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	1	1	1	14	0	42	36	251	0	3	243	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	37	0	0	0	132	0	0	126	36
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1	1	51	0	42	36	383	0	3	369	50
Peak Hour Factor	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	12	10	109	0	1	105	14
Total Analysis Volume [veh/h]	1	1	1	58	0	48	41	435	0	3	419	57
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.20	0.00	0.06	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	17.89	20.38	9.64	20.66	22.88	12.85	8.41	0.00	0.00	8.18	0.00	0.00
Movement LOS	C	C	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	1.04	1.04	1.04	0.12	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.69	0.69	0.69	26.10	26.10	26.10	2.91	0.00	0.00	0.20	0.00	0.00
d_A, Approach Delay [s/veh]	15.97			17.12			0.72			0.05		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	2.10											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	19.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.202

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	23	146	228	179	181	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	37	0	0	169	162	36
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	146	228	348	343	91
Peak Hour Factor	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	40	62	95	93	25
Total Analysis Volume [veh/h]	65	159	248	379	373	99
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.20	0.21	0.23	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	18.99	10.87	9.22	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.74	0.77	0.87	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	18.55	19.27	21.64	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.23		3.65		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.97					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	34.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.959

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	91	79	176	26	31	141
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	198	0	206	0	132	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	289	79	382	26	163	141
Peak Hour Factor	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	23	112	8	48	41
Total Analysis Volume [veh/h]	338	92	447	30	191	165
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	452	533	497	470	504	504
Degree of Utilization, x	0.75	0.17	0.96	0.41	0.16	0.16

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.20	0.62	12.17	1.95	0.58	0.58
95th-Percentile Queue Length [ft]	155.08	15.48	304.31	48.63	14.53	14.53
Approach Delay [s/veh]	26.51		57.76	13.53		
Approach LOS	D		F	B		
Intersection Delay [s/veh]	34.65					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	18	32	23	229	136	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	37	33	90	95	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	69	56	319	231	10
Peak Hour Factor	0.8820	0.8820	0.8820	0.8820	0.8820	0.8820
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	20	16	90	65	3
Total Analysis Volume [veh/h]	20	78	63	362	262	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.09	0.05	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.30	9.41	7.91	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.29	0.15	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.62	7.15	3.81	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.80		1.17		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.83					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.100

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	40	51	220	27	30	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	0	72	18	0	76
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	51	292	45	30	181
Peak Hour Factor	0.9380	0.9380	0.9380	0.9380	0.9380	0.9380
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	14	78	12	8	48
Total Analysis Volume [veh/h]	63	54	311	48	32	193
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.06	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	11.71	10.29	0.00	0.00	8.05	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.59	0.59	0.00	0.00	0.08	0.00
95th-Percentile Queue Length [ft/ln]	14.64	14.64	0.00	0.00	2.03	0.00
d_A, Approach Delay [s/veh]	11.05		0.00		1.15	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.21					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	┐‖├			┐‖├			┐|┌			┐‖├		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	3	32	147	91	19	3	15	252	10	67	127	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	0	0	0	0	19	18	36	18	0	38	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	32	147	91	19	22	33	288	28	67	165	36
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	8	38	24	5	6	9	75	7	18	43	9
Total Analysis Volume [veh/h]	23	34	154	95	20	23	35	302	29	70	173	38
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	512	550	615	507	545	607	549	593	669	527	568	591
Degree of Utilization, x	0.04	0.06	0.25	0.19	0.04	0.04	0.06	0.51	0.04	0.13	0.19	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.14	0.20	0.99	0.68	0.11	0.12	0.20	2.88	0.14	0.46	0.68	0.64
95th-Percentile Queue Length [ft]	3.52	4.92	24.66	17.06	2.86	2.95	5.09	72.09	3.40	11.39	16.91	16.12
Approach Delay [s/veh]	10.32			10.73			13.88			10.36		
Approach LOS	B			B			B			B		
Intersection Delay [s/veh]	11.70											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	25.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	218	308	0	0	132	31	83	0	344	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	0	0	0	0	19	18	0	18	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	237	308	0	0	132	50	101	0	362	0	0	0
Peak Hour Factor	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	1.0000	0.9360	0.9360	0.9360	0.9360
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	82	0	0	35	13	27	0	97	0	0	0
Total Analysis Volume [veh/h]	253	329	0	0	141	53	108	0	387	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.44	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.16	0.00	0.00	7.90	0.00	0.00	25.65	24.99	12.23	52.67	23.67	10.02
Movement LOS	A	A	A	A	A	A	D	C	B	F	C	B
95th-Percentile Queue Length [veh/ln]	0.66	0.00	0.00	0.00	0.00	0.00	1.74	1.74	2.26	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	16.59	0.00	0.00	0.00	0.00	0.00	43.45	43.45	56.58	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.55			0.00			15.16			28.79		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	7.53											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 11: Project Driveway #1/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.193

Intersection Setup

Name	Project Driveway # 1		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	10.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Driveway # 1		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	0	0	255	0	0	168
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	123	0	206	0	132
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	23	-34	34	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	146	221	240	0	300
Peak Hour Factor	1.0000	1.0000	0.8550	1.0000	1.0000	0.8820
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	37	65	60	0	85
Total Analysis Volume [veh/h]	0	146	258	240	0	340
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.19	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.89	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.71	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	17.75	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.89		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.62					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 12: Pillsbury Rd/Project Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.261

Intersection Setup

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		10.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Base Volume Input [veh/h]	170	0	0	57	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	50	28	0	132	0	149
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	-5	5	16	0	5	24
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	215	33	16	189	5	173
Peak Hour Factor	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	10	5	55	1	51
Total Analysis Volume [veh/h]	251	39	19	221	6	202
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.26
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.30
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	1.05
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	26.15
d_A, Approach Delay [s/veh]	0.00		0.00		11.30	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.20					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 13: Pillsbury Rd/Brenda Lee Dr-Project Driveway #3

Control Type:	Two-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.148

Intersection Setup

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	60.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			10.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Base Volume Input [veh/h]	0	170	0	0	57	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	9	132	0	0	0	0	0	36	0	50
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	-1	1	22	-22	0	0	0	0	6	0	9
Existing Site Adjustment Volume [veh/h]	0	0	0	9	-9	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	197	10	163	26	0	0	0	0	42	0	59
Peak Hour Factor	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550	0.8550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	58	3	48	8	0	0	0	0	12	0	17
Total Analysis Volume [veh/h]	0	230	12	191	30	0	0	0	0	49	0	69
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.09
d_M, Delay for Movement [s/veh]	7.26	0.00	0.00	8.03	0.00	0.00	17.57	15.83	8.43	18.07	17.91	11.62
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.43	0.43	0.43	0.00	0.00	0.00	0.90	0.90	0.90
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	10.75	10.75	10.75	0.00	0.00	0.00	22.47	22.47	22.47
d_A, Approach Delay [s/veh]	0.00			6.94			13.95			14.30		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	5.54											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	56.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.142

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	82	275	28	285	408	23	27	147	103	40	131	150
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	15	30	0	0	0	15	0	14	14	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	275	43	315	408	23	27	162	103	54	145	179
Peak Hour Factor	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	74	12	85	110	6	7	44	28	15	39	48
Total Analysis Volume [veh/h]	88	296	46	339	439	25	29	174	111	58	156	193
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	363	385	384	464	356	383	343	360	386
Degree of Utilization, x	0.24	0.89	0.88	1.14	0.08	0.74	0.17	0.43	0.50

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.93	8.96	8.83	17.28	0.26	5.89	0.60	2.12	2.70
95th-Percentile Queue Length [ft]	23.36	223.96	220.84	431.97	6.61	147.37	15.00	52.98	67.46
Approach Delay [s/veh]	45.45		90.41		32.98		19.86		
Approach LOS	E		F		D		C		
Intersection Delay [s/veh]	56.59								
Intersection LOS	F								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	22.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	29	2	34	4	0	19	22	332	75	41	250	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	15	15	0	0	0	60	0	14	57	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	2	49	19	0	19	22	392	75	55	307	19
Peak Hour Factor	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370	0.9370
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	13	5	0	5	6	105	20	15	82	5
Total Analysis Volume [veh/h]	31	2	52	20	0	20	23	418	80	59	328	20
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.01	0.07	0.07	0.00	0.02	0.02	0.00	0.00	0.05	0.00	0.00
d_M, Delay for Movement [s/veh]	20.94	22.26	10.11	18.90	21.75	10.17	8.00	0.00	0.00	8.54	0.00	0.00
Movement LOS	C	C	B	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.43	0.43	0.22	0.32	0.32	0.32	0.06	0.00	0.00	0.17	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.85	10.85	5.52	7.90	7.90	7.90	1.44	0.00	0.00	4.34	0.00	0.00
d_A, Approach Delay [s/veh]	14.34			14.54			0.35			1.24		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.36											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.195

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	7	0	6	3	0	21	31	327	16	2	271	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	15	0	0	0	90	0	0	85	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	0	6	18	0	21	31	417	16	2	356	22
Peak Hour Factor	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	2	5	0	6	9	116	4	1	99	6
Total Analysis Volume [veh/h]	8	0	7	20	0	23	34	463	18	2	395	24
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	12	19	0	11	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	29	29	29	3	15	15	0	12	12
g / C, Green / Cycle	0.33	0.33	0.33	0.03	0.17	0.17	0.00	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.03	0.02	0.13	0.01	0.00	0.11	0.11
s, saturation flow rate [veh/h]	1810	1615	1700	1810	3618	1615	1810	1900	1862
c, Capacity [veh/h]	589	526	553	60	606	270	7	263	257
d1, Uniform Delay [s]	20.60	20.60	21.04	42.95	35.85	31.61	44.78	37.67	37.70
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.05	0.27	8.11	2.05	0.10	19.05	5.68	5.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.01	0.08	0.57	0.76	0.07	0.27	0.80	0.81
d, Delay for Lane Group [s/veh]	20.64	20.64	21.31	51.06	37.89	31.71	63.82	43.35	43.66
Lane Group LOS	C	C	C	D	D	C	E	D	D
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.12	0.11	0.67	0.85	4.76	0.32	0.08	4.69	4.65
50th-Percentile Queue Length [ft/ln]	3.03	2.67	16.72	21.27	119.00	8.06	2.03	117.20	116.13
95th-Percentile Queue Length [veh/ln]	0.22	0.19	1.20	1.53	8.34	0.58	0.15	8.24	8.18
95th-Percentile Queue Length [ft/ln]	5.45	4.80	30.10	38.28	208.45	14.50	3.66	205.97	204.49

Movement, Approach, & Intersection Results

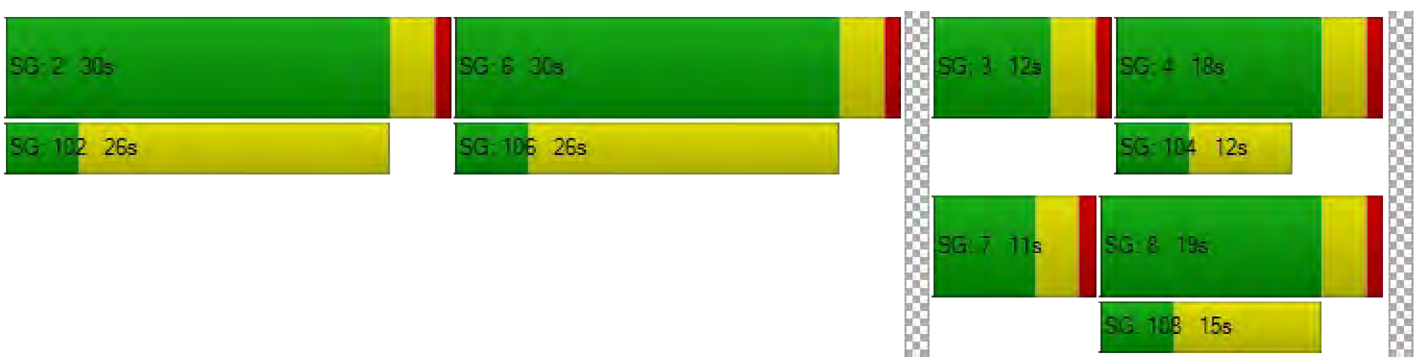
d_M, Delay for Movement [s/veh]	20.64	20.64	20.64	21.31	21.31	21.31	51.06	37.89	31.71	63.82	43.49	43.66
Movement LOS	C	C	C	C	C	C	D	D	C	E	D	D
d_A, Approach Delay [s/veh]	20.64			21.31			38.55			43.60		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.67											
Intersection LOS	D											
Intersection V/C	0.195											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.951	1.757	2.684	2.676
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	577	333	311
d_b, Bicycle Delay [s]	22.80	22.80	31.29	32.13
I_b,int, Bicycle LOS Score for Intersection	1.584	1.631	1.984	1.907
Bicycle LOS	A	A	A	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Pk Drwy #2-Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	19.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	1	2	2	11	0	3	14	321	0	9	278	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	30	0	0	0	105	0	0	99	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	2	41	0	3	14	426	0	9	377	43
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	11	0	1	4	112	0	2	100	11
Total Analysis Volume [veh/h]	1	2	2	43	0	3	15	450	0	10	398	45
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.13	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	16.32	19.04	9.72	17.92	20.21	11.28	8.24	0.00	0.00	8.24	0.00	0.00
Movement LOS	C	C	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.04	0.47	0.47	0.47	0.04	0.00	0.00	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.02	1.02	1.02	11.82	11.82	11.82	1.01	0.00	0.00	0.67	0.00	0.00
d_A, Approach Delay [s/veh]	14.77			17.49			0.27			0.18		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	1.12											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.177

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	51	140	96	201	231	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	0	0	135	128	29
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	140	96	336	359	77
Peak Hour Factor	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	37	25	89	95	20
Total Analysis Volume [veh/h]	86	148	102	356	380	81
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.19	0.09	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.01	10.71	8.57	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.64	0.70	0.30	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	15.95	17.46	7.57	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.92		1.91		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.18					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	19.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.775

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	88	33	146	104	56	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	157	0	165	0	105	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	33	311	104	161	192
Peak Hour Factor	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	9	81	27	42	50
Total Analysis Volume [veh/h]	255	34	324	108	168	200
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	480	571	557	528	570	570
Degree of Utilization, x	0.53	0.06	0.77	0.32	0.18	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.07	0.19	7.11	1.36	0.63	0.63
95th-Percentile Queue Length [ft]	76.84	4.74	177.69	34.03	15.79	15.79
Approach Delay [s/veh]	17.37		28.22	11.42		
Approach LOS	C		D	B		
Intersection Delay [s/veh]	19.66					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	13	5	7	159	239	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	30	33	70	75	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	35	40	229	314	16
Peak Hour Factor	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	10	11	63	87	4
Total Analysis Volume [veh/h]	14	39	44	252	346	18
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.05	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.18	9.52	8.10	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.15	0.11	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.80	3.67	2.84	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.96		1.20		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.24					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.088

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	42	21	136	34	36	214
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	0	56	14	0	60
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	21	192	48	36	274
Peak Hour Factor	0.9660	0.9660	0.9660	0.9660	0.9660	0.9660
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	5	50	12	9	71
Total Analysis Volume [veh/h]	59	22	199	50	37	284
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.02	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	11.01	9.59	0.00	0.00	7.79	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.38	0.38	0.00	0.00	0.09	0.00
95th-Percentile Queue Length [ft/ln]	9.45	9.45	0.00	0.00	2.15	0.00
d_A, Approach Delay [s/veh]	10.62		0.00		0.90	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.76					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.304

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	2	16	50	59	31	3	12	152	6	111	238	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	0	0	0	0	15	14	28	14	0	30	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	16	50	59	31	18	26	180	20	111	268	66
Peak Hour Factor	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	4	13	15	8	5	7	46	5	29	69	17
Total Analysis Volume [veh/h]	18	16	51	61	32	19	27	185	21	114	276	68
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	525	565	633	528	568	637	562	608	688	589	641	674
Degree of Utilization, x	0.03	0.03	0.08	0.12	0.06	0.03	0.05	0.30	0.03	0.19	0.27	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.11	0.09	0.26	0.39	0.18	0.09	0.15	1.28	0.09	0.71	1.08	1.01
95th-Percentile Queue Length [ft]	2.66	2.18	6.55	9.74	4.46	2.30	3.78	31.99	2.36	17.78	27.01	25.29
Approach Delay [s/veh]	9.15			9.81			10.70			10.15		
Approach LOS	A			A			B			B		
Intersection Delay [s/veh]	10.16											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	32.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.288

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	347	244	0	2	274	72	35	0	221	0	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	0	0	0	0	15	14	0	14	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	362	244	0	2	274	87	49	0	235	0	0	2
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	95	64	0	1	72	23	13	0	62	0	0	1
Total Analysis Volume [veh/h]	381	257	0	2	288	92	52	0	247	0	0	2
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.32	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.35	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.45	0.00	0.00	7.73	0.00	0.00	32.79	30.95	12.71	82.61	42.63	9.59
Movement LOS	A	A	A	A	A	A	D	D	B	F	E	A
95th-Percentile Queue Length [veh/ln]	1.39	0.00	0.00	0.00	0.00	0.00	1.13	1.13	1.55	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	34.86	0.00	0.00	0.09	0.09	0.09	28.32	28.32	38.77	0.19	0.19	0.19
d_A, Approach Delay [s/veh]	5.64			0.04			16.20			9.59		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	6.42											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 11: Project Driveway #1/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.155

Intersection Setup

Name	Project Driveway #1		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	10.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Driveway #1		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	0	0	179	0	0	244
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	103	0	165	0	105
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	28	-46	46	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	131	133	211	0	349
Peak Hour Factor	1.0000	1.0000	0.9610	1.0000	1.0000	0.9070
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	33	35	53	0	96
Total Analysis Volume [veh/h]	0	131	138	211	0	385
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.16	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.04	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.55	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	13.68	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.04		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.52					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 12: Pillsbury Rd/Project Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.178

Intersection Setup

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		10.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Base Volume Input [veh/h]	121	0	0	160	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	39	23	0	105	0	118
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	-7	7	21	0	6	32
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	153	30	21	265	6	150
Peak Hour Factor	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	8	5	69	2	39
Total Analysis Volume [veh/h]	159	31	22	276	6	156
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.18
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	10.01
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.65
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	16.18
d_A, Approach Delay [s/veh]	0.00		0.00		10.01	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.51					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 13: Pillsbury Rd/Brenda Lee Dr-Project Driveway #3

Control Type:	Two-way stop	Delay (sec / veh):	15.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.100

Intersection Setup

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	┐├			╋			╋			╋		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	60.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			10.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Base Volume Input [veh/h]	0	121	0	0	160	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	8	105	0	0	0	0	0	29	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	-2	2	29	-29	0	0	0	0	8	0	12
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	142	10	134	131	0	0	0	0	37	0	51
Peak Hour Factor	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	37	3	35	34	0	0	0	0	10	0	13
Total Analysis Volume [veh/h]	0	148	10	139	136	0	0	0	0	39	0	53
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.06
d_M, Delay for Movement [s/veh]	7.46	0.00	0.00	7.68	0.00	0.00	15.18	14.29	8.92	15.36	15.40	10.17
Movement LOS	A	A	A	A	A	A	C	B	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.25	0.25	0.25	0.00	0.00	0.00	0.56	0.56	0.56
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	6.27	6.27	6.27	0.00	0.00	0.00	14.01	14.01	14.01
d_A, Approach Delay [s/veh]	0.00			3.88			12.80			12.37		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	4.20											
Intersection LOS	C											

CUMULATIVE TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	67.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.297

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	227	393	44	108	217	9	29	101	100	34	100	194
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	289	501	56	138	277	11	37	129	127	43	127	247
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	125	14	35	69	3	9	32	32	11	32	62
Total Analysis Volume [veh/h]	289	501	56	138	277	11	37	129	127	43	127	247
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	403	557	378	398	372	404	362	381	410
Degree of Utilization, x	0.72	1.30	0.37	0.72	0.10	0.63	0.12	0.33	0.60

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.50	24.49	1.64	5.58	0.33	4.22	0.40	1.44	3.83
95th-Percentile Queue Length [ft]	137.39	612.17	40.97	139.47	8.22	105.57	10.01	35.94	95.84
Approach Delay [s/veh]	125.77		27.38		24.23		20.76		
Approach LOS	F		D		C		C		
Intersection Delay [s/veh]	67.52								
Intersection LOS	F								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	28.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.321

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	65	19	113	5	13	6	9	189	44	114	216	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	24	144	6	17	8	11	241	56	145	275	6
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	6	36	2	4	2	3	60	14	36	69	2
Total Analysis Volume [veh/h]	83	24	144	6	17	8	11	241	56	145	275	6
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.32	0.09	0.16	0.03	0.07	0.01	0.01	0.00	0.00	0.11	0.00	0.00
d_M, Delay for Movement [s/veh]	28.44	28.39	9.90	23.22	20.78	10.47	7.81	0.00	0.00	8.18	0.00	0.00
Movement LOS	D	D	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.92	1.92	0.58	0.35	0.35	0.35	0.03	0.00	0.00	0.38	0.00	0.00
95th-Percentile Queue Length [ft/ln]	48.10	48.10	14.62	8.69	8.69	8.69	0.64	0.00	0.00	9.59	0.00	0.00
d_A, Approach Delay [s/veh]	17.80			18.59			0.28			2.79		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	6.22											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	39.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.205

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	4	0	2	14	0	48	28	278	8	1	289	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	3	18	0	61	36	354	10	1	368	5
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	1	5	0	15	9	89	3	0	92	1
Total Analysis Volume [veh/h]	5	0	3	18	0	61	36	354	10	1	368	5
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	10	19	0	11	20	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	30	30	3	14	14	0	11	11
g / C, Green / Cycle	0.33	0.33	0.33	0.03	0.16	0.16	0.00	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.05	0.02	0.10	0.01	0.00	0.10	0.10
s, saturation flow rate [veh/h]	1810	1615	1656	1810	3618	1615	1810	1900	1891
c, Capacity [veh/h]	600	536	549	62	566	253	5	237	236
d1, Uniform Delay [s]	20.19	20.17	21.15	42.90	35.57	32.28	44.87	38.30	38.31
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.03	0.02	0.55	8.25	1.14	0.06	19.71	5.74	5.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.01	0.14	0.58	0.63	0.04	0.21	0.79	0.79
d, Delay for Lane Group [s/veh]	20.22	20.19	21.70	51.15	36.70	32.35	64.58	44.05	44.13
Lane Group LOS	C	C	C	D	D	C	E	D	D
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.07	0.05	1.25	0.90	3.53	0.18	0.05	4.18	4.17
50th-Percentile Queue Length [ft/ln]	1.87	1.13	31.25	22.49	88.34	4.53	1.20	104.46	104.27
95th-Percentile Queue Length [veh/ln]	0.13	0.08	2.25	1.62	6.36	0.33	0.09	7.52	7.51
95th-Percentile Queue Length [ft/ln]	3.36	2.03	56.24	40.49	159.01	8.15	2.16	188.03	187.68

Movement, Approach, & Intersection Results

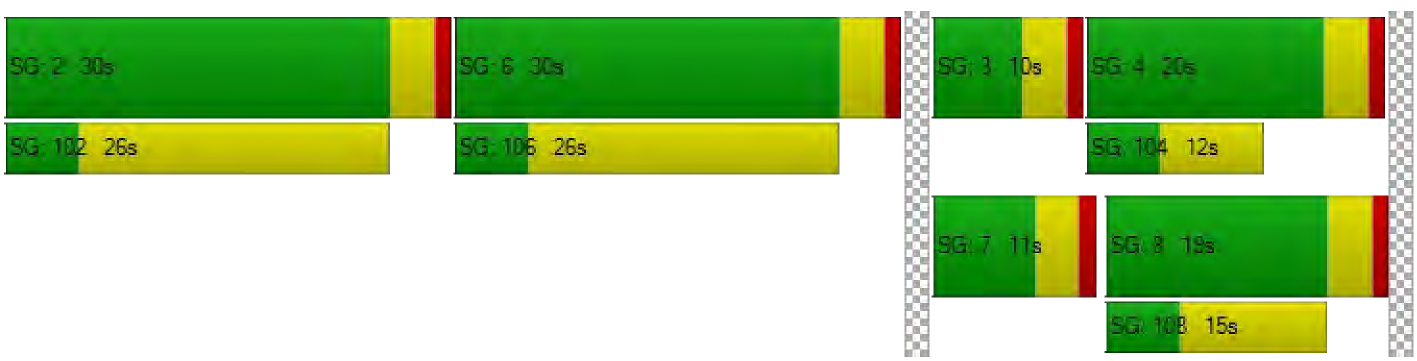
d_M, Delay for Movement [s/veh]	20.22	20.22	20.19	21.70	21.70	21.70	51.15	36.70	32.35	64.58	44.09	44.13
Movement LOS	C	C	C	C	C	C	D	D	C	E	D	D
d_A, Approach Delay [s/veh]	20.21			21.70			37.90			44.14		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.96											
Intersection LOS	D											
Intersection V/C	0.205											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.947	1.765	2.658	2.637
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	577	333	355
d_b, Bicycle Delay [s]	22.80	22.80	31.29	30.47
I_b,int, Bicycle LOS Score for Intersection	1.573	1.690	1.890	1.868
Bicycle LOS	A	A	A	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Park Drwy #2- Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	16.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	1	1	1	14	0	42	36	251	0	3	243	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1	1	18	0	54	46	320	0	4	310	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	5	0	14	12	80	0	1	78	5
Total Analysis Volume [veh/h]	1	1	1	18	0	54	46	320	0	4	310	18
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.05	0.00	0.06	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.93	15.98	9.23	15.04	16.47	9.87	8.01	0.00	0.00	7.89	0.00	0.00
Movement LOS	B	C	A	C	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.37	0.37	0.37	0.12	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.52	0.52	0.52	9.20	9.20	9.20	2.88	0.00	0.00	0.24	0.00	0.00
d_A, Approach Delay [s/veh]	13.38			11.16			1.01			0.10		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.61											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.088

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	23	146	228	179	181	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	186	291	228	231	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	47	73	57	58	18
Total Analysis Volume [veh/h]	29	186	291	228	231	70
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.21	0.23	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	17.00	10.22	8.67	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.29	0.80	0.88	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.20	20.05	22.10	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.13		4.86		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	4.75					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.399

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	91	79	176	26	31	141
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	101	224	33	40	180
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	25	56	8	10	45
Total Analysis Volume [veh/h]	116	101	224	33	40	180
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	568	700	644	608	664	664
Degree of Utilization, x	0.20	0.14	0.40	0.07	0.14	0.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.76	0.50	1.92	0.21	0.47	0.47
95th-Percentile Queue Length [ft]	18.99	12.56	47.95	5.27	11.69	11.69
Approach Delay [s/veh]	9.75		12.26	8.99		
Approach LOS	A		B	A		
Intersection Delay [s/veh]	10.44					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	18	32	23	229	136	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	41	29	292	173	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	10	7	73	43	3
Total Analysis Volume [veh/h]	23	41	29	292	173	13
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.04	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.30	8.95	7.62	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.13	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.54	3.37	1.59	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.44		0.69		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.44					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.077

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	40	51	220	27	30	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	65	281	34	38	134
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	16	70	9	10	34
Total Analysis Volume [veh/h]	51	65	281	34	38	134
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.08	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	11.32	10.01	0.00	0.00	7.95	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.54	0.54	0.00	0.00	0.09	0.00
95th-Percentile Queue Length [ft/ln]	13.41	13.41	0.00	0.00	2.34	0.00
d_A, Approach Delay [s/veh]	10.58		0.00		1.76	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.54					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	13.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	3	32	147	91	19	3	15	252	10	67	127	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	41	187	116	24	4	19	321	13	85	162	46
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	10	47	29	6	1	5	80	3	21	41	12
Total Analysis Volume [veh/h]	4	41	187	116	24	4	19	321	13	85	162	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	494	530	590	486	520	577	526	566	635	503	541	567
Degree of Utilization, x	0.01	0.08	0.32	0.24	0.05	0.01	0.04	0.57	0.02	0.17	0.19	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	0.25	1.36	0.92	0.14	0.02	0.11	3.52	0.06	0.60	0.71	0.67
95th-Percentile Queue Length [ft]	0.61	6.27	33.95	23.08	3.62	0.52	2.81	88.12	1.57	15.08	17.63	16.65
Approach Delay [s/veh]	11.32			11.92			16.36			10.88		
Approach LOS	B			B			C			B		
Intersection Delay [s/veh]	13.02											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	32.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.448

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	218	308	0	0	132	31	83	0	344	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	393	0	0	168	40	106	0	439	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	98	0	0	42	10	27	0	110	0	0	0
Total Analysis Volume [veh/h]	278	393	0	0	168	40	106	0	439	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.20	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.51	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.28	0.00	0.00	8.06	0.00	0.00	31.99	30.86	13.48	77.34	27.79	10.45
Movement LOS	A	A	A	A	A	A	D	D	B	F	D	B
95th-Percentile Queue Length [veh/ln]	0.76	0.00	0.00	0.00	0.00	0.00	2.15	2.15	2.97	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	18.90	0.00	0.00	0.00	0.00	0.00	53.76	53.76	74.18	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.43			0.00			17.08			38.53		
Approach LOS	A			A			C			E		
d_I, Intersection Delay [s/veh]	8.16											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	101.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.412

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	82	275	28	285	408	23	27	147	103	40	131	150
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	351	36	363	520	29	34	187	131	51	167	191
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	88	9	91	130	7	9	47	33	13	42	48
Total Analysis Volume [veh/h]	105	351	36	363	520	29	34	187	131	51	167	191
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	342	387	369	549	331	356	322	337	359
Degree of Utilization, x	0.31	1.07	0.98	1.41	0.10	0.89	0.16	0.50	0.53

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.27	13.81	11.31	27.51	0.34	8.81	0.56	2.63	2.98
95th-Percentile Queue Length [ft]	31.84	345.17	282.77	687.77	8.50	220.31	13.89	65.75	74.55
Approach Delay [s/veh]	82.84		165.22		52.98		22.58		
Approach LOS	F		F		F		C		
Intersection Delay [s/veh]	101.30								
Intersection LOS	F								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	22.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	29	2	34	4	0	19	22	332	75	41	250	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	3	43	5	0	24	28	423	96	52	319	6
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	1	11	1	0	6	7	106	24	13	80	2
Total Analysis Volume [veh/h]	37	3	43	5	0	24	28	423	96	52	319	6
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.01	0.06	0.02	0.00	0.03	0.02	0.00	0.00	0.05	0.00	0.00
d_M, Delay for Movement [s/veh]	21.63	22.50	10.12	17.77	21.09	9.45	7.96	0.00	0.00	8.58	0.00	0.00
Movement LOS	C	C	B	C	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.55	0.55	0.18	0.14	0.14	0.14	0.07	0.00	0.00	0.15	0.00	0.00
95th-Percentile Queue Length [ft/ln]	13.65	13.65	4.58	3.55	3.55	3.55	1.72	0.00	0.00	3.87	0.00	0.00
d_A, Approach Delay [s/veh]	15.70			10.89			0.41			1.18		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	2.21											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	40.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.171

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	7	0	6	3	0	21	31	327	16	2	271	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	0	8	4	0	27	40	417	20	3	346	10
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	2	1	0	7	10	104	5	1	87	3
Total Analysis Volume [veh/h]	9	0	8	4	0	27	40	417	20	3	346	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	13	19	0	11	17	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	30	30	3	14	14	0	11	11
g / C, Green / Cycle	0.33	0.33	0.33	0.04	0.15	0.15	0.00	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.02	0.02	0.12	0.01	0.00	0.09	0.09
s, saturation flow rate [veh/h]	1810	1615	1638	1810	3618	1615	1810	1900	1881
c, Capacity [veh/h]	602	537	545	66	549	245	10	229	227
d1, Uniform Delay [s]	20.18	20.18	20.47	42.81	36.66	32.84	44.68	38.48	38.49
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.05	0.20	8.63	2.19	0.14	17.14	5.64	5.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.01	0.06	0.61	0.76	0.08	0.31	0.78	0.78
d, Delay for Lane Group [s/veh]	20.22	20.23	20.66	51.44	38.85	32.98	61.83	44.12	44.28
Lane Group LOS	C	C	C	D	D	C	E	D	D
Critical Lane Group	Yes	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.13	0.12	0.47	1.00	4.33	0.37	0.11	4.00	3.98
50th-Percentile Queue Length [ft/ln]	3.36	3.01	11.84	24.99	108.29	9.19	2.75	99.88	99.52
95th-Percentile Queue Length [veh/ln]	0.24	0.22	0.85	1.80	7.74	0.66	0.20	7.19	7.17
95th-Percentile Queue Length [ft/ln]	6.05	5.42	21.31	44.98	193.62	16.54	4.96	179.78	179.13

Movement, Approach, & Intersection Results

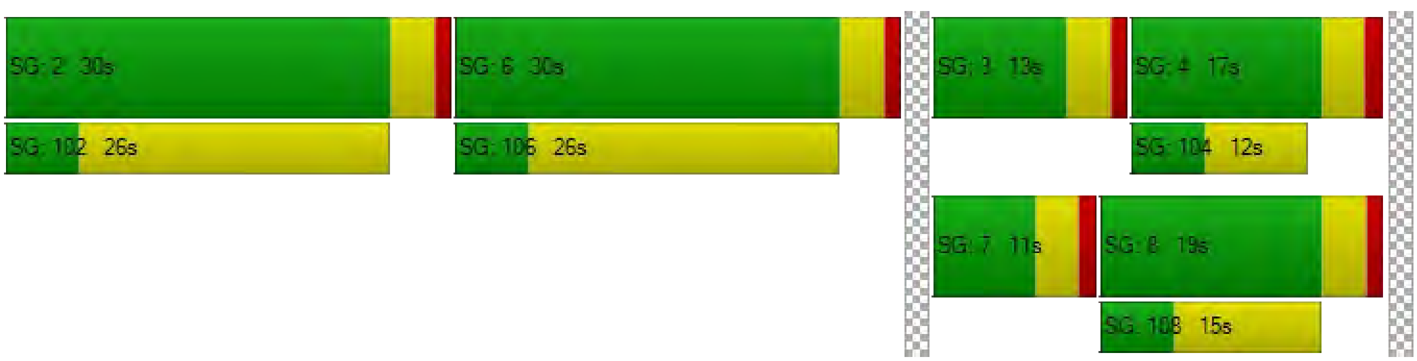
d_M, Delay for Movement [s/veh]	20.22	20.22	20.23	20.66	20.66	20.66	51.44	38.85	32.98	61.83	44.20	44.28
Movement LOS	C	C	C	C	C	C	D	D	C	E	D	D
d_A, Approach Delay [s/veh]	20.23			20.66			39.66			44.35		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	40.53											
Intersection LOS	D											
Intersection V/C	0.171											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.953	1.749	2.664	2.646
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	577	333	289
d_b, Bicycle Delay [s]	22.80	22.80	31.29	32.98
I_b,int, Bicycle LOS Score for Intersection	1.588	1.611	1.953	1.856
Bicycle LOS	A	A	A	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Pk Drwy #2-Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	1	2	2	11	0	3	14	321	0	9	278	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	3	3	14	0	4	18	409	0	11	354	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	4	0	1	5	102	0	3	89	5
Total Analysis Volume [veh/h]	1	3	3	14	0	4	18	409	0	11	354	18
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.04	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	15.39	17.27	9.60	15.46	17.39	9.74	8.05	0.00	0.00	8.13	0.00	0.00
Movement LOS	C	C	A	C	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.05	0.14	0.14	0.14	0.05	0.00	0.00	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.27	1.27	1.27	3.44	3.44	3.44	1.14	0.00	0.00	0.72	0.00	0.00
d_A, Approach Delay [s/veh]	13.72			14.19			0.34			0.23		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.70											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	13.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.126

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	51	140	96	201	231	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	179	122	256	295	61
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	45	31	64	74	15
Total Analysis Volume [veh/h]	65	179	122	256	295	61
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.21	0.10	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.96	10.44	8.30	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.43	0.80	0.33	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.71	20.10	8.36	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.11		2.68		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.81					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.484

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	88	33	146	104	56	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	42	186	133	71	245
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	11	47	33	18	61
Total Analysis Volume [veh/h]	112	42	186	133	71	245
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	536	652	659	614	672	672
Degree of Utilization, x	0.21	0.06	0.48	0.12	0.18	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.78	0.21	2.65	0.39	0.66	0.66
95th-Percentile Queue Length [ft]	19.54	5.16	66.28	9.75	16.56	16.56
Approach Delay [s/veh]	10.49		13.49	9.27		
Approach LOS	B		B	A		
Intersection Delay [s/veh]	11.21					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	13	5	7	159	239	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	6	9	203	305	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	2	2	51	76	5
Total Analysis Volume [veh/h]	17	6	9	203	305	20
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.60	9.22	7.91	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.02	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.98	0.53	0.55	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.24		0.34		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.55					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.080

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	42	21	136	34	36	214
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	27	173	43	46	273
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	7	43	11	12	68
Total Analysis Volume [veh/h]	54	27	173	43	46	273
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.03	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	10.94	9.46	0.00	0.00	7.73	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.37	0.37	0.00	0.00	0.10	0.00
95th-Percentile Queue Length [ft/ln]	9.15	9.15	0.00	0.00	2.61	0.00
d_A, Approach Delay [s/veh]	10.45		0.00		1.11	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.95					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.329

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	┐‖├			┐‖├			┐‖┌			┐‖├		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	2	16	50	59	31	3	12	152	6	111	238	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	20	64	75	40	4	15	194	8	142	303	84
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	16	19	10	1	4	49	2	36	76	21
Total Analysis Volume [veh/h]	3	20	64	75	40	4	15	194	8	142	303	84
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	509	546	609	510	549	559	545	590	663	581	632	668
Degree of Utilization, x	0.01	0.04	0.11	0.15	0.04	0.04	0.03	0.33	0.01	0.24	0.31	0.29

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	0.11	0.35	0.51	0.13	0.12	0.08	1.43	0.04	0.95	1.29	1.20
95th-Percentile Queue Length [ft]	0.45	2.85	8.76	12.81	3.13	3.07	2.12	35.79	0.91	23.83	32.33	30.01
Approach Delay [s/veh]	9.38			10.42			11.49			10.67		
Approach LOS	A			B			B			B		
Intersection Delay [s/veh]	10.70											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	47.9
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.353

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	347	244	0	2	274	72	35	0	221	0	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	442	311	0	3	349	92	45	0	282	0	0	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	111	78	0	1	87	23	11	0	71	0	0	1
Total Analysis Volume [veh/h]	442	311	0	3	349	92	45	0	282	0	0	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.39	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.43	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.22	0.00	0.00	7.86	0.00	0.00	47.86	44.23	14.50	154.74	63.78	9.93
Movement LOS	B	A	A	A	A	A	E	E	B	F	F	A
95th-Percentile Queue Length [veh/ln]	1.89	0.00	0.00	0.01	0.01	0.01	1.44	1.44	2.15	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	47.17	0.00	0.00	0.13	0.13	0.13	35.88	35.88	53.71	0.31	0.31	0.31
d_A, Approach Delay [s/veh]	6.00			0.05			19.09			9.93		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	7.08											
Intersection LOS	E											

CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	82.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.415

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	227	393	44	108	217	9	29	101	100	34	100	194
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	19	37	0	0	0	19	0	18	18	36
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	289	501	75	175	277	11	37	148	127	61	145	283
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	125	19	44	69	3	9	37	32	15	36	71
Total Analysis Volume [veh/h]	289	501	75	175	277	11	37	148	127	61	145	283
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	383	576	363	382	359	388	352	369	396
Degree of Utilization, x	0.76	1.41	0.48	0.75	0.10	0.71	0.17	0.39	0.71

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.10	28.65	2.52	6.06	0.34	5.31	0.62	1.82	5.42
95th-Percentile Queue Length [ft]	152.40	716.23	62.99	151.44	8.54	132.77	15.48	45.60	135.60
Approach Delay [s/veh]	161.62		30.42		29.54		25.64		
Approach LOS	F		D		D		D		
Intersection Delay [s/veh]	82.50								
Intersection LOS	F								

Intersection Level Of Service Report

Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	44.7
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.125

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	65	19	113	5	13	6	9	189	44	114	216	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	19	19	0	0	0	75	0	18	72	18
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	24	163	25	17	8	11	316	56	163	347	24
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	6	41	6	4	2	3	79	14	41	87	6
Total Analysis Volume [veh/h]	83	24	163	25	17	8	11	316	56	163	347	24
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.43	0.12	0.20	0.17	0.09	0.01	0.01	0.00	0.00	0.14	0.00	0.00
d_M, Delay for Movement [s/veh]	44.64	44.69	10.39	35.64	30.88	16.11	8.03	0.00	0.00	8.48	0.00	0.00
Movement LOS	E	E	B	E	D	C	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.93	2.93	0.73	1.02	1.02	1.02	0.03	0.00	0.00	0.47	0.00	0.00
95th-Percentile Queue Length [ft/ln]	73.30	73.30	18.15	25.60	25.60	25.60	0.69	0.00	0.00	11.77	0.00	0.00
d_A, Approach Delay [s/veh]	23.97			30.90			0.23			2.59		
Approach LOS	C			D			A			A		
d_I, Intersection Delay [s/veh]	7.67											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	38.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.260

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	4	0	2	14	0	48	28	278	8	1	289	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	19	0	0	0	113	0	0	108	18
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	3	37	0	61	36	467	10	1	476	23
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	1	9	0	15	9	117	3	0	119	6
Total Analysis Volume [veh/h]	5	0	3	37	0	61	36	467	10	1	476	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	10	19	0	11	20	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	28	28	3	17	17	0	14	14
g / C, Green / Cycle	0.32	0.32	0.32	0.03	0.19	0.19	0.00	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.06	0.02	0.13	0.01	0.00	0.13	0.13
s, saturation flow rate [veh/h]	1810	1615	1683	1810	3618	1615	1810	1900	1869
c, Capacity [veh/h]	570	509	530	62	687	307	5	301	296
d1, Uniform Delay [s]	21.22	21.20	22.47	42.90	33.97	29.77	44.87	36.81	36.83
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.03	0.02	0.77	8.25	1.19	0.04	19.71	6.04	6.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.01	0.18	0.58	0.68	0.03	0.21	0.83	0.84
d, Delay for Lane Group [s/veh]	21.25	21.22	23.24	51.15	35.16	29.81	64.58	42.84	43.08
Lane Group LOS	C	C	C	D	D	C	E	D	D
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.08	0.05	1.62	0.90	4.59	0.17	0.05	5.57	5.52
50th-Percentile Queue Length [ft/ln]	1.93	1.16	40.49	22.49	114.84	4.29	1.20	139.18	137.93
95th-Percentile Queue Length [veh/ln]	0.14	0.08	2.92	1.62	8.11	0.31	0.09	9.44	9.37
95th-Percentile Queue Length [ft/ln]	3.47	2.09	72.88	40.49	202.72	7.73	2.16	235.92	234.24

Movement, Approach, & Intersection Results

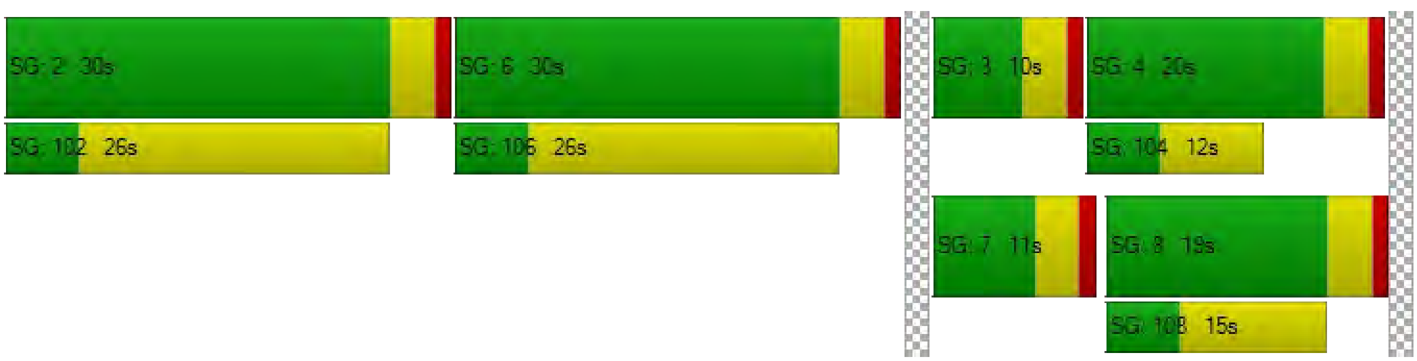
d_M, Delay for Movement [s/veh]	21.25	21.25	21.22	23.24	23.24	23.24	51.15	35.16	29.81	64.58	42.96	43.08
Movement LOS	C	C	C	C	C	C	D	D	C	E	D	D
d_A, Approach Delay [s/veh]	21.24			23.24			36.18			43.01		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.99											
Intersection LOS	D											
Intersection V/C	0.260											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.947	1.780	2.712	2.700
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	577	333	355
d_b, Bicycle Delay [s]	22.80	22.80	31.29	30.47
I_b,int, Bicycle LOS Score for Intersection	1.573	1.721	1.983	1.972
Bicycle LOS	A	A	A	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Woodland Comm Park Drwy #2- Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	21.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.204

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	1	1	1	14	0	42	36	251	0	3	243	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	37	0	0	0	132	0	0	126	36
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1	1	55	0	54	46	452	0	4	436	54
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	14	12	113	0	1	109	14
Total Analysis Volume [veh/h]	1	1	1	55	0	54	46	452	0	4	436	54
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.20	0.00	0.07	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	18.94	21.41	9.71	21.74	24.11	13.13	8.47	0.00	0.00	8.23	0.00	0.00
Movement LOS	C	C	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	1.10	1.10	1.10	0.13	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.73	0.73	0.73	27.56	27.56	27.56	3.32	0.00	0.00	0.27	0.00	0.00
d_A, Approach Delay [s/veh]	16.69			17.47			0.78			0.07		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	2.15											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	22.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.241

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	23	146	228	179	181	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	37	0	0	169	162	36
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	186	291	397	393	106
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	47	73	99	98	27
Total Analysis Volume [veh/h]	66	186	291	397	393	106
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.25	0.27	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	22.25	11.30	9.58	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.92	0.96	1.10	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	22.97	24.12	27.51	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.17		4.05		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	4.42					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	29.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.911

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	91	79	176	26	31	141
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	198	0	206	0	132	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	101	430	33	172	180
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	25	108	8	43	45
Total Analysis Volume [veh/h]	314	101	430	33	172	180
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	460	543	508	482	517	517
Degree of Utilization, x	0.68	0.19	0.91	0.36	0.17	0.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.06	0.68	10.66	1.60	0.63	0.63
95th-Percentile Queue Length [ft]	126.49	16.91	266.42	40.03	15.63	15.63
Approach Delay [s/veh]	22.14		47.60	12.67		
Approach LOS	C		E	B		
Intersection Delay [s/veh]	29.01					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.039

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	18	32	23	229	136	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	37	33	90	95	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	78	62	382	268	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	20	16	96	67	3
Total Analysis Volume [veh/h]	23	78	62	382	268	13
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.09	0.05	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.40	9.44	7.92	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.29	0.15	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.06	7.20	3.77	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.89		1.11		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.80					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.118

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	40	51	220	27	30	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	0	72	18	0	76
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	65	353	52	38	210
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	16	88	13	10	53
Total Analysis Volume [veh/h]	70	65	353	52	38	210
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.08	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	12.35	10.74	0.00	0.00	8.20	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.73	0.73	0.00	0.00	0.10	0.00
95th-Percentile Queue Length [ft/ln]	18.30	18.30	0.00	0.00	2.53	0.00
d_A, Approach Delay [s/veh]	11.57		0.00		1.26	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.38					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.632

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	3	32	147	91	19	3	15	252	10	67	127	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	0	0	0	0	19	18	36	18	0	38	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	41	187	116	24	23	37	357	31	85	200	46
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	10	47	29	6	6	9	89	8	21	50	12
Total Analysis Volume [veh/h]	23	41	187	116	24	23	37	357	31	85	200	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	487	520	576	481	514	569	525	565	632	497	533	554
Degree of Utilization, x	0.05	0.08	0.32	0.24	0.05	0.04	0.07	0.63	0.05	0.17	0.23	0.22

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.15	0.26	1.40	0.93	0.15	0.13	0.23	4.40	0.15	0.61	0.89	0.84
95th-Percentile Queue Length [ft]	3.72	6.39	35.01	23.35	3.66	3.16	5.66	110.08	3.86	15.31	22.13	21.08
Approach Delay [s/veh]	11.51			11.72			17.78			11.31		
Approach LOS	B			B			C			B		
Intersection Delay [s/veh]	13.76											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	40.4
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.562

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	218	308	0	0	132	31	83	0	344	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	0	0	0	0	19	18	0	18	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	297	393	0	0	168	59	124	0	457	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	98	0	0	42	15	31	0	114	0	0	0
Total Analysis Volume [veh/h]	297	393	0	0	168	59	124	0	457	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.00	0.00	0.00	0.00	0.00	0.56	0.00	0.54	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.41	0.00	0.00	8.06	0.00	0.00	40.42	39.08	14.08	90.71	30.19	10.45
Movement LOS	A	A	A	A	A	A	E	E	B	F	D	B
95th-Percentile Queue Length [veh/ln]	0.84	0.00	0.00	0.00	0.00	0.00	3.07	3.07	3.28	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	20.96	0.00	0.00	0.00	0.00	0.00	76.76	76.76	82.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.62			0.00			19.70			43.78		
Approach LOS	A			A			C			E		
d_I, Intersection Delay [s/veh]	9.31											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 11: Project Driveway #1/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.198

Intersection Setup

Name	Project Driveway # 1		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	10.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Driveway # 1		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	0	0	255	0	0	168
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	123	0	206	0	132
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	23	-34	34	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	146	291	240	0	346
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	37	73	60	0	87
Total Analysis Volume [veh/h]	0	146	291	240	0	346
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.20	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	11.07	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.73	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	18.29	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.07		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.58					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 12: Pillsbury Rd/Project Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.226

Intersection Setup

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		10.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Base Volume Input [veh/h]	170	0	0	57	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	50	28	0	132	0	149
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	-5	5	16	0	5	24
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	262	33	16	205	5	173
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	8	4	51	1	43
Total Analysis Volume [veh/h]	262	33	16	205	5	173
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.23
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.07
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.87
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	21.66
d_A, Approach Delay [s/veh]	0.00		0.00		11.07	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.85					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 13: Pillsbury Rd/Brenda Lee Dr-Project Driveway #3

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.119

Intersection Setup

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	60.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			10.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Base Volume Input [veh/h]	0	170	0	0	57	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	9	132	0	0	0	0	0	36	0	50
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	-1	1	22	-22	0	0	0	0	6	0	9
Existing Site Adjustment Volume [veh/h]	0	0	0	9	-9	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	244	10	163	42	0	0	0	0	42	0	59
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	61	3	41	11	0	0	0	0	11	0	15
Total Analysis Volume [veh/h]	0	244	10	163	42	0	0	0	0	42	0	59
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.07
d_M, Delay for Movement [s/veh]	7.28	0.00	0.00	7.97	0.00	0.00	16.50	15.16	8.48	16.81	16.73	11.17
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.33	0.33	0.33	0.00	0.00	0.00	0.71	0.71	0.71
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	8.35	8.35	8.35	0.00	0.00	0.00	17.69	17.69	17.69
d_A, Approach Delay [s/veh]	0.00			6.34			13.38			13.51		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	4.76											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	122.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.478

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	82	275	28	285	408	23	27	147	103	40	131	150
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	15	30	0	0	0	15	0	14	14	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	351	51	393	520	29	34	202	131	65	181	220
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	88	13	98	130	7	9	51	33	16	45	55
Total Analysis Volume [veh/h]	105	351	51	393	520	29	34	202	131	65	181	220
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	325	402	393	549	318	341	313	326	348
Degree of Utilization, x	0.32	1.18	1.11	1.48	0.11	0.98	0.21	0.55	0.63

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.37	16.62	14.87	29.22	0.36	10.70	0.77	3.18	4.11
95th-Percentile Queue Length [ft]	34.22	415.46	371.86	730.58	8.88	267.60	19.24	79.57	102.68
Approach Delay [s/veh]	113.07		195.54		70.88		26.58		
Approach LOS	F		F		F		D		
Intersection Delay [s/veh]	122.67								
Intersection LOS	F								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	28.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	29	2	34	4	0	19	22	332	75	41	250	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	15	15	0	0	0	60	0	14	57	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	3	58	20	0	24	28	483	96	66	376	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	1	15	5	0	6	7	121	24	17	94	5
Total Analysis Volume [veh/h]	37	3	58	20	0	24	28	483	96	66	376	20
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.02	0.08	0.09	0.00	0.03	0.02	0.00	0.00	0.07	0.00	0.00
d_M, Delay for Movement [s/veh]	26.56	28.00	10.49	22.34	26.13	10.71	8.14	0.00	0.00	8.83	0.00	0.00
Movement LOS	D	D	B	C	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.70	0.70	0.26	0.40	0.40	0.40	0.07	0.00	0.00	0.21	0.00	0.00
95th-Percentile Queue Length [ft/ln]	17.50	17.50	6.62	9.99	9.99	9.99	1.83	0.00	0.00	5.26	0.00	0.00
d_A, Approach Delay [s/veh]	17.09			16.00			0.38			1.26		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	2.63											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	39.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.213

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	7	0	6	3	0	21	31	327	16	2	271	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	15	0	0	0	90	0	0	85	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	0	8	19	0	27	40	507	20	3	431	24
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	2	5	0	7	10	127	5	1	108	6
Total Analysis Volume [veh/h]	9	0	8	19	0	27	40	507	20	3	431	24
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	30	0	12	19	0	11	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	29	29	29	3	16	16	0	13	13
g / C, Green / Cycle	0.32	0.32	0.32	0.04	0.18	0.18	0.00	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.03	0.02	0.14	0.01	0.00	0.12	0.12
s, saturation flow rate [veh/h]	1810	1615	1690	1810	3618	1615	1810	1900	1865
c, Capacity [veh/h]	578	516	540	66	646	288	10	280	275
d1, Uniform Delay [s]	20.99	20.99	21.47	42.81	35.39	30.81	44.68	37.27	37.30
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.05	0.31	8.63	2.15	0.10	17.14	5.82	6.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.02	0.09	0.61	0.78	0.07	0.31	0.82	0.82
d, Delay for Lane Group [s/veh]	21.04	21.05	21.78	51.44	37.53	30.91	61.83	43.09	43.37
Lane Group LOS	C	C	C	D	D	C	E	D	D
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.14	0.12	0.73	1.00	5.21	0.35	0.11	5.08	5.04
50th-Percentile Queue Length [ft/ln]	3.45	3.08	18.15	24.99	130.13	8.81	2.75	127.07	125.89
95th-Percentile Queue Length [veh/ln]	0.25	0.22	1.31	1.80	8.95	0.63	0.20	8.78	8.72
95th-Percentile Queue Length [ft/ln]	6.20	5.55	32.66	44.98	223.67	15.86	4.96	219.51	217.89

Movement, Approach, & Intersection Results

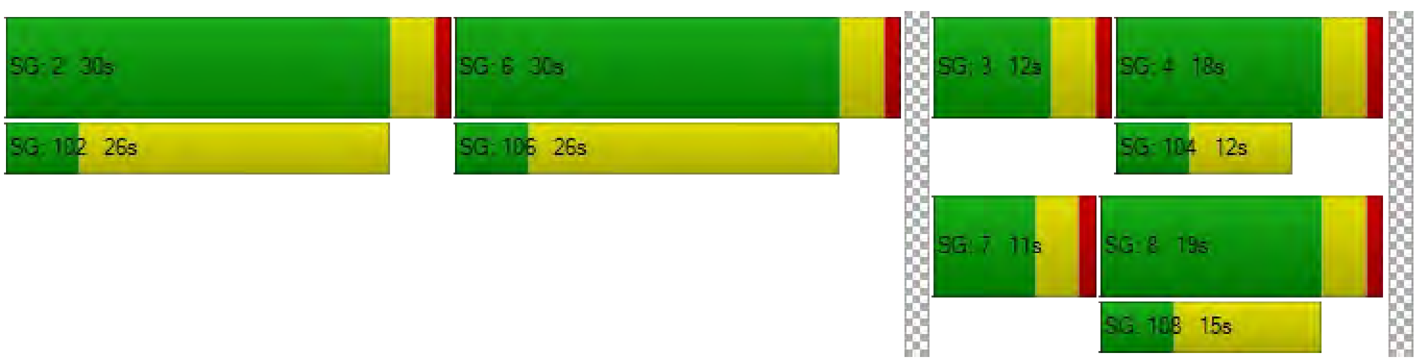
d_M, Delay for Movement [s/veh]	21.04	21.04	21.05	21.78	21.78	21.78	51.44	37.53	30.91	61.83	43.22	43.37
Movement LOS	C	C	C	C	C	C	D	D	C	E	D	D
d_A, Approach Delay [s/veh]	21.05			21.78			38.28			43.35		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	39.45											
Intersection LOS	D											
Intersection V/C	0.213											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.953	1.761	2.706	2.696
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	577	333	311
d_b, Bicycle Delay [s]	22.80	22.80	31.29	32.13
I_b,int, Bicycle LOS Score for Intersection	1.588	1.636	2.027	1.937
Bicycle LOS	A	A	B	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Woodland Comm Pk Drwy #2-Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	21.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	1	2	2	11	0	3	14	321	0	9	278	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	30	0	0	0	105	0	0	99	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	3	3	44	0	4	18	514	0	11	453	47
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	11	0	1	5	129	0	3	113	12
Total Analysis Volume [veh/h]	1	3	3	44	0	4	18	514	0	11	453	47
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.16	0.00	0.01	0.02	0.01	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	18.52	21.89	10.06	20.84	23.65	12.29	8.41	0.00	0.00	8.43	0.00	0.00
Movement LOS	C	C	B	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.07	0.59	0.59	0.59	0.05	0.00	0.00	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.65	1.65	1.65	14.85	14.85	14.85	1.28	0.00	0.00	0.78	0.00	0.00
d_A, Approach Delay [s/veh]	16.34			20.13			0.28			0.18		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	1.21											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	15.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.215

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	51	140	96	201	231	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	0	0	135	128	29
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	179	122	391	423	90
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	45	31	98	106	23
Total Analysis Volume [veh/h]	95	179	122	391	423	90
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.24	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.38	11.31	8.83	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.81	0.93	0.39	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	20.20	23.26	9.69	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.72		2.10		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.51					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	27.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.907

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	88	33	146	104	56	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	157	0	165	0	105	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	269	42	351	133	176	245
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	11	88	33	44	61
Total Analysis Volume [veh/h]	269	42	351	133	176	245
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	453	535	534	503	543	543
Degree of Utilization, x	0.59	0.08	0.91	0.35	0.23	0.23

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.76	0.25	10.73	1.55	0.86	0.86
95th-Percentile Queue Length [ft]	94.04	6.36	268.21	38.79	21.51	21.51
Approach Delay [s/veh]	20.00		45.35	12.25		
Approach LOS	C		E	B		
Intersection Delay [s/veh]	27.41					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	13	5	7	159	239	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	30	33	70	75	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	36	42	273	380	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	9	11	68	95	5
Total Analysis Volume [veh/h]	17	36	42	273	380	20
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.04	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.45	9.63	8.19	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.14	0.11	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.28	3.47	2.79	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.21		1.09		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.15					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.110

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	42	21	136	34	36	214
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	0	56	14	0	60
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	27	229	57	46	333
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	7	57	14	12	83
Total Analysis Volume [veh/h]	69	27	229	57	46	333
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.03	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	11.60	9.93	0.00	0.00	7.90	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.49	0.49	0.00	0.00	0.11	0.00
95th-Percentile Queue Length [ft/ln]	12.19	12.19	0.00	0.00	2.78	0.00
d_A, Approach Delay [s/veh]	11.13		0.00		0.96	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.88					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.383

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	2	16	50	59	31	3	12	152	6	111	238	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	0	0	0	0	15	14	28	14	0	30	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	20	64	75	40	19	29	222	22	142	333	84
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	5	16	19	10	5	7	56	6	36	83	21
Total Analysis Volume [veh/h]	18	20	64	75	40	19	29	222	22	142	333	84
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	501	537	596	503	540	600	538	580	652	566	614	645
Degree of Utilization, x	0.04	0.04	0.11	0.15	0.07	0.03	0.05	0.38	0.03	0.25	0.34	0.32

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.11	0.12	0.36	0.52	0.24	0.10	0.17	1.79	0.10	0.99	1.50	1.40
95th-Percentile Queue Length [ft]	2.79	2.90	8.97	13.02	5.98	2.45	4.26	44.72	2.62	24.65	37.47	34.97
Approach Delay [s/veh]	9.62			10.44			12.05			11.23		
Approach LOS	A			B			B			B		
Intersection Delay [s/veh]	11.18											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	62.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	347	244	0	2	274	72	35	0	221	0	0	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	0	0	0	0	15	14	0	14	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	311	0	3	349	107	59	0	296	0	0	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	78	0	1	87	27	15	0	74	0	0	1
Total Analysis Volume [veh/h]	457	311	0	3	349	107	59	0	296	0	0	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.41	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.45	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.45	0.00	0.00	7.86	0.00	0.00	61.96	57.89	15.02	178.75	69.59	9.93
Movement LOS	B	A	A	A	A	A	F	F	C	F	F	A
95th-Percentile Queue Length [veh/ln]	2.03	0.00	0.00	0.01	0.01	0.01	2.27	2.27	2.37	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	50.80	0.00	0.00	0.13	0.13	0.13	56.70	56.70	59.17	0.31	0.31	0.31
d_A, Approach Delay [s/veh]	6.22			0.05			22.82			9.93		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	8.16											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 11: Project Driveway #1/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.160

Intersection Setup

Name	Project Driveway #1		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	10.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Driveway #1		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	0	0	179	0	0	244
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	103	0	165	0	105
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	28	-46	46	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	131	182	211	0	416
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	33	46	53	0	104
Total Analysis Volume [veh/h]	0	131	182	211	0	416
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.16	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.24	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.57	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	14.21	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.24		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.43					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 12: Pillsbury Rd/Project Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.178

Intersection Setup

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		10.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Base Volume Input [veh/h]	121	0	0	160	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	39	23	0	105	0	118
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	-7	7	21	0	6	32
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	30	21	309	6	150
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	8	5	77	2	38
Total Analysis Volume [veh/h]	186	30	21	309	6	150
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.18
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	10.18
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.64
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	16.07
d_A, Approach Delay [s/veh]	0.00		0.00		10.18	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.26					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 13: Pillsbury Rd/Brenda Lee Dr-Project Driveway #3

Control Type:	Two-way stop	Delay (sec / veh):	16.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.103

Intersection Setup

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	60.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			10.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Base Volume Input [veh/h]	0	121	0	0	160	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	8	105	0	0	0	0	0	29	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	-2	2	29	-29	0	0	0	0	8	0	12
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	175	10	134	175	0	0	0	0	37	0	51
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	44	3	34	44	0	0	0	0	9	0	13
Total Analysis Volume [veh/h]	0	175	10	134	175	0	0	0	0	37	0	51
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.06
d_M, Delay for Movement [s/veh]	7.55	0.00	0.00	7.73	0.00	0.00	16.08	15.01	9.12	16.31	16.22	10.42
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.24	0.24	0.24	0.00	0.00	0.00	0.57	0.57	0.57
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	6.03	6.03	6.03	0.00	0.00	0.00	14.34	14.34	14.34
d_A, Approach Delay [s/veh]	0.00			3.35			13.40			12.90		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	3.73											
Intersection LOS	C											

CUMULATIVE PLUS PROJECT WITH MITIGATION

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.560

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	227	393	44	108	217	9	29	101	100	34	100	194
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	19	37	0	0	0	19	0	18	18	36
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	289	501	75	175	277	11	37	148	127	61	145	283
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	125	19	44	69	3	9	37	32	15	36	71
Total Analysis Volume [veh/h]	289	501	75	175	277	11	37	148	127	61	145	283
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	26	0	0	26	0	0	34	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	35	35	35	35	17	17	17	17	17
g / C, Green / Cycle	0.59	0.59	0.59	0.59	0.28	0.28	0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.26	0.31	0.21	0.15	0.04	0.16	0.05	0.08	0.18
s, saturation flow rate [veh/h]	1108	1857	850	1887	975	1757	1122	1900	1615
c, Capacity [veh/h]	663	1090	445	1108	294	492	235	532	452
d1, Uniform Delay [s]	10.58	7.42	14.43	6.04	21.04	18.45	25.53	16.85	18.87
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.08	1.83	2.60	0.57	0.19	1.00	0.58	0.27	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.53	0.39	0.26	0.13	0.56	0.26	0.27	0.63
d, Delay for Lane Group [s/veh]	12.66	9.26	17.03	6.61	21.23	19.45	26.11	17.12	20.30
Lane Group LOS	B	A	B	A	C	B	C	B	C
Critical Lane Group	No	Yes	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.50	3.71	1.91	1.46	0.40	2.89	0.77	1.36	3.07
50th-Percentile Queue Length [ft/ln]	62.40	92.82	47.66	36.52	10.12	72.15	19.30	34.11	76.83
95th-Percentile Queue Length [veh/ln]	4.49	6.68	3.43	2.63	0.73	5.19	1.39	2.46	5.53
95th-Percentile Queue Length [ft/ln]	112.31	167.08	85.80	65.73	18.21	129.87	34.74	61.40	138.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.66	9.26	9.26	17.03	6.61	6.61	21.23	19.45	19.45	26.11	17.12	20.30
Movement LOS	B	A	A	B	A	A	C	B	B	C	B	C
d_A, Approach Delay [s/veh]	10.40			10.55			19.66			20.08		
Approach LOS	B			B			B			C		
d_I, Intersection Delay [s/veh]	14.01											
Intersection LOS	B											
Intersection V/C	0.560											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	2.789
Crosswalk LOS	F	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	733	1000	1000
d_b, Bicycle Delay [s]	12.04	12.04	7.50	7.50
I_b,int, Bicycle LOS Score for Intersection	2.987	2.324	2.074	2.366
Bicycle LOS	C	B	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	15.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	82	275	28	285	408	23	27	147	103	40	131	150
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	15	30	0	0	0	15	0	14	14	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	351	51	393	520	29	34	202	131	65	181	220
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	88	13	98	130	7	9	51	33	16	45	55
Total Analysis Volume [veh/h]	105	351	51	393	520	29	34	202	131	65	181	220
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	31	0	0	31	0	0	29	0	0	29	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	34	34	18	18	18	18	18
g / C, Green / Cycle	0.57	0.57	0.57	0.57	0.30	0.30	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.12	0.22	0.39	0.29	0.03	0.19	0.06	0.10	0.14
s, saturation flow rate [veh/h]	872	1858	998	1882	999	1777	1064	1900	1615
c, Capacity [veh/h]	428	1055	532	1069	314	531	233	568	482
d1, Uniform Delay [s]	14.26	7.15	17.07	7.91	20.19	18.16	25.52	16.31	17.08
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	1.05	8.90	1.76	0.15	1.22	0.64	0.32	0.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.38	0.74	0.51	0.11	0.63	0.28	0.32	0.46
d, Delay for Lane Group [s/veh]	15.62	8.19	25.97	9.67	20.34	19.38	26.16	16.63	17.75
Lane Group LOS	B	A	C	A	C	B	C	B	B
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.08	2.40	5.64	3.69	0.36	3.51	0.83	1.68	2.16
50th-Percentile Queue Length [ft/ln]	26.89	59.99	140.94	92.16	9.02	87.83	20.67	41.94	54.04
95th-Percentile Queue Length [veh/ln]	1.94	4.32	9.53	6.64	0.65	6.32	1.49	3.02	3.89
95th-Percentile Queue Length [ft/ln]	48.41	107.99	238.29	165.88	16.24	158.10	37.20	75.49	97.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.62	8.19	8.19	25.97	9.67	9.67	20.34	19.38	19.38	26.16	16.63	17.75
Movement LOS	B	A	A	C	A	A	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	9.73			16.47			19.47			18.49		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	15.87											
Intersection LOS	B											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	3.165
Crosswalk LOS	F	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	900	833	833
d_b, Bicycle Delay [s]	9.08	9.08	10.21	10.21
I_b,int, Bicycle LOS Score for Intersection	2.396	3.114	2.165	2.329
Bicycle LOS	B	C	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SIGNAL WARRANT ANALYSIS WORKSHEETS

PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: **AM**

Scenario: **CP**

Major Street: **South Main Street**

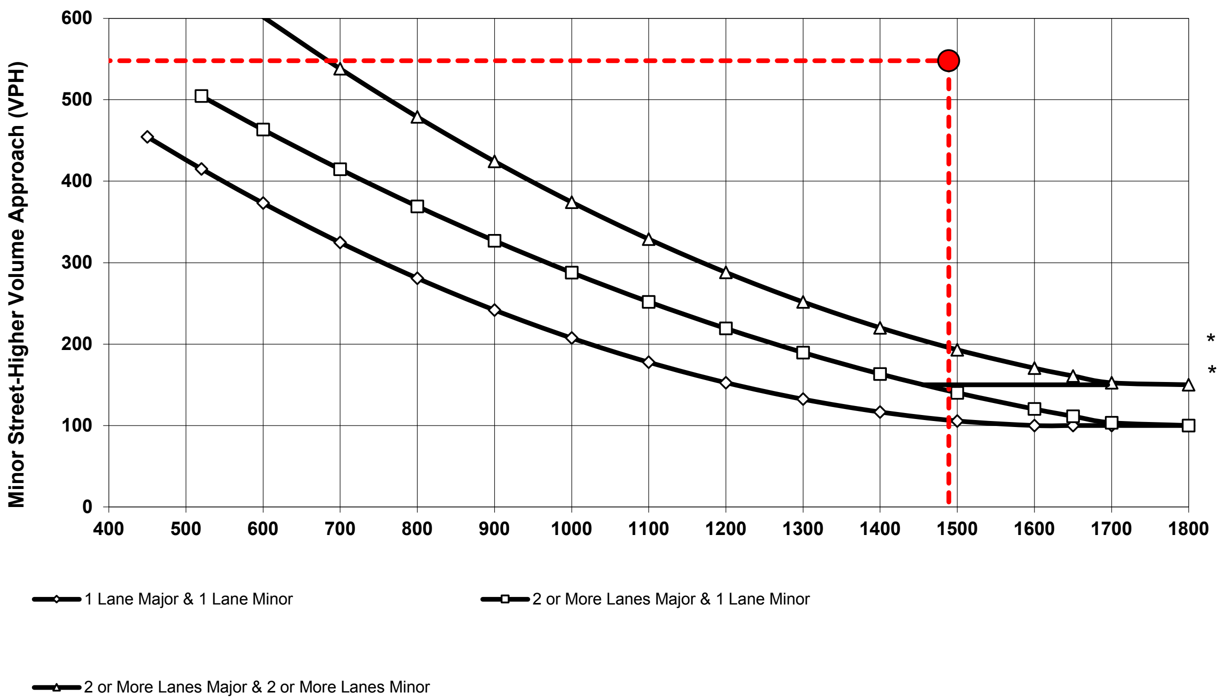
Minor Street: **East Woodward Avenue**

Total of Both Approaches (VPH): **1489**
Number of Approach Lanes: **2**

Higher Volume Approach (VPH): **548**
Number of Approach Lanes: **2**

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revision 3 (March 9, 2018)

CP Conditions
AM Peak Hour Volume Warrant
South Main Street / East Woodward Avenue

PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: PM

Scenario: CP

Major Street: South Main Street

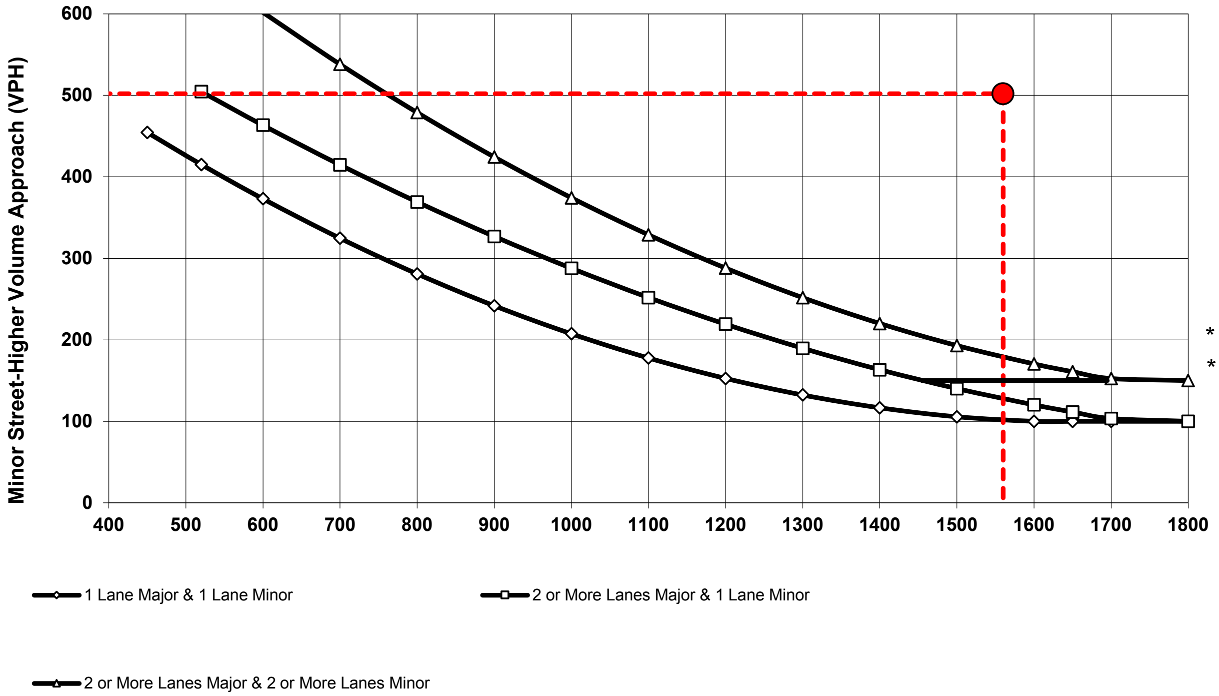
Minor Street: East Woodward Avenue

Total of Both Approaches (VPH): 1560
Number of Approach Lanes: 2

Higher Volume Approach (VPH): 502
Number of Approach Lanes: 2

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revision 3 (March 9, 2018)

CP Conditions
PM Peak Hour Volume Warrant
South Main Street / East Woodward Avenue

TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

August 27, 2024

Ms. Rayanna Beck
BASECAMP ENVIRONMENTAL, INC.
802 West Lodi Avenue
Lodi, CA 95240

SUBJECT: Pillsbury Site Plan VMT Screening, City of Manteca

Dear Ms. Beck,

TJW Engineering, Inc. (TJW) is pleased to submit this Vehicle Miles Traveled (VMT) Screening for the proposed Pillsbury Site project located at 1840 Pillsbury Road in the City of Manteca. The proposed project is for the construction of a 16-pump gasoline station with a 5,000 square foot convenience store, a 2,600 square foot fast food restaurant with drive through, and a 9,045 square foot retail space. The purpose of this memorandum is to summarize the project VMT Screening.

Proposed Project

The site for the proposed project is located at 1840 Pillsbury Road in the City of Manteca. The proposed project is for the construction of a 16-pump gasoline station with a 5,000 square foot convenience store, a 2,600 square foot fast food restaurant with drive through, and a 9,045 square foot retail space. A site plan is attached for reference.

Site access will be provided via Site access is planned via three driveways, one right-in/right-out (RI/RO) on East Woodward Avenue and two on Pillsbury Road, the northerly being RI/RO and the southerly full-access.

Vehicle Miles Traveled (VMT) Screening

Senate Bill (SB) 743 was adopted in 2013 requiring the Governor's Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts within the California Environmental Quality Act (CEQA). For land use projects, OPR has identified Vehicle Miles Traveled (VMT) as the new metric for transportation analysis under CEQA. The regulatory changes to the CEQA guidelines that implement SB 743 were approved on December 28th, 2018, with an implementation date of July 1st, 2020, as the new metric.

The *City of Manteca SB 743 Implementation Policy* (2022) provides screening criteria and requirements for VMT assessment of land use projects. One of the screening criteria is that a locally-serving retail shopping center of 125,000 square feet or less is exempt from further VMT analysis. As the combined square footage of the proposed project's buildings equal less than 125,000 square feet, the project does not meet the threshold requiring a VMT analysis. Of note, the total square footage includes an additional 12,000 square feet for additional retail and fast-food anticipated to be added to the project site, but which are not currently part of the proposed project.

Summary

This memorandum provides an overview of the VMT screening for the proposed project. Based on the *City AB 743 Policy* VMT screening thresholds, the total square footage of the proposed project does not meet the locally-serving retail threshold requiring a VMT analysis.

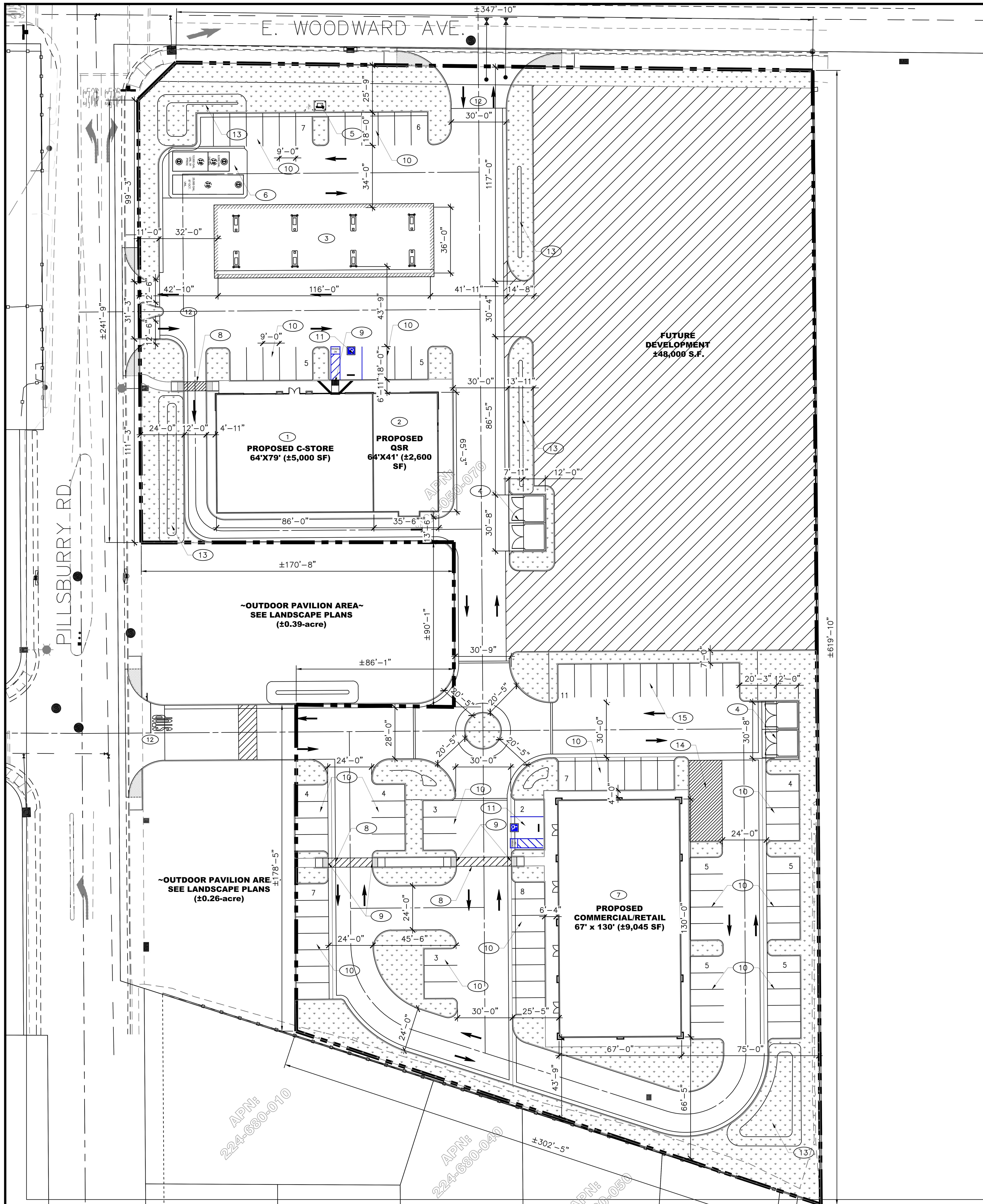
Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,

Thomas Wheat, PE, TE
President
Registered Civil Engineer *#69467*
Registered Traffic Engineer *#2565*

David Chew, PTP
Transportation Planner

Travis Yokota
Assistant Transportation Planner



01 **SITE PLAN**
SCALE: 1"=30'

N

SITE INFORMATION

SITE	**AREA OF PROPERTY**					**AREA**
	GROSS AREA					177,593 SQ.FT.
	DEDICATIONS, EASEMENTS					
	NET BUILDABLE AREA					
	GROSS AREA (IN ACRES)					±4.07 ACRES
	ZONING					ZONE
	ASSESSORS PARCEL NUMBER					224-050-070
LANDS	DESCRIPTION			PERCENT		AREA
	LANDSCAPE REQUIRED					-
	LANDSCAPING PROVIDED (ON-SITE)			16.96%		30,137 SQ. FT.
STRUCTURES	DESCRIPTION	SIZE	OCC	CONS.. TYPE	STATUS	AREA
	C-STORE	65-3" x 86'-0"	M	V-B	NEW	5,000 SQ. FT.
	Q.S.R.	65'-3" x 35'-6"	A-2	V-B	NEW	2,600 SQ. FT.
	CANOPY	116'-0" x 36'-0"	M	II-B	NEW	4,200 SQ. FT.
	RETAIL	130'-0" x 67'-0"	M	V-B	NEW	9,045 SQ. FT.
					TOTAL BUILDING AREA:	20,845 SQ.FT.
	% OF LOT COVERAGE (EXCLUDING CANOPY)			BUILDING AREA 16,645 SQ. FT. / NET LOT AREA 177,593 SQ. FT.		= (±9.37%)
PARKING	DESCRIPTION (REQUIRED PARKING)			RATIO		REQD. #
	CONVENIENCE STORE			1 PER PUMP + 1 PER SERVICE BAY		8 SPACE(S)
	Q.S.R.			1 PER 100 SQ.FT.		26 SPACE(S)
	RETAIL			4 PER 1000 SQ.FT.		36 SPACE(S)
	TOTAL PARKING SPACES REQUIRED:					70 SPACE(S)
	DESCRIPTION (PROVIDED PARKING)				SIZE	PROVIDED
	STANDARD (VEHICLE)				9'-0"X18'-0"	87
	ACCESSIBLE SPACE(S)				17'-0"X20'-0"	2
				TOTAL PARKING SPACES PROVIDED:		89 - SPACE(S)

KEY PLAN

1. NEW C- STORE ±5,000 SF
2. NEW Q.S.R. 2,600 SF
3. NEW CANOPY 8 MPD
4. NEW TRASH ENCLOSURE
5. NEW CANISTER
6. NEW UNDERGROUND GASOLINE TANKS CONCRETE SLAB: 7" CONCRETE SLAB W/#3 REBAR @ 18" O.C. EACH WAY OVER 8" COMPACT BASE MATERIAL AND GRADE OR PER SOILS REPORT AND RECOMMENDATIONS. REINFORCING BARS TO BE NO LESS THAN 2" AND NO MORE THAN 4" FROM SURFACE.
7. NEW RETAIL ±9,045 SF
8. NEW PATH OF TRAVEL. SLOPE MAX 5% ON DIRECTION OF TRAVEL AND 2% CROSS SLOPE. VERIFY COMPLIANCE
9. NEW ACCESSIBLE RAMP WITH TRUNCATED DOMES.
10. NEW PARKING STANDARDS
11. NEW ACCESSIBLE PARKING SPACE.
12. NEW DRIVEWAY
13. BIORETENTION
14. NEW LOADING PARKING
15. NEW LANDSCAPE

AGCDC.COM
AGC DESIGN CONCEPT, INC.
24820 ORCHARD VILLAGE RD
STE.A311
Valencia, CA 91355
Phone: 661.295.1111

NO. | DATE | REVISIONS | BY

NEW DEVELOPMENT
1840 PILLSBURY RD.
MANTECA, CA
SITE PLAN

consultant job#
master release date
project exe date
master drawn by
Filename AGC
Facility/Project
sheet name
CUP-1

October 22, 2024

TJW ENGINEERING, INC.
TRAFFIC ENGINEERING & TRANSPORTATION PLANNING CONSULTANTS

Ms. Rayanna Beck
BASECAMP ENVIRONMENTAL, INC.
802 West Lodi Avenue
Lodi, CA 95240

**SUBJECT: Supplement to Pillsbury Site Plan Traffic Impact Analysis dated August 30, 2024
City of Manteca**

Dear Ms. Beck,

TJW Engineering, Inc. (TJW) is pleased to submit this Supplemental Analysis to the Pillsbury Site Plan Traffic Impact Analysis (TIA), dated August 30, 2024. The proposed project is located at 1840 Pillsbury Road in the City of Manteca. In consideration of the high level of activity on Saturday mornings at Woodland Community Park, located within the TIA study area, and its potential traffic impacts, the purpose of this Supplemental Analysis to the TIA is to provide analysis of traffic conditions for a typical Saturday.

The Supplemental Analysis follows the parameters and methodology outlined in the TIA. Both TIA and Supplement have been prepared in coordination with the City of Manteca via a scoping agreement and follows the *City of Manteca General Plan Update (City General Plan)* (April 2023) and the *City of Manteca Transportation Impact Analysis Guidelines (City Guidelines).*

PROJECT TRIP GENERATION

The *Institute of Transportation Engineers (ITE) Trip Generation Manual* (11th Edition, 2021) provides trip generation rates for Saturday peak hour of generator for the proposed land uses. As the Saturday peak hour of generator for each proposed project land use may not align with the Saturday AM peak period, or analysis period, the Saturday AM peak hour rates for this analysis were calculated by taking the ITE Saturday peak of generator rates for each project land use and applying the ratio between the individual ITE weekday AM peak hour rates and the weekday AM peak of generator rates for the same land use.

Table 1 summarizes the projected Saturday volumes of the proposed project. When completed along with the future development[1], 664 Saturday peak hour trips are expected to be generated.

[1] A portion of the proposed project site has been set aside for future development and is not part of the current proposal to the City. However, the future development is included in this analysis since it shares the proposed project's driveways.

Table 1
Proposed Project Saturday Trip Generation

Proposed Land Use	ITE Code	Qty	Unit[3]	Saturday AM Peak Hour				
				Rate[4]	In:Out Split	Volume		
						In	Out	Total
Convenience Store/Gas Station GFA (4-5.5K), VFP (>8)	945	16	VFP	20.44	51:49	167	160	327
Pass-By Trips (0.15 Daily & AM, 0.25 PM)[1]						*-25*	*-24*	*-49*
Fast Food Restaurant with Drive-Through Window	934	2.6	TSF	48.74	51:49	65	62	127
Pass-By Trips (0.15 Daily & AM, 0.25 PM)[1]						*-10*	*-9*	*-19*
Strip Retail Plaza (<40k)	822	9.0	TSF	2.04	51:49	9	9	18
Fast Food Restaurant with Drive-Through Window[2]	934	6.0	TSF	48.74	51:49	149	143	292
Pass-By Trips (0.15 Daily & AM, 0.25 PM)[1]						*-22*	*-21*	*-44*
Strip Retail Plaza (<40k)[2]	822	6.0	TSF	2.04	51:49	6	6	12

Results		In	Out	Total
Subtotal		396	380	776
Pass-By Trips		-57	-55	-112
Net Total		**339**	**325**	**664**

1: Pass-by rates are from the City of Manteca Transportation Impact Analysis Guidelines.
2: Future Development not part of the current proposed project is included for the purposes of the analysis.
3: VFP = Vehicle Fueling Positions; TSF = Thousand Square Feet.
4: Rates are based on ITE weekday AM peak hour, ITE weekday AM peak of generator, and Saturday peak of generator rates.

EXISTING TRAFFIC CONDITIONS

TJW Engineering coordinated with City and local staff to identify the appropriate Saturday morning peak period. This morning peak was determined to occur between 7:00 AM and 11:00 AM. Traffic counts at the study intersections were collected during this period on Saturday, September 7, 2024. Based on the counts collected, the peak occurred between 10:00 AM and 11:00 AM. As a result, this analysis defines the AM peak during this time period. Detailed traffic count data is provided in **Appendix A**. The *Existing* Saturday AM peak hour volumes at each study intersection are shown in **Exhibit 1**.

The Saturday AM peak hour *Existing* traffic conditions are shown in **Table 2**. HCM Analysis sheets are provided in **Appendix B**.

Table 2
Intersection Analysis – Existing Conditions – Saturday AM Peak Hour

Intersection			Control Type[1]	Target LOS	Existing Conditions	
					Delay[2]	LOS
1	South Main Street	East Woodward Avenue	AWSC	D	37.7	E
2	Buena Vista Drive	East Woodward Avenue	TWSC	D	17.8	C
3	Queensland Avenue	East Woodward Avenue	Signal	D	38.9	D
4	Wellington Avenue	East Woodward Avenue	TWSC	D	14.9	B
5	Van Ryn Avenue	East Woodward Avenue	TWSC	D	10.9	B
6	Pillsbury Road	East Woodward Avenue	AWSC	D	10.9	B
7	Adora Drive	East Woodward Avenue	TWSC	D	10.0	A
8	Memorial Lane	East Woodward Avenue	TWSC	D	10.2	B
9	East Atherton Drive	East Woodward Avenue	AWSC	D	10.3	B
10	Moffat Boulevard	East Woodward Avenue	TWSC	D	26.3	D

1: AWSC = All-Way Stop-Control; TWSC = Two-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 2**, the study intersections under *Existing* traffic conditions are currently operating at an acceptable LOS during the Saturday AM peak hour with the exception of;

- Intersection 1: South Main Street/East Woodward Avenue.

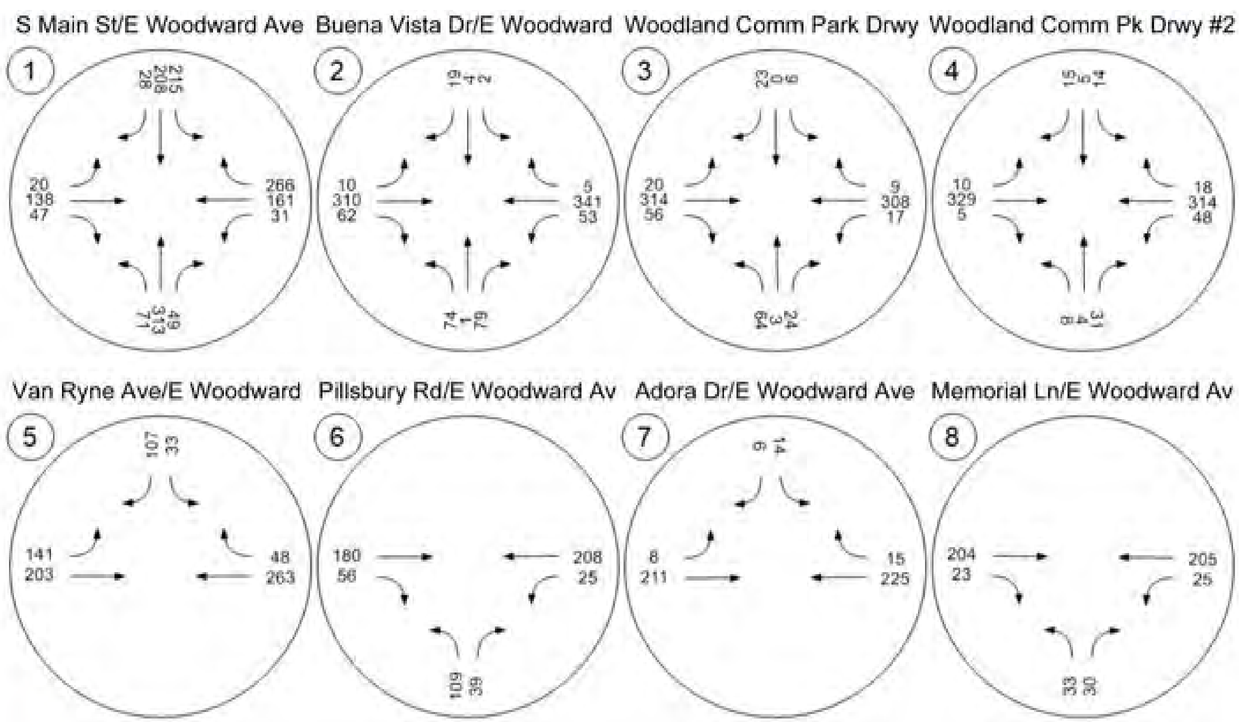


Exhibit 1: Existing Saturday AM Peak Hour Volumes

Traffic Impact Analysis

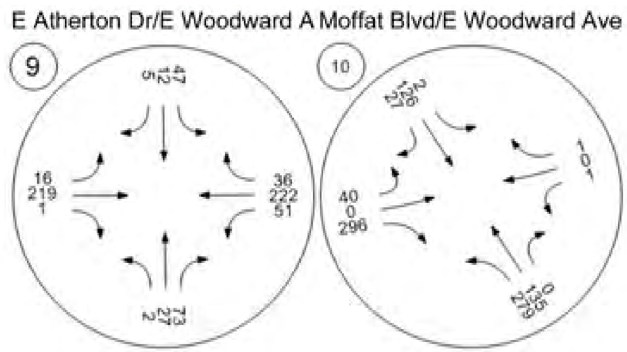


Exhibit 1: Existing Saturday AM Peak Hour Volumes

Traffic Impact Analysis

TJW Engineering, Inc.

BAS-23-001

Not to Scale

EXISTING PLUS PROJECT TRAFFIC CONDITIONS (EP)

The *Existing Plus Project (EP)* Saturday AM peak hour volumes at each study intersection are shown in **Exhibit 2**. The intersection analysis of the *EP* traffic conditions are shown in **Table 3.** HCM analysis reports are provided in **Appendix B**.

Table 3

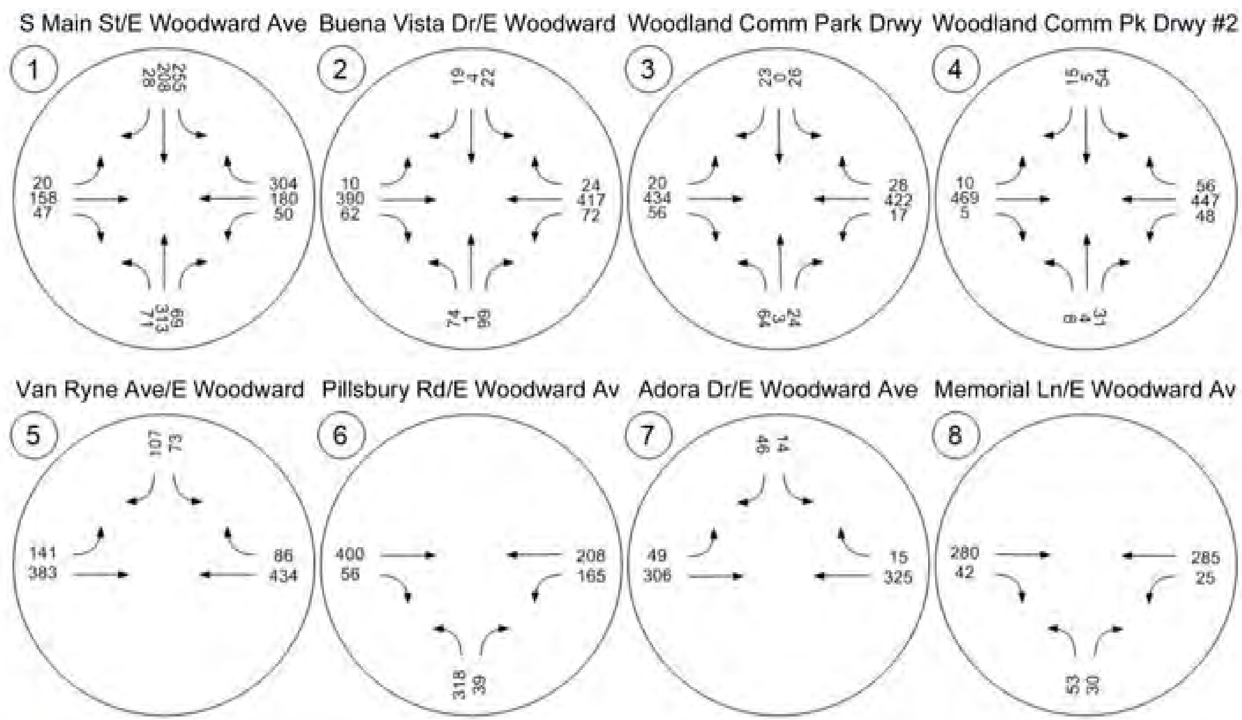
Intersection Analysis – Existing Plus Project Conditions – Saturday AM Peak Hour

Intersection			Control Type[1]	Target LOS	Existing Conditions		Existing Plus Project Conditions	
					Delay[2]	LOS	Delay[2]	LOS
1	South Main Street	East Woodward Avenue	AWSC	D	37.7	E	45.7	E
2	Buena Vista Drive	East Woodward Avenue	TWSC	D	17.8	C	23.0	C
3	Queensland Avenue	East Woodward Avenue	Signal	D	38.9	D	38.2	D
4	Wellington Avenue	East Woodward Avenue	TWSC	D	14.9	B	27.4	D
5	Van Ryn Avenue	East Woodward Avenue	TWSC	D	10.9	B	13.4	B
6	Pillsbury Road	East Woodward Avenue	AWSC	D	10.9	B	41.7	E
7	Adora Drive	East Woodward Avenue	TWSC	D	10.0	A	10.1	B
8	Memorial Lane	East Woodward Avenue	TWSC	D	10.2	B	11.1	B
9	East Atherton Drive	East Woodward Avenue	AWSC	D	10.3	B	10.9	B
10	Moffat Boulevard	East Woodward Avenue	TWSC	D	26.3	D	29.5	D
11	Project Driveway #1	East Woodward Avenue	TWSC	D	-	-	9.4	A
12	Pillsbury Road	Project Driveway #2	TWSC	D	-	-	9.2	A
13	Pillsbury Road	Project Driveway #3	TWSC	D	-	-	10.2	B

1: AWSC = All-Way Stop-Control; TWSC = Two-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 3**, the study intersections under *EP* traffic conditions are currently operating at an acceptable LOS during the Saturday AM peak hour with the exception of;

- Intersection 1: South Main Street/East Woodward Avenue
- Intersection 6: Pillsbury Road/East Woodward Avenue.



TJW Engineering, Inc.

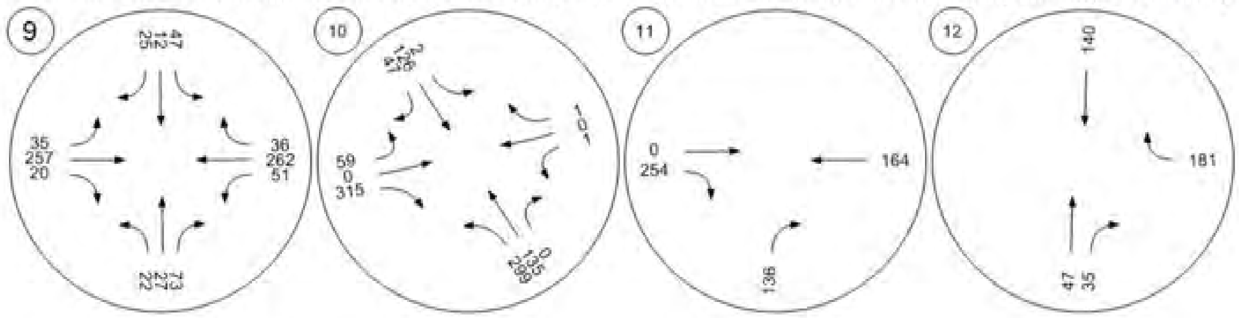
Exhibit 2: EP Saturday AM Peak Hour Volumes

Traffic Impact Analysis

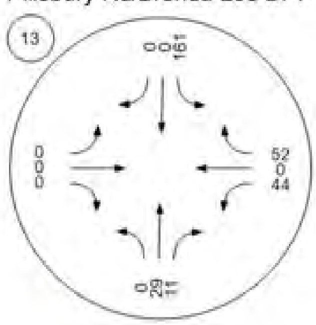
BAS-23-001

Not to Scale

E Atherton Dr/E Woodward A Moffat Blvd/E Woodward Ave Project Driveway #1/E Wood Pillsbury Rd/Project Driveway



Pillsbury Rd/Brenda Lee Dr-P



CUMULATIVE TRAFFIC CONDITIONS

The *Cumulative* Saturday AM peak hour volumes at each study intersection are shown in **Exhibit 3**. *Cumulative* volumes are traffic volumes projected for the City of Manteca horizon year, 2040, using an annual growth rate based on the San Joaquin County Demographic and Employment Forecast (September 2020) population projections for the City. The intersection analysis of the *Cumulative* traffic conditions are shown in **Table 4.** HCM analysis reports are provided in **Appendix B**.

Table 4
Intersection Analysis – Cumulative Conditions – Saturday AM Peak Hour

Intersection			Control Type[1]	Target LOS	Cumulative Conditions	
					Delay[2]	LOS
1	South Main Street	East Woodward Avenue	AWSC	D	57.5	F
2	Buena Vista Drive	East Woodward Avenue	TWSC	D	19.7	C
3	Queensland Avenue	East Woodward Avenue	Signal	D	38.5	D
4	Wellington Avenue	East Woodward Avenue	TWSC	D	16.4	C
5	Van Ryn Avenue	East Woodward Avenue	TWSC	D	11.2	B
6	Pillsbury Road	East Woodward Avenue	AWSC	D	11.4	B
7	Adora Drive	East Woodward Avenue	TWSC	D	10.2	B
8	Memorial Lane	East Woodward Avenue	TWSC	D	10.4	B
9	East Atherton Drive	East Woodward Avenue	AWSC	D	11.4	B
10	Moffat Boulevard	East Woodward Avenue	TWSC	D	36.2	E

1: AWSC = All-Way Stop-Control; TWSC = Two-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 4**, the study intersections under *Cumulative* traffic conditions are currently operating at an acceptable LOS during the Saturday AM peak hour with the exception of;

- Intersection 1: South Main Street/East Woodward Avenue
- Intersection 10: Moffat Boulevard/East Woodward Avenue.

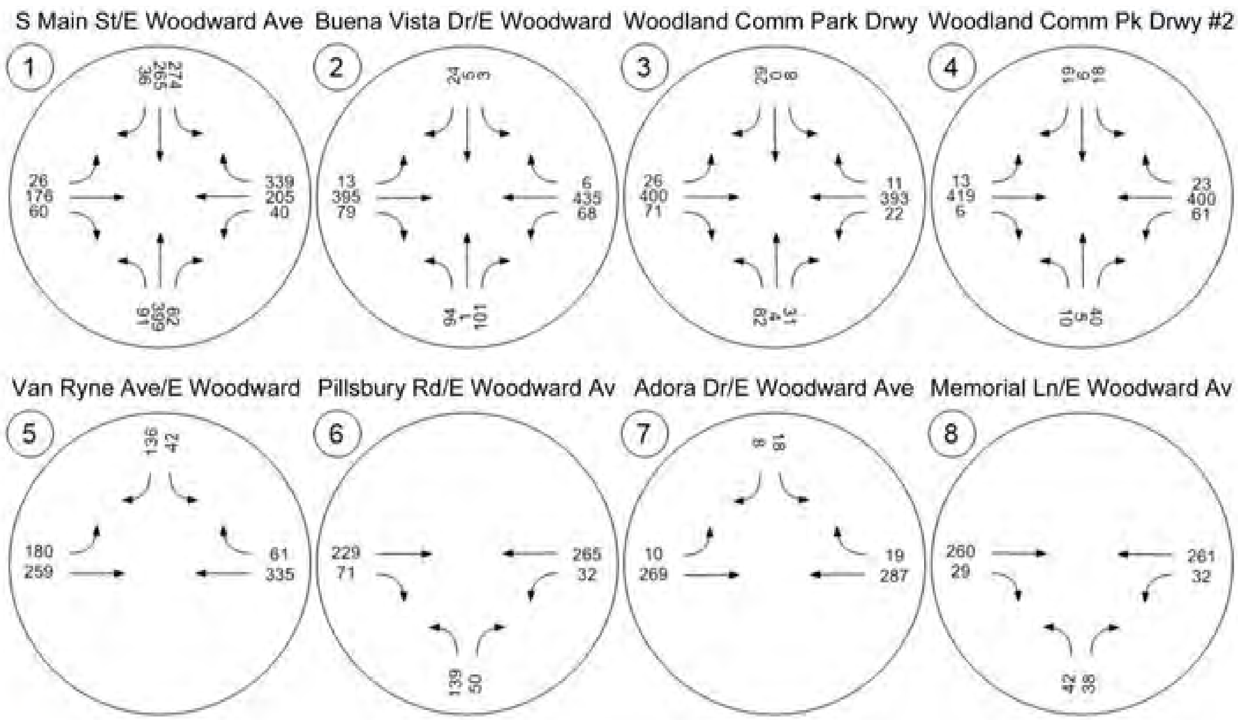


Exhibit 3: Cumulative Saturday AM Peak Hour Volumes

Traffic Impact Analysis

BAS-23-001

Not to Scale

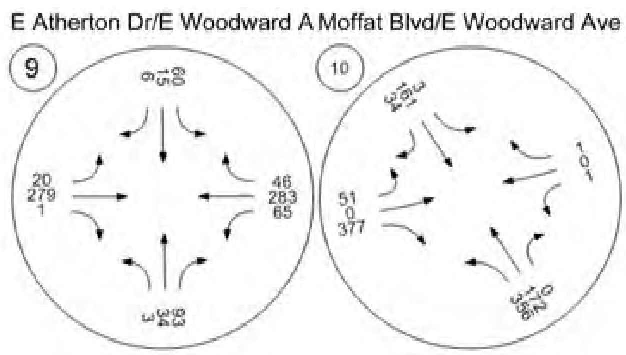


Exhibit 3: Cumulative Saturday AM Peak Hour Volumes

Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW ENGINEERING, INC.

CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS (CP)

The *Cumulative Plus Project (CP)* Saturday AM peak hour volumes at each study intersection are shown in **Exhibit 4**. The intersection analysis of the *CP* traffic conditions are shown in **Table 5.** HCM analysis reports are provided in **Appendix B**.

Table 5

Intersection Analysis – Cumulative Plus Project Conditions – Saturday AM Peak Hour

Intersection			Control Type[1]	Target LOS	Cumulative Conditions		Cumulative Plus Project Conditions	
					Delay[2]	LOS	Delay[2]	LOS
1	South Main Street	East Woodward Avenue	AWSC	D	57.5	F	77.0	F
2	Buena Vista Drive	East Woodward Avenue	TWSC	D	19.7	C	25.2	D
3	Queensland Avenue	East Woodward Avenue	Signal	D	38.5	D	37.9	D
4	Wellington Avenue	East Woodward Avenue	TWSC	D	16.4	C	29.7	D
5	Van Ryn Avenue	East Woodward Avenue	TWSC	D	11.2	B	13.5	B
6	Pillsbury Road	East Woodward Avenue	AWSC	D	11.4	B	33.9	D
7	Adora Drive	East Woodward Avenue	TWSC	D	10.2	B	10.2	B
8	Memorial Lane	East Woodward Avenue	TWSC	D	10.4	B	11.3	B
9	East Atherton Drive	East Woodward Avenue	AWSC	D	11.4	B	12.0	B
10	Moffat Boulevard	East Woodward Avenue	TWSC	D	36.2	E	40.8	E
11	Project Driveway #1	East Woodward Avenue	TWSC	D	-	-	9.7	A
12	Pillsbury Road	Project Driveway #2	TWSC	D	-	-	9.4	A
13	Pillsbury Road	Project Driveway #3	TWSC	D	-	-	10.7	A

1: AWSC = All-Way Stop-Control; TWSC = Two-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 5**, the study intersections under *CP* traffic conditions are currently operating at an acceptable LOS during the Saturday AM peak hour with the exception of;

- Intersection 1: South Main Street/East Woodward Avenue
- Intersection 10: Moffat Boulevard/East Woodward Avenue.

Intersection 1, South Main Street and East Woodward Avenue, operates at unacceptable LOS "F" under both *Cumulative* and *Cumulative Plus Project* traffic conditions. Per *City Guidelines*, when an all-way stop controlled intersection operates at an unacceptable LOS under *Cumulative* conditions, the addition of a project impacts the intersection if the overall delay increases by five (5) or more seconds and the intersection meets the peak hour traffic signal warrant. The addition of the proposed project increases the delay at Intersection 1 by 19.5 seconds, over the threshold of five (5) seconds. This is consistent with the findings from the Intersection 1 weekday analysis from the TIA in which the addition of the project increased the delay by over five (5) seconds as well. Since the delay threshold is met, a traffic signal warrant analysis was completed for Intersection 1. Details of the signal warrant analysis are found in the section, "Recommended Improvements," on page 16.

Intersection 10, Moffat Boulevard and East Woodward Avenue, operates at unacceptable LOS "E" under both *Cumulative* and *Cumulative Plus Project* traffic conditions. Per *City Guidelines*, when a two-way stop controlled intersection operates at an unacceptable LOS under *Cumulative* conditions, the intersection is required to have mitigation if the addition of the project increase the highest delayed movement by five (5) or more seconds and the intersection meets the peak hour traffic signal warrant. Since the addition of the proposed project under *Cumulative* traffic conditions increases the delay by 4.6 seconds, or under the threshold of five (5) seconds, the project does not require mitigation at Intersection 10. Results of the weekday analysis also found mitigation is not required at Intersection 10.

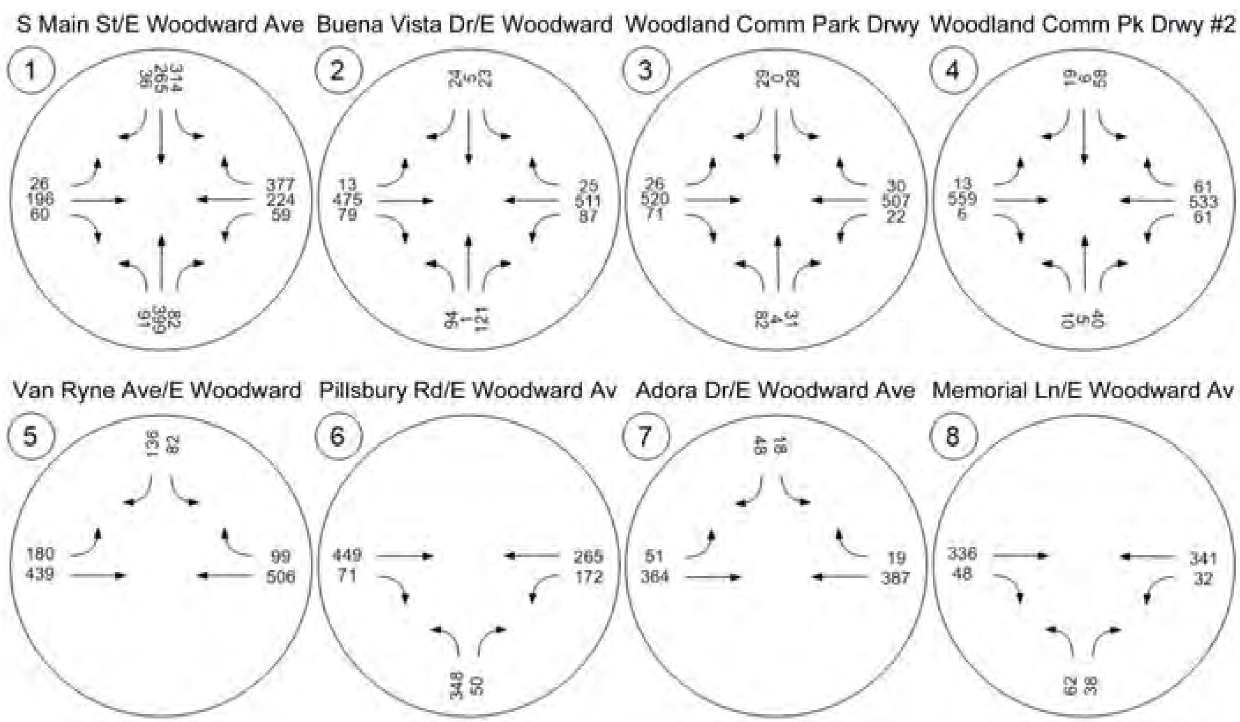


Exhibit 4: CP Saturday AM Peak Hour Volumes

Traffic Impact Analysis

BAS-23-001

Not to Scale

TJW Engineering, Inc.

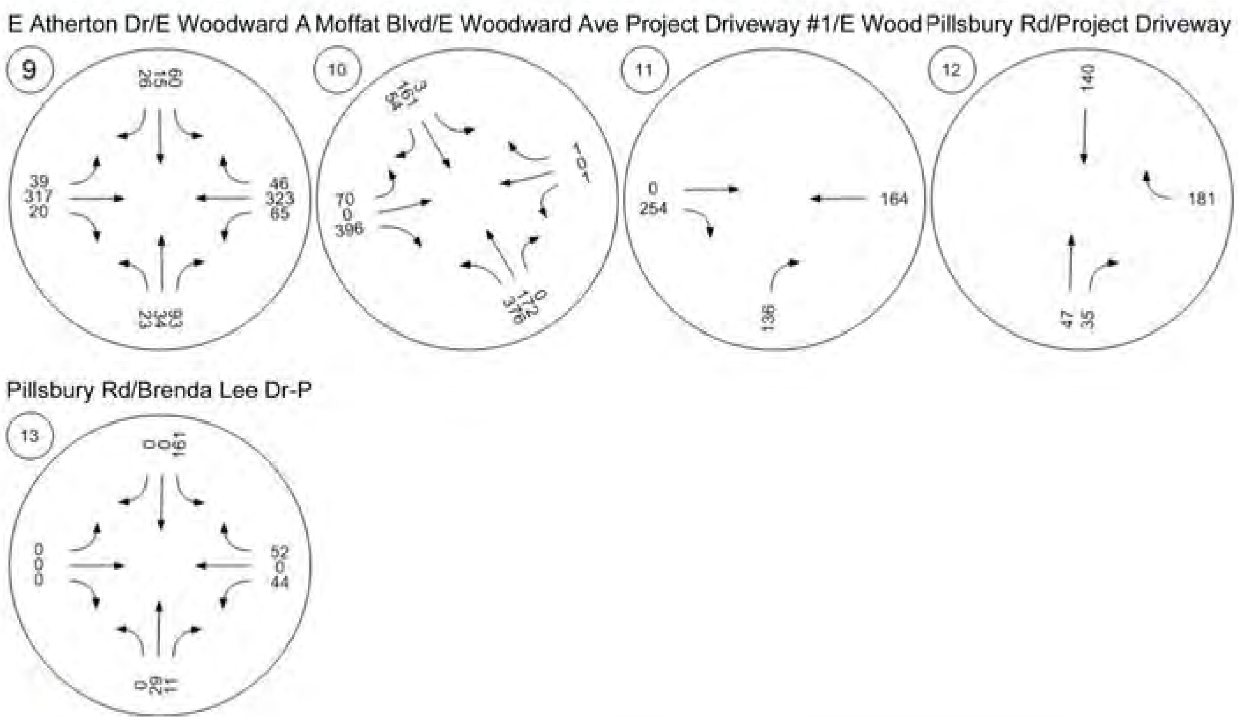


Exhibit 4: CP Saturday AM Peak Hour Volumes

Traffic Impact Analysis

RECOMMENDED IMPROVEMENTS

The development of the proposed project would result in unsatisfactory impacts during the Saturday AM peak hour at the following intersection;

- Intersection 1: South Main Street/East Woodward Avenue under *CP* traffic conditions

Traffic Signal Warrant Analysis

A traffic signal warrant analysis was conducted for Intersection 1. Figure 4C-3 from the *California Manual on Uniform Traffic Control Devices* (MUTCD) was utilized to determine if traffic signals are warranted. Volumes used were those from the *CP* scenario in which the Intersection 1 failed. As shown in **Table 6**, based on Saturday AM peak hour volumes, the traffic signal warrants were satisfied for Intersection 1. The signal warrant analysis worksheet is provided in **Appendix C**.

Table 6
Signal Warrant Analysis – Saturday AM Peak Hour

Intersection			Study Scenario	Signal Warrant Satisfied
1	South Main Street	East Woodward Avenue	Cumulative with Project	Yes

Of note, this is consistent with the TIA weekday analysis in which Intersection 1 also met weekday AM and PM peak hour traffic signal warrants.

Intersection With Improvements Level of Service Analysis

Intersection 1 was analyzed with traffic signal controls in place of the all-way stop controls. **Table 7** shows the results of the analysis. HCM worksheets are provided in **Appendix B**.

Table 7
Intersection With Improvements Analysis – Saturday AM Peak Hour

Intersection			Target LOS	Study Scenario	Without Improvements			With Improvements		
					Control Type[1]	Delay[2]	LOS	Control Type	Delay[2]	LOS
1	South Main Street	East Woodward Avenue	D	Cumulative With Project	AWSC	77.0	F	Signal	15.8	B

1: AWSC = All-Way Stop-Control.
2: Delay shown in seconds per vehicle. Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections.

As shown in **Table 7**, the addition of traffic signal controls under *CP* traffic conditions is shown to improve operations at Intersection 1 to an acceptable LOS during the Saturday AM peak hour.

Fair Share Analysis

The project's fair share percentage for each recommended improvement is identified in **Table 8** below. The percentage of project fair-share at the affected intersection was calculated using the total trips generated by the project divided by the total "new" traffic, which is the net increase in traffic volume in the *CP* conditions as a result of all other proposed projects.

Table 8
Fair Share Analysis – Saturday AM Peak Hour

Intersection			Improvement	Peak Hour	Project Trips	Total Traffic	Existing Traffic	Project % of Fair Share
1	South Main Street	East Woodward Avenue	Add Signal	Sat AM	156	2129	1547	26.80%

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,

Thomas Wheat, PE, TE
President
Registered Civil Engineer *#69467*
Registered Traffic Engineer *#2565*

David Chew, PTP
Transportation Planner

Travis Yokota
Assistant Transportation Planner

APPENDIX A

EXISTING TRAFFIC COUNTS

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: S Main Street
E/W: E Woodward Avenue
Weather: Clear

File Name : 01_MTC_S Main_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

Groups Printed- Total Volume

	S Main Street Southbound				E Woodward Avenue Westbound				S Main Street Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	22	15	2	39	2	12	24	38	3	28	2	33	7	9	4	20	130
07:15 AM	33	15	1	49	4	6	18	28	4	46	1	51	2	21	1	24	152
07:30 AM	31	22	4	57	5	5	32	42	9	50	5	64	8	20	5	33	196
07:45 AM	43	34	3	80	2	7	21	30	10	62	4	76	2	15	7	24	210
Total	129	86	10	225	13	30	95	138	26	186	12	224	19	65	17	101	688
08:00 AM	25	35	2	62	7	7	25	39	7	60	9	76	3	21	8	32	209
08:15 AM	47	28	4	79	4	8	39	51	6	60	6	72	7	41	2	50	252
08:30 AM	63	37	1	101	5	15	36	56	11	66	12	89	3	39	8	50	296
08:45 AM	68	41	3	112	5	12	35	52	12	71	9	92	5	35	6	46	302
Total	203	141	10	354	21	42	135	198	36	257	36	329	18	136	24	178	1059
09:00 AM	45	34	2	81	4	22	41	67	10	79	6	95	5	43	14	62	305
09:15 AM	40	56	3	99	15	43	60	118	19	60	8	87	9	28	6	43	347
09:30 AM	41	46	4	91	9	27	45	81	11	73	5	89	7	30	14	51	312
09:45 AM	52	54	9	115	8	38	73	119	20	85	12	117	4	40	11	55	406
Total	178	190	18	386	36	130	219	385	60	297	31	388	25	141	45	211	1370
10:00 AM	50	45	9	104	8	72	96	176	22	70	19	111	7	24	15	46	437
10:15 AM	51	55	2	108	7	30	43	80	20	82	10	112	3	38	9	50	350
10:30 AM	62	54	8	124	8	21	54	83	9	76	8	93	6	36	12	54	354
10:45 AM	44	48	3	95	6	31	77	114	16	75	9	100	8	38	9	55	364
Total	207	202	22	431	29	154	270	453	67	303	46	416	24	136	45	205	1505
Grand Total	717	619	60	1396	99	356	719	1174	189	1043	125	1357	86	478	131	695	4622
Apprch %	51.4	44.3	4.3		8.4	30.3	61.2		13.9	76.9	9.2		12.4	68.8	18.8		
Total %	15.5	13.4	1.3	30.2	2.1	7.7	15.6	25.4	4.1	22.6	2.7	29.4	1.9	10.3	2.8	15	

	S Main Street Southbound				E Woodward Avenue Westbound				S Main Street Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:45 AM																	
09:45 AM	52	54	**9**	115	**8**	38	73	119	20	**85**	12	**117**	4	**40**	11	**55**	406
10:00 AM	50	45	9	104	8	**72**	**96**	**176**	**22**	70	**19**	111	**7**	24	**15**	46	**437**
10:15 AM	51	**55**	2	108	7	30	43	80	20	82	10	112	3	38	9	50	350
10:30 AM	**62**	54	8	**124**	8	21	54	83	9	76	8	93	6	36	12	54	354
Total Volume	215	208	28	451	31	161	266	458	71	313	49	433	20	138	47	205	1547
% App. Total	47.7	46.1	6.2		6.8	35.2	58.1		16.4	72.3	11.3		9.8	67.3	22.9		
PHF	.867	.945	.778	.909	.969	.559	.693	.651	.807	.921	.645	.925	.714	.863	.783	.932	.885

Counts Unlimited, Inc.
PO Box 1178
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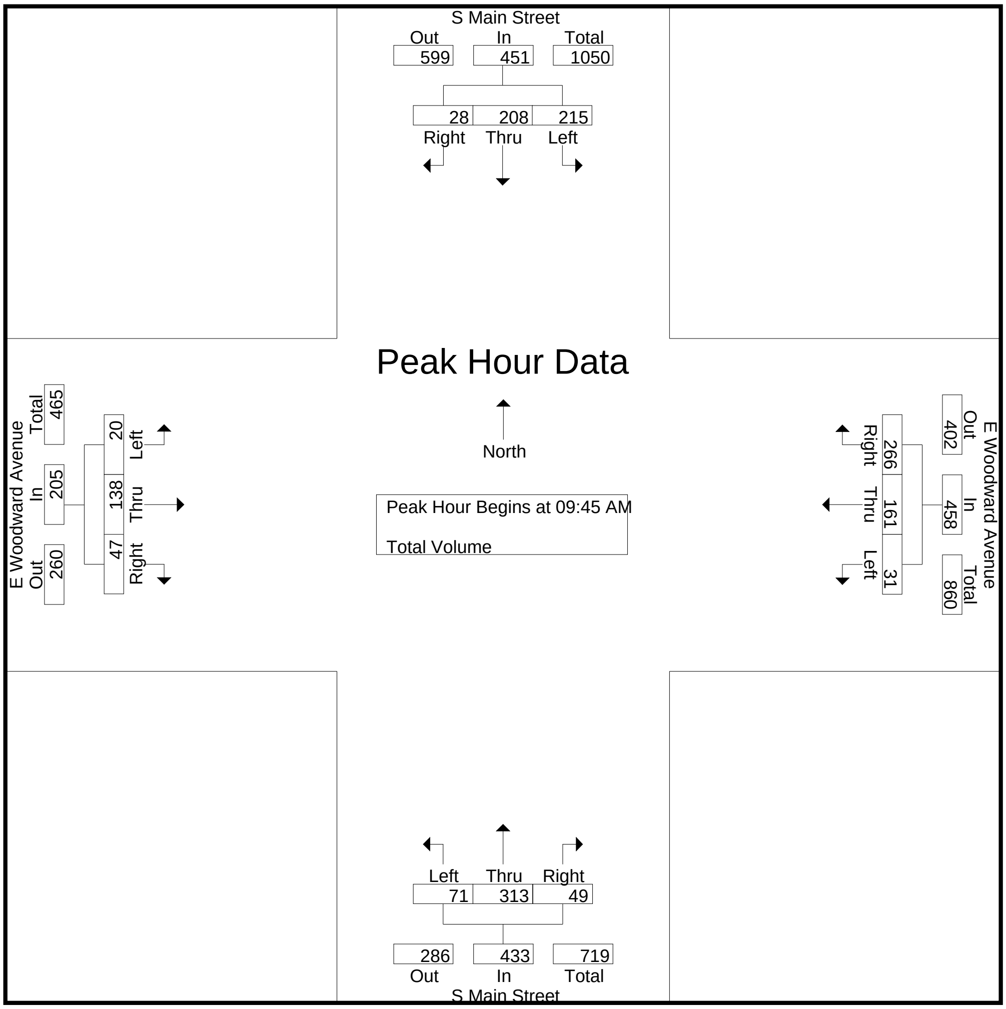
City of Manteca
N/S: S Main Street
E/W: E Woodward Avenue
Weather: Clear

File Name : 01_MTC_S Main_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:45 AM				09:15 AM				09:45 AM				09:00 AM			
+0 mins.	52	54	**9**	115	**15**	43	60	118	20	**85**	12	**117**	5	**43**	**14**	**62**
+15 mins.	50	45	9	104	9	27	45	81	**22**	70	**19**	111	**9**	28	6	43
+30 mins.	51	**55**	2	108	8	38	73	119	20	82	10	112	7	30	14	51
+45 mins.	**62**	54	8	**124**	8	**72**	**96**	**176**	9	76	8	93	4	40	11	55
Total Volume	215	208	28	451	40	180	274	494	71	313	49	433	25	141	45	211
% App. Total	47.7	46.1	6.2		8.1	36.4	55.5		16.4	72.3	11.3		11.8	66.8	21.3	
PHF	.867	.945	.778	.909	.667	.625	.714	.702	.807	.921	.645	.925	.694	.820	.804	.851

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City of Manteca
N/S: Buena Vista Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 02_MTC_BV_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

Groups Printed- Total Volume

	Buena Vista Drive Southbound				E Woodward Avenue Westbound				Buena Vista Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	5	25	0	30	9	1	2	12	1	28	4	33	76
07:15 AM	0	0	1	1	2	22	0	24	3	0	3	6	1	44	5	50	81
07:30 AM	0	0	2	2	3	33	0	36	5	0	3	8	2	53	5	60	106
07:45 AM	1	0	1	2	2	25	0	27	4	0	2	6	2	49	5	56	91
Total	1	0	5	6	12	105	0	117	21	1	10	32	6	174	19	199	354
08:00 AM	0	0	0	0	7	34	0	41	7	2	3	12	0	56	5	61	114
08:15 AM	0	0	0	0	6	37	1	44	3	0	14	17	1	76	11	88	149
08:30 AM	1	0	2	3	14	40	1	55	11	0	7	18	2	94	11	107	183
08:45 AM	0	1	4	5	23	31	1	55	11	0	12	23	2	90	15	107	190
Total	1	1	6	8	50	142	3	195	32	2	36	70	5	316	42	363	636
09:00 AM	2	0	2	4	16	53	0	69	12	0	10	22	2	77	17	96	191
09:15 AM	0	0	6	6	8	92	0	100	10	0	7	17	1	60	9	70	193
09:30 AM	2	0	4	6	12	66	2	80	8	1	13	22	2	52	16	70	178
09:45 AM	0	0	7	7	3	93	2	98	21	1	7	29	6	85	13	104	238
Total	4	0	19	23	39	304	4	347	51	2	37	90	11	274	55	340	800
10:00 AM	0	1	5	6	9	133	1	143	28	1	13	42	1	77	19	97	288
10:15 AM	0	1	4	5	21	64	0	85	14	0	13	27	2	72	15	89	206
10:30 AM	1	0	3	4	12	62	0	74	11	0	16	27	5	80	22	107	212
10:45 AM	1	2	7	10	11	82	4	97	21	0	37	58	2	81	6	89	254
Total	2	4	19	25	53	341	5	399	74	1	79	154	10	310	62	382	960
Grand Total	8	5	49	62	154	892	12	1058	178	6	162	346	32	1074	178	1284	2750
Apprch %	12.9	8.1	79		14.6	84.3	1.1		51.4	1.7	46.8		2.5	83.6	13.9		
Total %	0.3	0.2	1.8	2.3	5.6	32.4	0.4	38.5	6.5	0.2	5.9	12.6	1.2	39.1	6.5	46.7	

	Buena Vista Drive Southbound				E Woodward Avenue Westbound				Buena Vista Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 10:00 AM																	
10:00 AM	0	1	5	6	9	**133**	1	**143**	**28**	**1**	13	42	1	77	19	97	**288**
10:15 AM	0	1	4	5	**21**	64	0	85	14	0	13	27	2	72	15	89	206
10:30 AM	**1**	0	3	4	12	62	0	74	11	0	16	27	**5**	80	**22**	**107**	212
10:45 AM	1	**2**	**7**	**10**	11	82	**4**	97	21	0	**37**	**58**	2	**81**	6	89	254
Total Volume	2	4	19	25	53	341	5	399	74	1	79	154	10	310	62	382	960
% App. Total	8	16	76		13.3	85.5	1.3		48.1	0.6	51.3		2.6	81.2	16.2		
PHF	.500	.500	.679	.625	.631	.641	.313	.698	.661	.250	.534	.664	.500	.957	.705	.893	.833

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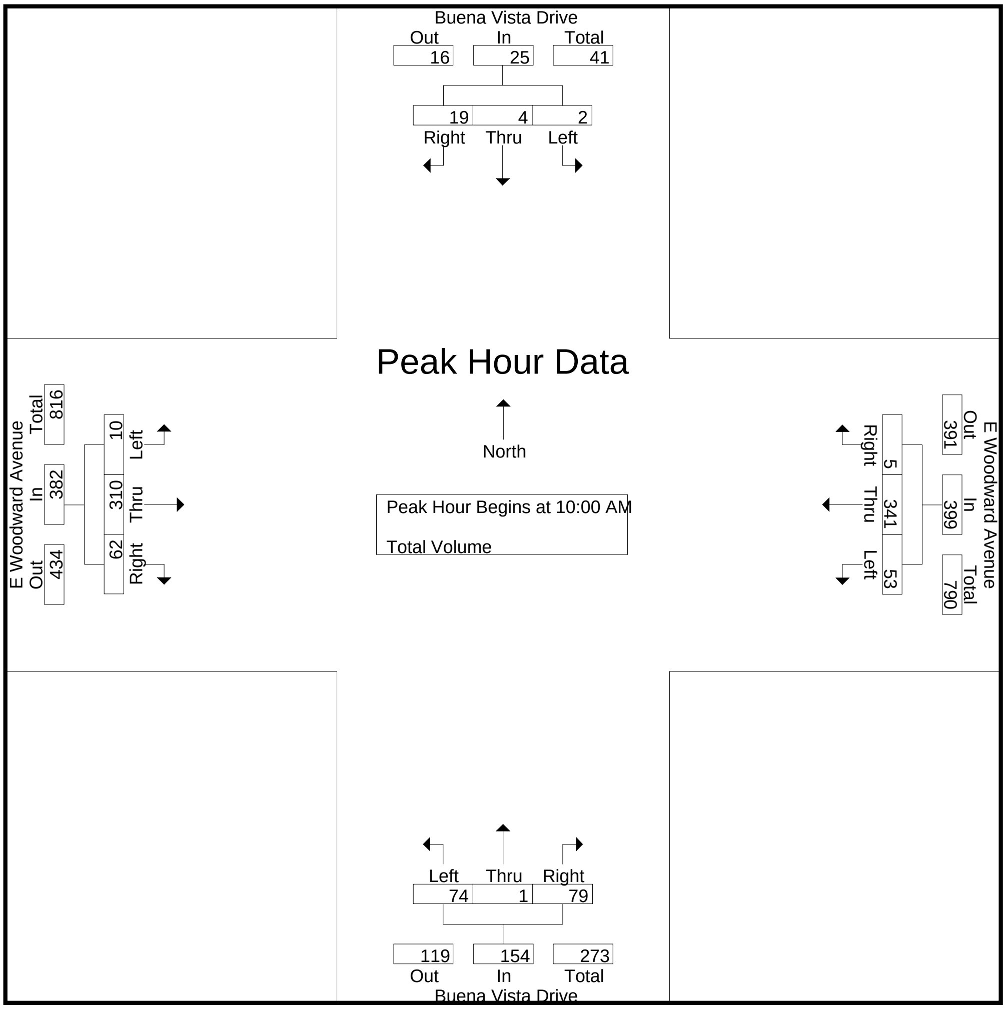
City of Manteca
N/S: Buena Vista Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 02_MTC_BV_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:15 AM				09:15 AM				10:00 AM				08:15 AM			
+0 mins.	0	0	6	6	8	92	0	100	**28**	**1**	13	42	1	76	11	88
+15 mins.	**2**	0	4	6	**12**	66	**2**	80	14	0	13	27	**2**	**94**	11	**107**
+30 mins.	0	0	**7**	**7**	3	93	2	98	11	0	16	27	2	90	15	107
+45 mins.	0	**1**	5	6	9	**133**	1	**143**	21	0	**37**	**58**	2	77	**17**	96
Total Volume	2	1	22	25	32	384	5	421	74	1	79	154	7	337	54	398
% App. Total	8	4	88		7.6	91.2	1.2		48.1	0.6	51.3		1.8	84.7	13.6	
PHF	.250	.250	.786	.893	.667	.722	.625	.736	.661	.250	.534	.664	.875	.896	.794	.930

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City of Manteca
N/S: Queensland Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 03_MTC_Queen_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

Groups Printed- Total Volume

	Queensland Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	3	3	1	25	0	26	1	0	0	1	1	26	2	29	59
07:15 AM	0	0	4	4	2	21	0	23	1	0	0	1	0	28	19	47	75
07:30 AM	2	1	3	6	1	32	1	34	0	0	1	1	1	38	13	52	93
07:45 AM	5	0	2	7	3	25	1	29	2	1	3	6	1	26	26	53	95
Total	7	1	12	20	7	103	2	112	4	1	4	9	3	118	60	181	322
08:00 AM	1	0	3	4	3	36	0	39	1	0	2	3	0	34	26	60	106
08:15 AM	1	0	3	4	6	37	1	44	6	0	0	6	1	67	19	87	141
08:30 AM	2	1	3	6	5	44	2	51	8	1	4	13	2	77	19	98	168
08:45 AM	0	0	5	5	11	45	1	57	6	1	5	12	4	72	27	103	177
Total	4	1	14	19	25	162	4	191	21	2	11	34	7	250	91	348	592
09:00 AM	4	0	3	7	8	55	1	64	8	0	10	18	2	57	25	84	173
09:15 AM	2	0	5	7	4	66	2	72	29	1	11	41	2	42	26	70	190
09:30 AM	2	0	6	8	5	71	2	78	4	1	6	11	3	42	16	61	158
09:45 AM	0	1	4	5	2	90	3	95	10	2	5	17	3	70	20	93	210
Total	8	1	18	27	19	282	8	309	51	4	32	87	10	211	87	308	731
10:00 AM	1	0	7	8	3	108	3	114	23	0	8	31	4	75	11	90	243
10:15 AM	1	0	7	8	3	68	2	73	10	2	4	16	4	63	20	87	184
10:30 AM	2	0	4	6	2	53	0	55	15	1	8	24	6	77	14	97	182
10:45 AM	2	0	5	7	9	79	4	92	16	0	4	20	6	99	11	116	235
Total	6	0	23	29	17	308	9	334	64	3	24	91	20	314	56	390	844
Grand Total	25	3	67	95	68	855	23	946	140	10	71	221	40	893	294	1227	2489
Apprch %	26.3	3.2	70.5		7.2	90.4	2.4		63.3	4.5	32.1		3.3	72.8	24		
Total %	1	0.1	2.7	3.8	2.7	34.4	0.9	38	5.6	0.4	2.9	8.9	1.6	35.9	11.8	49.3	

	Queensland Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 10:00 AM																	
10:00 AM	1	0	**7**	**8**	3	**108**	3	**114**	**23**	0	**8**	**31**	4	75	11	90	**243**
10:15 AM	1	0	7	8	3	68	2	73	10	**2**	4	16	4	63	**20**	87	184
10:30 AM	**2**	0	4	6	2	53	0	55	15	1	8	24	**6**	77	14	97	182
10:45 AM	2	0	5	7	**9**	79	**4**	92	16	0	4	20	6	**99**	11	**116**	235
Total Volume	6	0	23	29	17	308	9	334	64	3	24	91	20	314	56	390	844
% App. Total	20.7	0	79.3		5.1	92.2	2.7		70.3	3.3	26.4		5.1	80.5	14.4		
PHF	.750	.000	.821	.906	.472	.713	.563	.732	.696	.375	.750	.734	.833	.793	.700	.841	.868

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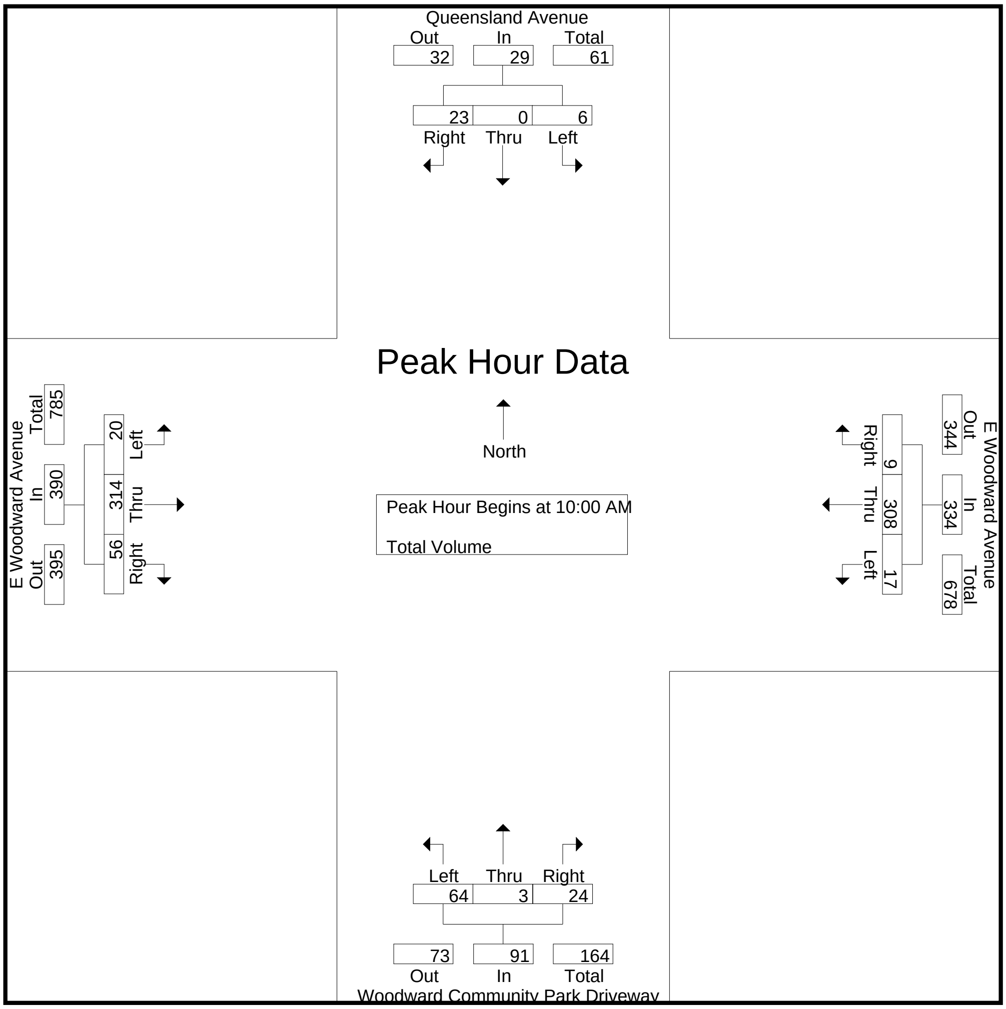
City of Manteca
N/S: Queensland Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 03_MTC_Queen_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:30 AM				09:30 AM				09:15 AM				10:00 AM			
+0 mins.	**2**	0	6	**8**	**5**	71	2	78	**29**	1	**11**	**41**	4	75	11	90
+15 mins.	0	**1**	4	5	2	90	**3**	95	4	1	6	11	4	63	**20**	87
+30 mins.	1	0	**7**	8	3	**108**	3	**114**	10	**2**	5	17	**6**	77	14	97
+45 mins.	1	0	7	8	3	68	2	73	23	0	8	31	6	**99**	11	**116**
Total Volume	4	1	24	29	13	337	10	360	66	4	30	100	20	314	56	390
% App. Total	13.8	3.4	82.8		3.6	93.6	2.8		66	4	30		5.1	80.5	14.4	
PHF	.500	.250	.857	.906	.650	.780	.833	.789	.569	.500	.682	.610	.833	.793	.700	.841

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City of Manteca
N/S: Wellington Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 04_MTC_Well_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

Groups Printed- Total Volume

	Wellington Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	0	1	2	0	26	2	28	0	0	1	1	2	23	0	25	56
07:15 AM	2	1	0	3	4	22	0	26	0	0	2	2	1	23	0	24	55
07:30 AM	3	0	2	5	6	28	1	35	0	0	0	0	1	42	0	43	83
07:45 AM	3	0	2	5	2	29	1	32	0	0	0	0	1	33	0	34	71
Total	9	1	5	15	12	105	4	121	0	0	3	3	5	121	0	126	265
08:00 AM	4	0	4	8	4	32	1	37	1	0	0	1	1	36	1	38	84
08:15 AM	2	0	4	6	8	38	1	47	0	0	0	0	2	67	0	69	122
08:30 AM	7	1	4	12	10	45	3	58	0	0	1	1	1	83	2	86	157
08:45 AM	4	0	4	8	10	51	2	63	3	0	11	14	1	74	1	76	161
Total	17	1	16	34	32	166	7	205	4	0	12	16	5	260	4	269	524
09:00 AM	5	0	4	9	13	54	5	72	6	0	13	19	2	72	0	74	174
09:15 AM	2	1	2	5	9	66	2	77	3	0	7	10	2	55	0	57	149
09:30 AM	2	0	5	7	8	69	6	83	4	0	5	9	2	44	0	46	145
09:45 AM	5	2	3	10	8	89	6	103	14	1	4	19	2	68	0	70	202
Total	14	3	14	31	38	278	19	335	27	1	29	57	8	239	0	247	670
10:00 AM	4	3	2	9	12	107	4	123	2	0	10	12	4	77	2	83	227
10:15 AM	2	0	2	4	13	69	7	89	3	1	3	7	1	65	2	68	168
10:30 AM	5	2	4	11	8	52	4	64	0	2	13	15	3	83	0	86	176
10:45 AM	3	0	7	10	15	86	3	104	3	1	5	9	2	104	1	107	230
Total	14	5	15	34	48	314	18	380	8	4	31	43	10	329	5	344	801
Grand Total	54	10	50	114	130	863	48	1041	39	5	75	119	28	949	9	986	2260
Apprch %	47.4	8.8	43.9		12.5	82.9	4.6		32.8	4.2	63		2.8	96.2	0.9		
Total %	2.4	0.4	2.2	5	5.8	38.2	2.1	46.1	1.7	0.2	3.3	5.3	1.2	42	0.4	43.6	

	Wellington Avenue Southbound				E Woodward Avenue Westbound				Woodward Community Park Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 10:00 AM																	
10:00 AM	4	**3**	2	9	12	**107**	4	**123**	2	0	10	12	**4**	77	**2**	83	227
10:15 AM	2	0	2	4	13	69	**7**	89	**3**	1	3	7	1	65	2	68	168
10:30 AM	**5**	2	4	**11**	8	52	4	64	0	**2**	**13**	**15**	3	83	0	86	176
10:45 AM	3	0	**7**	10	**15**	86	3	104	3	1	5	9	2	**104**	1	**107**	**230**
Total Volume	14	5	15	34	48	314	18	380	8	4	31	43	10	329	5	344	801
% App. Total	41.2	14.7	44.1		12.6	82.6	4.7		18.6	9.3	72.1		2.9	95.6	1.5		
PHF	.700	.417	.536	.773	.800	.734	.643	.772	.667	.500	.596	.717	.625	.791	.625	.804	.871

Counts Unlimited, Inc.
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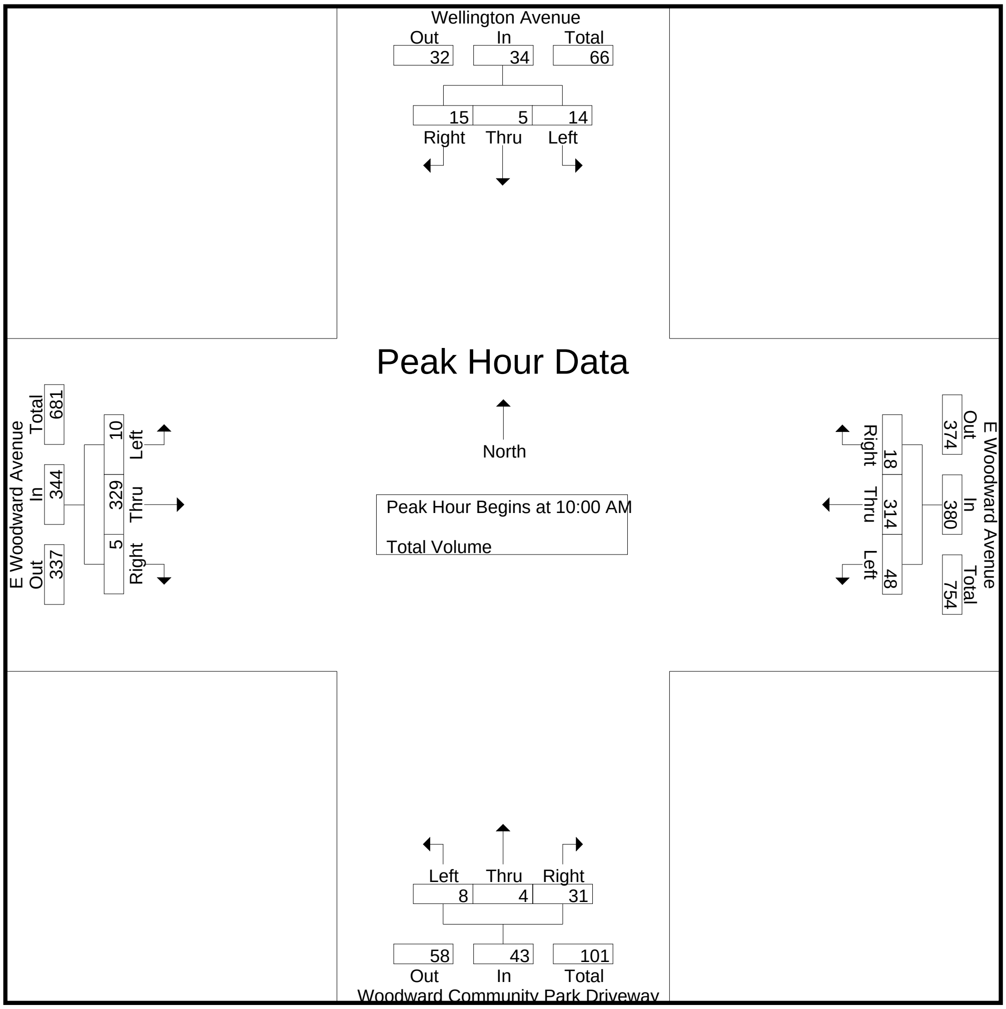
City of Manteca	File Name : 04_MTC_Well_E Woo SAT
N/S: Wellington Avenue	Site Code : 23624682
E/W: E Woodward Avenue	Start Date : 9/7/2024
Weather: Clear	Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:15 AM				09:30 AM				09:00 AM				10:00 AM			
+0 mins.	2	0	**4**	6	8	69	6	83	6	0	**13**	**19**	**4**	77	**2**	83
+15 mins.	**7**	**1**	4	**12**	8	89	6	103	3	0	7	10	1	65	2	68
+30 mins.	4	0	4	8	12	**107**	4	**123**	4	0	5	9	3	83	0	86
+45 mins.	5	0	4	9	**13**	69	**7**	89	**14**	**1**	4	19	2	**104**	1	**107**
Total Volume	18	1	16	35	41	334	23	398	27	1	29	57	10	329	5	344
% App. Total	51.4	2.9	45.7		10.3	83.9	5.8		47.4	1.8	50.9		2.9	95.6	1.5	
PHF	.643	.250	1.000	.729	.788	.780	.821	.809	.482	.250	.558	.750	.625	.791	.625	.804

Counts Unlimited, Inc.
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City of Manteca
N/S: Van Ryn Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 05_MTC_Van R_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

Groups Printed- Total Volume

	Van Ryn Avenue Southbound				E Woodward Avenue Westbound				Gated Private Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	0	5	7	0	22	2	24	0	0	0	0	10	12	0	22	53
07:15 AM	1	0	14	15	0	14	2	16	0	0	0	0	10	13	0	23	54
07:30 AM	4	0	11	15	0	24	8	32	0	0	0	0	9	24	0	33	80
07:45 AM	4	0	15	19	0	22	10	32	0	0	0	0	10	16	0	26	77
Total	11	0	45	56	0	82	22	104	0	0	0	0	39	65	0	104	264
08:00 AM	5	0	12	17	0	38	7	45	0	0	0	0	7	21	0	28	90
08:15 AM	4	0	14	18	0	33	5	38	0	0	0	0	24	37	0	61	117
08:30 AM	3	0	33	36	0	36	7	43	0	0	0	0	19	38	0	57	136
08:45 AM	5	0	28	33	0	48	11	59	0	0	0	0	23	31	0	54	146
Total	17	0	87	104	0	155	30	185	0	0	0	0	73	127	0	200	489
09:00 AM	6	0	20	26	0	60	10	70	0	0	0	0	21	38	0	59	155
09:15 AM	7	0	23	30	0	48	12	60	0	0	0	0	31	35	0	66	156
09:30 AM	5	0	22	27	0	54	7	61	0	0	0	0	17	27	0	44	132
09:45 AM	4	0	29	33	0	60	18	78	0	0	0	0	26	41	0	67	178
Total	22	0	94	116	0	222	47	269	0	0	0	0	95	141	0	236	621
10:00 AM	6	0	27	33	0	73	12	85	0	0	0	0	56	45	0	101	219
10:15 AM	7	0	26	33	0	69	10	79	0	0	0	0	24	38	0	62	174
10:30 AM	13	0	23	36	0	54	10	64	0	0	0	0	20	49	0	69	169
10:45 AM	7	0	31	38	0	67	16	83	0	0	0	0	41	71	0	112	233
Total	33	0	107	140	0	263	48	311	0	0	0	0	141	203	0	344	795
Grand Total	83	0	333	416	0	722	147	869	0	0	0	0	348	536	0	884	2169
Apprch %	20	0	80		0	83.1	16.9		0	0	0		39.4	60.6	0		
Total %	3.8	0	15.4	19.2	0	33.3	6.8	40.1	0	0	0	0	16	24.7	0	40.8	

	Van Ryn Avenue Southbound				E Woodward Avenue Westbound				Gated Private Driveway Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 10:00 AM																	
10:00 AM	6	0	27	33	0	**73**	12	**85**	0	0	0	0	**56**	45	0	101	219
10:15 AM	7	0	26	33	0	69	10	79	0	0	0	0	24	38	0	62	174
10:30 AM	**13**	0	23	36	0	54	10	64	0	0	0	0	20	49	0	69	169
10:45 AM	7	0	**31**	**38**	0	67	**16**	83	0	0	0	0	41	**71**	0	**112**	**233**
Total Volume	33	0	107	140	0	263	48	311	0	0	0	0	141	203	0	344	795
% App. Total	23.6	0	76.4		0	84.6	15.4		0	0	0		41	59	0		
PHF	.635	.000	.863	.921	.000	.901	.750	.915	.000	.000	.000	.000	.629	.715	.000	.768	.853

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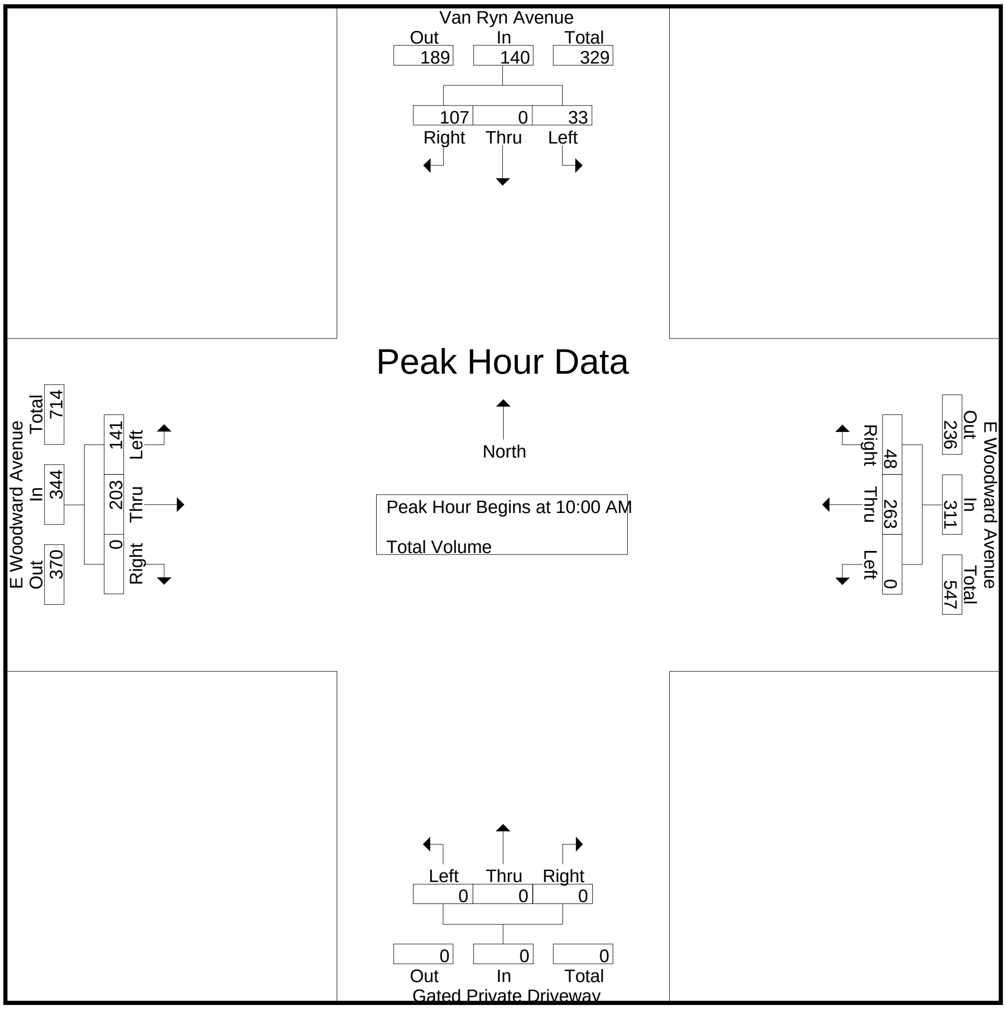
City of Manteca
N/S: Van Ryn Avenue
E/W: E Woodward Avenue
Weather: Clear

File Name : 05_MTC_Van R_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	10:00 AM				10:00 AM				07:00 AM				10:00 AM			
+0 mins.	6	0	27	33	0	**73**	12	**85**	0	0	0	0	**56**	45	0	101
+15 mins.	7	0	26	33	0	69	10	79	0	0	0	0	24	38	0	62
+30 mins.	**13**	0	23	36	0	54	10	64	0	0	0	0	20	49	0	69
+45 mins.	7	0	**31**	**38**	0	67	**16**	83	0	0	0	0	41	**71**	0	**112**
Total Volume	33	0	107	140	0	263	48	311	0	0	0	0	141	203	0	344
% App. Total	23.6	0	76.4		0	84.6	15.4		0	0	0		41	59	0	
PHF	.635	.000	.863	.921	.000	.901	.750	.915	.000	.000	.000	.000	.629	.715	.000	.768

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City of Manteca
N/S: Pillsbury Road
E/W: E Woodward Avenue
Weather: Clear

File Name : 06_MTC_Pill_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

Groups Printed- Total Volume

	E Woodward Avenue Westbound			Pillsbury Road Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	18	18	6	2	8	13	2	15	41
07:15 AM	3	13	16	8	6	14	10	4	14	44
07:30 AM	3	23	26	10	5	15	20	8	28	69
07:45 AM	7	22	29	10	15	25	11	9	20	74
Total	13	76	89	34	28	62	54	23	77	228
08:00 AM	3	31	34	14	6	20	16	8	24	78
08:15 AM	0	31	31	9	5	14	30	10	40	85
08:30 AM	7	30	37	16	5	21	32	7	39	97
08:45 AM	8	45	53	16	14	30	28	9	37	120
Total	18	137	155	55	30	85	106	34	140	380
09:00 AM	7	59	66	18	12	30	33	10	43	139
09:15 AM	7	38	45	20	12	32	34	8	42	119
09:30 AM	8	43	51	21	14	35	19	13	32	118
09:45 AM	6	53	59	27	10	37	37	9	46	142
Total	28	193	221	86	48	134	123	40	163	518
10:00 AM	5	60	65	31	15	46	46	9	55	166
10:15 AM	6	55	61	21	10	31	27	16	43	135
10:30 AM	6	37	43	27	4	31	43	15	58	132
10:45 AM	8	56	64	30	10	40	64	16	80	184
Total	25	208	233	109	39	148	180	56	236	617
Grand Total	84	614	698	284	145	429	463	153	616	1743
Apprch %	12	88		66.2	33.8		75.2	24.8		
Total %	4.8	35.2	40	16.3	8.3	24.6	26.6	8.8	35.3	

	E Woodward Avenue Westbound			Pillsbury Road Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 10:00 AM										
10:00 AM	5	**60**	**65**	**31**	**15**	**46**	46	9	55	166
10:15 AM	6	55	61	21	10	31	27	**16**	43	135
10:30 AM	6	37	43	27	4	31	43	15	58	132
10:45 AM	**8**	56	64	30	10	40	**64**	16	**80**	**184**
Total Volume	25	208	233	109	39	148	180	56	236	617
% App. Total	10.7	89.3		73.6	26.4		76.3	23.7		
PHF	.781	.867	.896	.879	.650	.804	.703	.875	.738	.838

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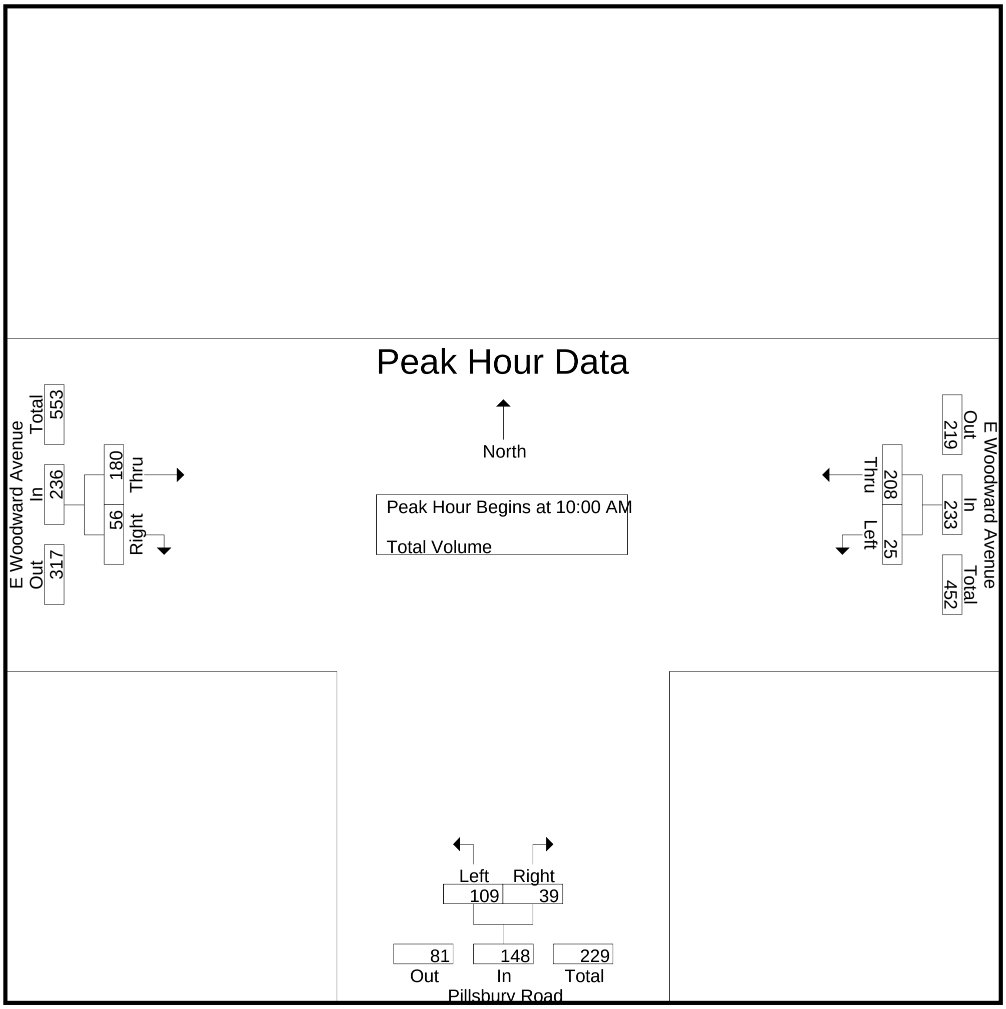
City of Manteca
N/S: Pillsbury Road
E/W: E Woodward Avenue
Weather: Clear

File Name : 06_MTC_Pill_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:30 AM			09:15 AM			10:00 AM		
+0 mins.	**8**	43	51	20	12	32	46	9	55
+15 mins.	6	53	59	21	14	35	27	**16**	43
+30 mins.	5	**60**	**65**	27	10	37	43	15	58
+45 mins.	6	55	61	**31**	**15**	**46**	**64**	16	**80**
Total Volume	25	211	236	99	51	150	180	56	236
% App. Total	10.6	89.4		66	34		76.3	23.7	
PHF	.781	.879	.908	.798	.850	.815	.703	.875	.738

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City of Manteca
N/S: Adora Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 07_MTC_Adora_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

Groups Printed- Total Volume

	Adora Drive Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	1	1	2	20	0	20	2	12	14	36
07:15 AM	1	1	2	11	1	12	4	14	18	32
07:30 AM	3	2	5	21	0	21	3	23	26	52
07:45 AM	0	3	3	22	0	22	0	27	27	52
Total	5	7	12	74	1	75	9	76	85	172
08:00 AM	1	1	2	33	3	36	0	22	22	60
08:15 AM	2	1	3	30	1	31	0	32	32	66
08:30 AM	1	2	3	32	1	33	5	31	36	72
08:45 AM	6	3	9	47	2	49	7	38	45	103
Total	10	7	17	142	7	149	12	123	135	301
09:00 AM	4	3	7	63	5	68	3	42	45	120
09:15 AM	4	4	8	39	3	42	3	42	45	95
09:30 AM	1	2	3	49	0	49	0	26	26	78
09:45 AM	2	1	3	58	1	59	3	39	42	104
Total	11	10	21	209	9	218	9	149	158	397
10:00 AM	3	3	6	63	4	67	3	60	63	136
10:15 AM	3	2	5	58	4	62	1	37	38	105
10:30 AM	5	0	5	43	5	48	2	46	48	101
10:45 AM	3	1	4	61	2	63	2	68	70	137
Total	14	6	20	225	15	240	8	211	219	479
Grand Total	40	30	70	650	32	682	38	559	597	1349
Apprch %	57.1	42.9		95.3	4.7		6.4	93.6		
Total %	3	2.2	5.2	48.2	2.4	50.6	2.8	41.4	44.3	

	Adora Drive Southbound			E Woodward Avenue Westbound			E Woodward Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 10:00 AM										
10:00 AM	3	**3**	**6**	**63**	4	**67**	**3**	60	63	136
10:15 AM	3	2	5	58	4	62	1	37	38	105
10:30 AM	**5**	0	5	43	**5**	48	2	46	48	101
10:45 AM	3	1	4	61	2	63	2	**68**	**70**	**137**
Total Volume	14	6	20	225	15	240	8	211	219	479
% App. Total	70	30		93.8	6.2		3.7	96.3		
PHF	.700	.500	.833	.893	.750	.896	.667	.776	.782	.874

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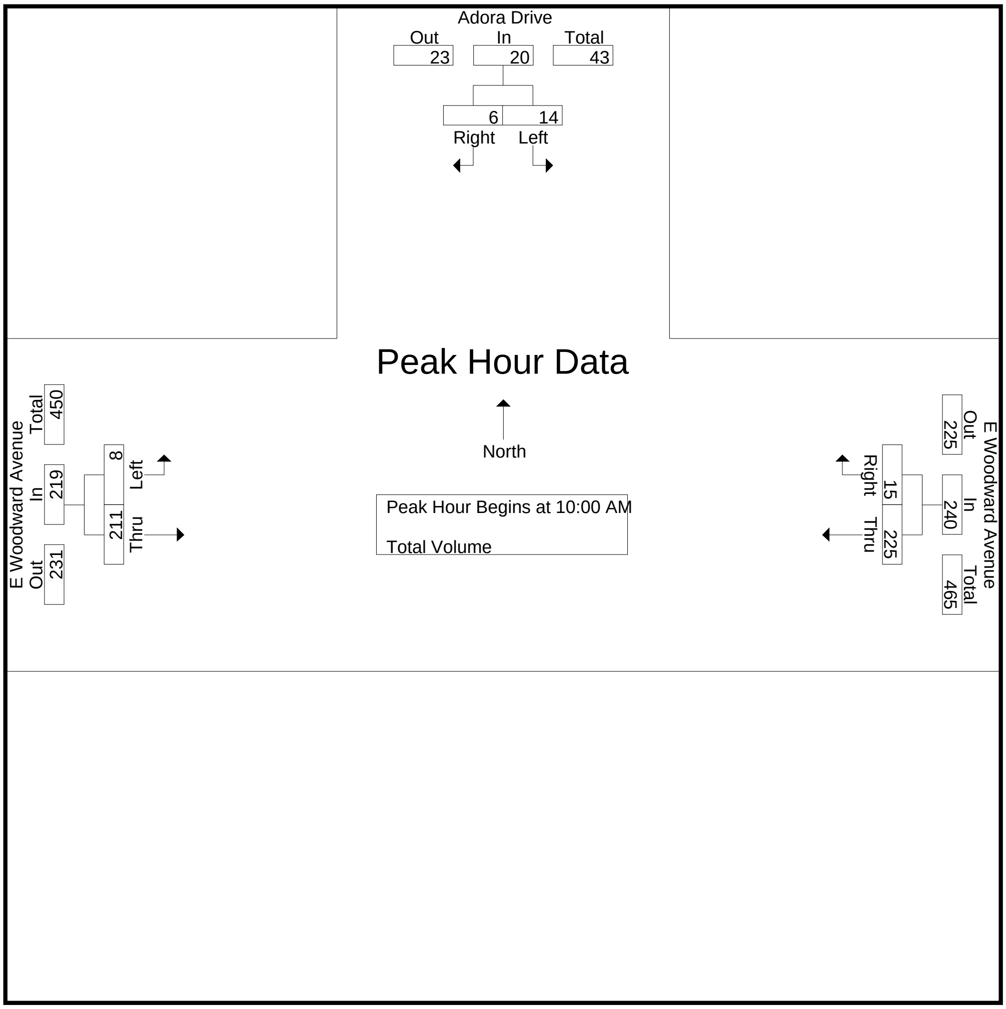
City of Manteca
N/S: Adora Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 07_MTC_Adora_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:30 AM			10:00 AM			10:00 AM		
+0 mins.	1	2	3	**63**	4	**67**	**3**	60	63
+15 mins.	**6**	3	**9**	58	4	62	1	37	38
+30 mins.	4	3	7	43	**5**	48	2	46	48
+45 mins.	4	**4**	8	61	2	63	2	**68**	**70**
Total Volume	15	12	27	225	15	240	8	211	219
% App. Total	55.6	44.4		93.8	6.2		3.7	96.3	
PHF	.625	.750	.750	.893	.750	.896	.667	.776	.782

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City of Manteca
N/S: Memorial Lane
E/W: E Woodward Avenue
Weather: Clear

File Name : 08_MTC_Mem_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

Groups Printed- Total Volume

	E Woodward Avenue Westbound			Memorial Lane Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	5	12	17	7	1	8	10	3	13	38
07:15 AM	2	11	13	2	1	3	13	2	15	31
07:30 AM	1	16	17	5	2	7	25	1	26	50
07:45 AM	1	14	15	7	3	10	26	1	27	52
Total	9	53	62	21	7	28	74	7	81	171
08:00 AM	1	30	31	6	5	11	20	3	23	65
08:15 AM	0	22	22	9	4	13	33	1	34	69
08:30 AM	4	28	32	5	7	12	28	3	31	75
08:45 AM	4	42	46	9	5	14	39	6	45	105
Total	9	122	131	29	21	50	120	13	133	314
09:00 AM	4	55	59	11	10	21	38	6	44	124
09:15 AM	2	35	37	8	3	11	42	4	46	94
09:30 AM	1	34	35	13	8	21	25	4	29	85
09:45 AM	5	51	56	9	6	15	37	4	41	112
Total	12	175	187	41	27	68	142	18	160	415
10:00 AM	4	58	62	10	6	16	57	5	62	140
10:15 AM	9	54	63	8	7	15	37	5	42	120
10:30 AM	4	43	47	5	8	13	46	6	52	112
10:45 AM	8	50	58	10	9	19	64	7	71	148
Total	25	205	230	33	30	63	204	23	227	520
Grand Total	55	555	610	124	85	209	540	61	601	1420
Apprch %	9	91		59.3	40.7		89.9	10.1		
Total %	3.9	39.1	43	8.7	6	14.7	38	4.3	42.3	

	E Woodward Avenue Westbound			Memorial Lane Northbound			E Woodward Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 10:00 AM										
10:00 AM	4	**58**	62	**10**	6	16	57	5	62	140
10:15 AM	**9**	54	**63**	8	7	15	37	5	42	120
10:30 AM	4	43	47	5	8	13	46	6	52	112
10:45 AM	8	50	58	10	**9**	**19**	**64**	**7**	**71**	**148**
Total Volume	25	205	230	33	30	63	204	23	227	520
% App. Total	10.9	89.1		52.4	47.6		89.9	10.1		
PHF	.694	.884	.913	.825	.833	.829	.797	.821	.799	.878

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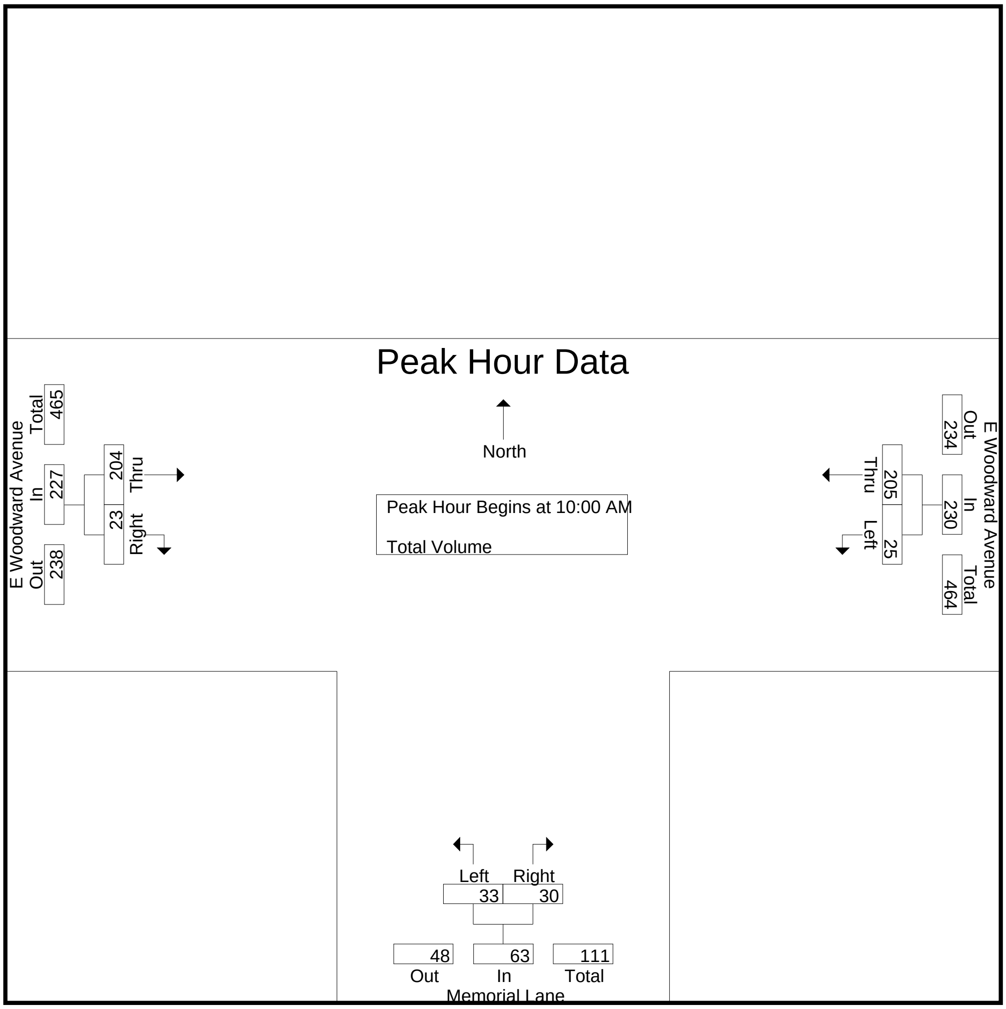
City of Manteca
N/S: Memorial Lane
E/W: E Woodward Avenue
Weather: Clear

File Name : 08_MTC_Mem_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	10:00 AM			09:00 AM			10:00 AM		
+0 mins.	4	**58**	62	11	**10**	**21**	57	5	62
+15 mins.	**9**	54	**63**	8	3	11	37	5	42
+30 mins.	4	43	47	**13**	8	21	46	6	52
+45 mins.	8	50	58	9	6	15	**64**	**7**	**71**
Total Volume	25	205	230	41	27	68	204	23	227
% App. Total	10.9	89.1		60.3	39.7		89.9	10.1	
PHF	.694	.884	.913	.788	.675	.810	.797	.821	.799

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City of Manteca
N/S: Atherton Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 09_MTC_Ath_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

Groups Printed- Total Volume

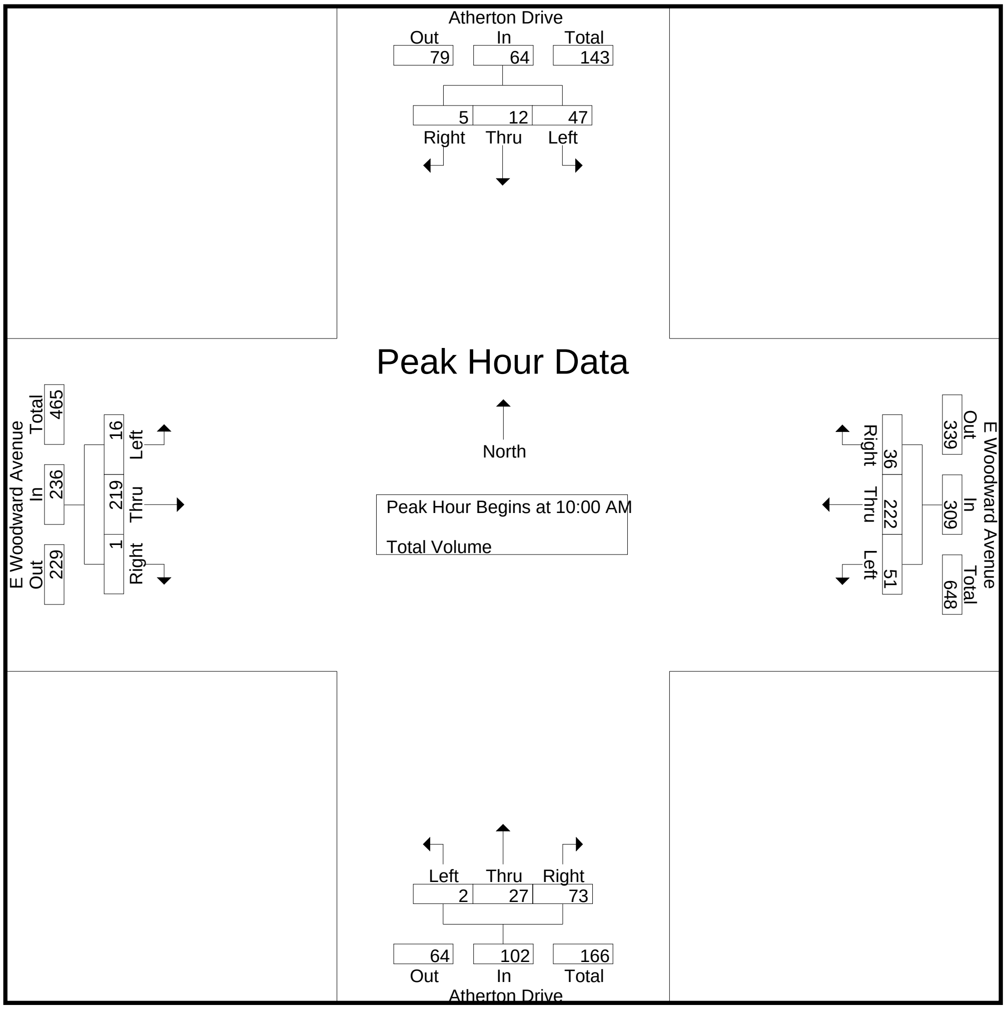
	Atherton Drive Southbound				E Woodward Avenue Westbound				Atherton Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	6	1	1	8	4	17	3	24	0	1	6	7	1	10	1	12	51
07:15 AM	6	0	2	8	2	13	4	19	0	1	15	16	0	15	0	15	58
07:30 AM	7	3	2	12	2	13	6	21	0	2	11	13	2	23	1	26	72
07:45 AM	7	1	0	8	5	13	2	20	3	2	12	17	1	28	0	29	74
Total	26	5	5	36	13	56	15	84	3	6	44	53	4	76	2	82	255
08:00 AM	4	2	1	7	3	32	4	39	2	1	9	12	2	25	0	27	85
08:15 AM	12	2	1	15	6	21	2	29	0	4	15	19	0	34	1	35	98
08:30 AM	8	2	1	11	6	31	7	44	0	4	15	19	2	31	3	36	110
08:45 AM	11	2	1	14	5	48	6	59	0	3	11	14	1	40	2	43	130
Total	35	8	4	47	20	132	19	171	2	12	50	64	5	130	6	141	423
09:00 AM	6	1	1	8	9	56	4	69	0	7	15	22	3	44	2	49	148
09:15 AM	6	1	0	7	10	36	13	59	0	4	16	20	3	38	1	42	128
09:30 AM	8	1	1	10	13	34	9	56	0	6	12	18	0	34	1	35	119
09:45 AM	17	4	1	22	11	56	9	76	2	5	20	27	2	42	0	44	169
Total	37	7	3	47	43	182	35	260	2	22	63	87	8	158	4	170	564
10:00 AM	13	5	2	20	14	59	7	80	1	9	18	28	6	59	0	65	193
10:15 AM	5	3	1	9	14	62	10	86	0	7	19	26	2	41	1	44	165
10:30 AM	20	2	1	23	11	47	8	66	0	6	23	29	6	43	0	49	167
10:45 AM	9	2	1	12	12	54	11	77	1	5	13	19	2	76	0	78	186
Total	47	12	5	64	51	222	36	309	2	27	73	102	16	219	1	236	711
Grand Total	145	32	17	194	127	592	105	824	9	67	230	306	33	583	13	629	1953
Apprch %	74.7	16.5	8.8		15.4	71.8	12.7		2.9	21.9	75.2		5.2	92.7	2.1		
Total %	7.4	1.6	0.9	9.9	6.5	30.3	5.4	42.2	0.5	3.4	11.8	15.7	1.7	29.9	0.7	32.2	

	Atherton Drive Southbound				E Woodward Avenue Westbound				Atherton Drive Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 10:00 AM																	
10:00 AM	13	**5**	**2**	20	**14**	59	7	80	**1**	**9**	18	28	**6**	59	0	65	**193**
10:15 AM	5	3	1	9	14	**62**	10	**86**	0	7	19	26	2	41	**1**	44	165
10:30 AM	**20**	2	1	**23**	11	47	8	66	0	6	**23**	**29**	6	43	0	49	167
10:45 AM	9	2	1	12	12	54	**11**	77	1	5	13	19	2	**76**	0	**78**	186
Total Volume	47	12	5	64	51	222	36	309	2	27	73	102	16	219	1	236	711
% App. Total	73.4	18.8	7.8		16.5	71.8	11.7		2	26.5	71.6		6.8	92.8	0.4		
PHF	.588	.600	.625	.696	.911	.895	.818	.898	.500	.750	.793	.879	.667	.720	.250	.756	.921

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Atherton Drive
E/W: E Woodward Avenue
Weather: Clear

File Name : 09_MTC_Ath_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	09:45 AM				10:00 AM				09:45 AM				10:00 AM			
+0 mins.	17	4	1	22	**14**	59	7	80	**2**	5	20	27	**6**	59	0	65
+15 mins.	13	**5**	**2**	20	14	**62**	10	**86**	1	**9**	18	28	2	41	**1**	44
+30 mins.	5	3	1	9	11	47	8	66	0	7	19	26	6	43	0	49
+45 mins.	**20**	2	1	**23**	12	54	**11**	77	0	6	**23**	**29**	2	**76**	0	**78**
Total Volume	55	14	5	74	51	222	36	309	3	27	80	110	16	219	1	236
% App. Total	74.3	18.9	6.8		16.5	71.8	11.7		2.7	24.5	72.7		6.8	92.8	0.4	
PHF	.688	.700	.625	.804	.911	.895	.818	.898	.375	.750	.870	.948	.667	.720	.250	.756

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Moffat Boulevard
E/W: E Woodward Avenue
Weather: Clear

File Name : 10_MTC_Mof_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 1

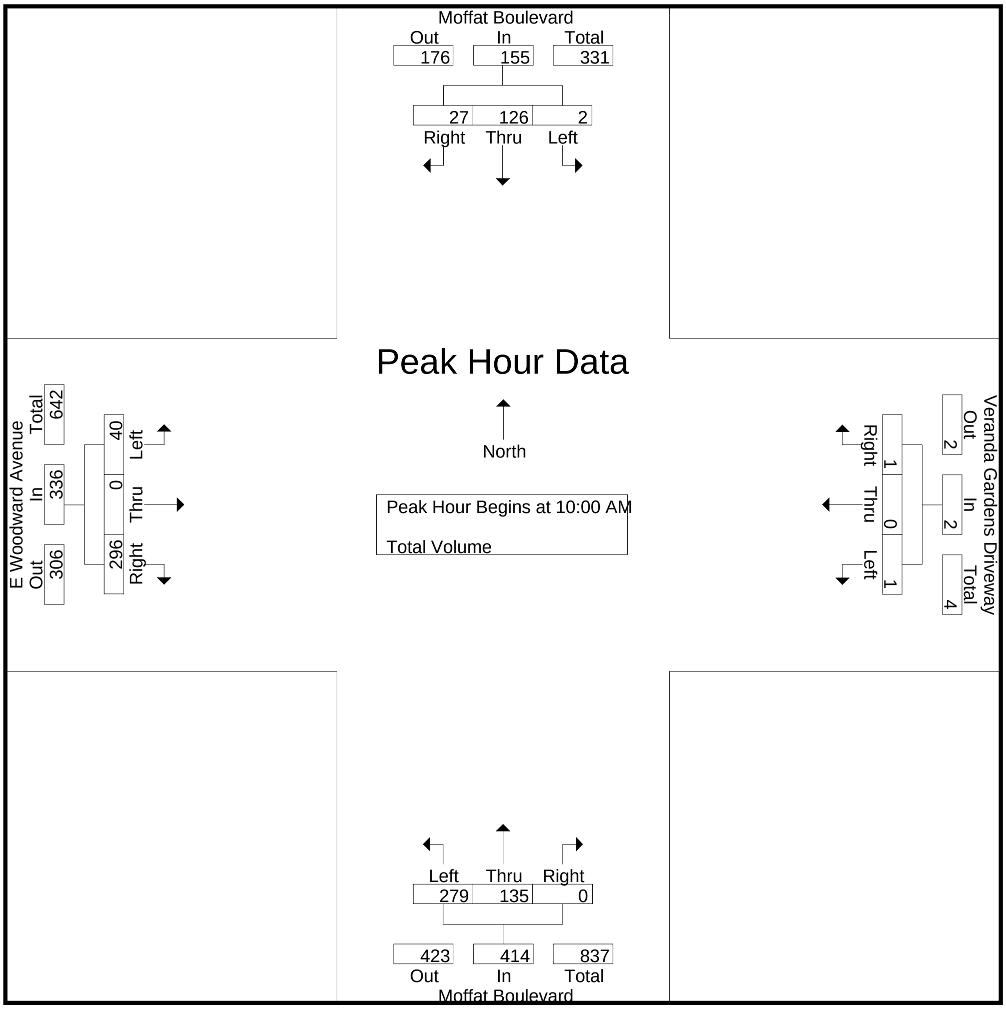
Groups Printed- Total Volume

	Moffat Boulevard Southbound				Veranda Gardens Driveway Westbound				Moffat Boulevard Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	9	0	9	0	0	0	0	22	9	0	31	2	0	22	24	64
07:15 AM	0	9	2	11	0	0	0	0	17	14	0	31	3	0	31	34	76
07:30 AM	0	14	0	14	0	0	0	0	22	17	0	39	1	0	35	36	89
07:45 AM	0	15	1	16	0	0	0	0	21	21	0	42	3	0	47	50	108
Total	0	47	3	50	0	0	0	0	82	61	0	143	9	0	135	144	337
08:00 AM	0	21	1	22	0	0	0	0	37	10	0	47	7	0	34	41	110
08:15 AM	0	10	1	11	0	0	0	0	31	20	0	51	6	0	57	63	125
08:30 AM	0	21	3	24	0	0	0	0	39	23	0	62	2	0	52	54	140
08:45 AM	0	23	8	31	0	0	0	0	52	40	0	92	2	0	56	58	181
Total	0	75	13	88	0	0	0	0	159	93	0	252	17	0	199	216	556
09:00 AM	0	23	4	27	0	0	0	0	65	17	0	82	9	0	61	70	179
09:15 AM	0	26	6	32	0	0	0	0	51	22	0	73	7	0	52	59	164
09:30 AM	0	24	5	29	0	0	0	0	52	32	0	84	3	0	50	53	166
09:45 AM	0	27	12	39	0	0	0	0	60	43	0	103	6	0	72	78	220
Total	0	100	27	127	0	0	0	0	228	114	0	342	25	0	235	260	729
10:00 AM	0	38	8	46	0	0	0	0	79	34	0	113	6	0	82	88	247
10:15 AM	1	26	6	33	0	0	0	0	76	34	0	110	10	0	56	66	209
10:30 AM	1	26	9	36	1	0	1	2	59	25	0	84	11	0	65	76	198
10:45 AM	0	36	4	40	0	0	0	0	65	42	0	107	13	0	93	106	253
Total	2	126	27	155	1	0	1	2	279	135	0	414	40	0	296	336	907
Grand Total	2	348	70	420	1	0	1	2	748	403	0	1151	91	0	865	956	2529
Apprch %	0.5	82.9	16.7		50	0	50		65	35	0		9.5	0	90.5		
Total %	0.1	13.8	2.8	16.6	0	0	0	0.1	29.6	15.9	0	45.5	3.6	0	34.2	37.8	

	Moffat Boulevard Southbound				Veranda Gardens Driveway Westbound				Moffat Boulevard Northbound				E Woodward Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 10:00 AM																	
10:00 AM	0	**38**	8	**46**	0	0	0	0	**79**	34	0	**113**	6	0	82	88	247
10:15 AM	**1**	26	6	33	0	0	0	0	76	34	0	110	10	0	56	66	209
10:30 AM	1	26	**9**	36	**1**	0	**1**	**2**	59	25	0	84	11	0	65	76	198
10:45 AM	0	36	4	40	0	0	0	0	65	**42**	0	107	**13**	0	**93**	**106**	**253**
Total Volume	2	126	27	155	1	0	1	2	279	135	0	414	40	0	296	336	907
% App. Total	1.3	81.3	17.4		50	0	50		67.4	32.6	0		11.9	0	88.1		
PHF	.500	.829	.750	.842	.250	.000	.250	.250	.883	.804	.000	.916	.769	.000	.796	.792	.896

City of Manteca
N/S: Moffat Boulevard
E/W: E Woodward Avenue
Weather: Clear

File Name : 10_MTC_Mof_E Woo SAT
Site Code : 23624682
Start Date : 9/7/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 10:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	10:00 AM				09:45 AM				10:00 AM				10:00 AM			
+0 mins.	0	**38**	8	**46**	0	0	0	0	**79**	34	0	**113**	6	0	82	88
+15 mins.	**1**	26	6	33	0	0	0	0	76	34	0	110	10	0	56	66
+30 mins.	1	26	**9**	36	0	0	0	0	59	25	0	84	11	0	65	76
+45 mins.	0	36	4	40	**1**	0	**1**	**2**	65	**42**	0	107	**13**	0	**93**	**106**
Total Volume	2	126	27	155	1	0	1	2	279	135	0	414	40	0	296	336
% App. Total	1.3	81.3	17.4		50	0	50		67.4	32.6	0		11.9	0	88.1	
PHF	.500	.829	.750	.842	.250	.000	.250	.250	.883	.804	.000	.916	.769	.000	.796	.792

APPENDIX B

HCM ANALYSIS WORKSHEETS

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	37.6
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.999

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	71	313	49	215	208	28	20	138	47	31	161	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	313	49	215	208	28	20	138	47	31	161	266
Peak Hour Factor	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	88	14	61	59	8	6	39	13	9	45	75
Total Analysis Volume [veh/h]	80	354	55	243	235	32	23	156	53	35	182	301
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	383	409	370	394	344	368	360	379	410
Degree of Utilization, x	0.21	1.00	0.66	0.68	0.07	0.57	0.10	0.48	0.73

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.77	12.37	4.49	4.85	0.21	3.38	0.32	2.52	5.82
95th-Percentile Queue Length [ft]	19.34	309.22	112.13	121.17	5.35	84.43	8.03	62.97	145.50
Approach Delay [s/veh]	64.48		29.19		23.57		26.94		
Approach LOS	F		D		C		D		
Intersection Delay [s/veh]	37.65								
Intersection LOS	E								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	27.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	74	1	79	2	4	19	10	310	62	53	341	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	1	79	2	4	19	10	310	62	53	341	5
Peak Hour Factor	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	0	24	1	1	6	3	93	19	16	102	2
Total Analysis Volume [veh/h]	89	1	95	2	5	23	12	372	74	64	409	6
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.34	0.00	0.12	0.01	0.02	0.03	0.01	0.00	0.00	0.06	0.00	0.00
d_M, Delay for Movement [s/veh]	25.82	27.30	10.20	19.96	21.39	9.91	8.15	0.00	0.00	8.39	0.00	0.00
Movement LOS	D	D	B	C	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.47	1.47	0.41	0.19	0.19	0.19	0.03	0.00	0.00	0.18	0.00	0.00
95th-Percentile Queue Length [ft/ln]	36.85	36.85	10.25	4.67	4.67	4.67	0.79	0.00	0.00	4.52	0.00	0.00
d_A, Approach Delay [s/veh]	17.81			12.50			0.21			1.12		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	3.74											
Intersection LOS	D											

Intersection Level Of Service Report

Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.211

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	64	3	24	6	0	23	20	314	56	17	308	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	3	24	6	0	23	20	314	56	17	308	9
Peak Hour Factor	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	1	7	2	0	7	6	90	16	5	89	3
Total Analysis Volume [veh/h]	74	3	28	7	0	26	23	362	65	20	355	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	31	0	10	19	0	10	19	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	30	30	2	12	12	2	11	11
g / C, Green / Cycle	0.34	0.34	0.34	0.03	0.13	0.13	0.02	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.04	0.02	0.02	0.01	0.10	0.04	0.01	0.10	0.10
s, saturation flow rate [veh/h]	1813	1615	1653	1810	3618	1615	1810	1900	1882
c, Capacity [veh/h]	607	541	553	46	469	210	42	242	240
d1, Uniform Delay [s]	20.84	20.31	20.36	43.35	37.94	35.58	43.50	38.00	38.01
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.43	0.18	0.21	7.91	2.72	0.83	8.09	4.79	4.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.05	0.06	0.49	0.77	0.31	0.48	0.76	0.76
d, Delay for Lane Group [s/veh]	21.27	20.49	20.57	51.26	40.66	36.41	51.59	42.79	42.91
Lane Group LOS	C	C	C	D	D	D	D	D	D
Critical Lane Group	Yes	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.20	0.43	0.50	0.59	3.84	1.28	0.52	4.03	4.01
50th-Percentile Queue Length [ft/ln]	29.91	10.64	12.56	14.69	96.08	32.07	12.93	100.66	100.23
95th-Percentile Queue Length [veh/ln]	2.15	0.77	0.90	1.06	6.92	2.31	0.93	7.25	7.22
95th-Percentile Queue Length [ft/ln]	53.84	19.15	22.60	26.44	172.94	57.73	23.27	181.19	180.42

Movement, Approach, & Intersection Results

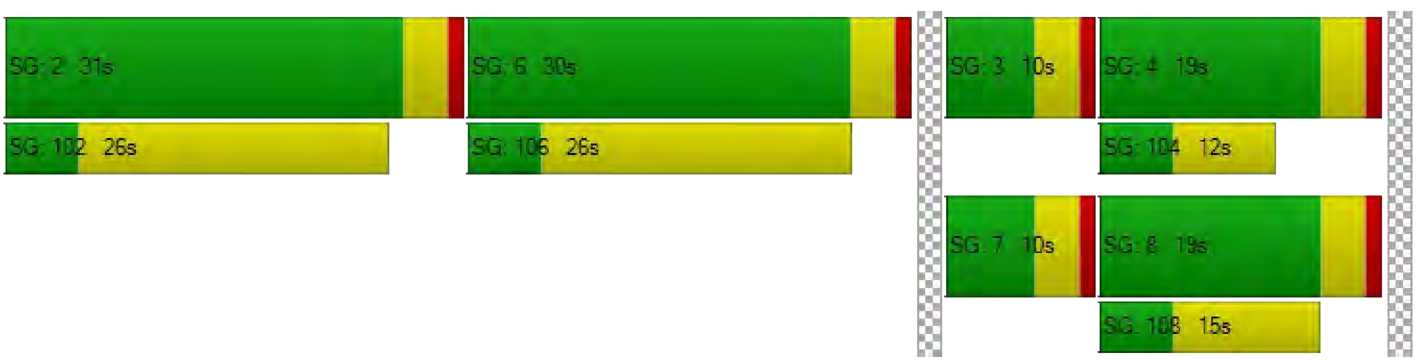
d_M, Delay for Movement [s/veh]	21.27	21.27	20.49	20.57	20.57	20.57	51.26	40.66	36.41	51.59	42.85	42.91
Movement LOS	C	C	C	C	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	21.06			20.57			40.59			43.30		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.88											
Intersection LOS	D											
Intersection V/C	0.211											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.993	1.744	2.675	2.645
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	599	333	333
d_b, Bicycle Delay [s]	22.80	22.09	31.29	31.29
I_b,int, Bicycle LOS Score for Intersection	1.733	1.614	1.931	1.877
Bicycle LOS	A	A	A	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Pk Drwy #2-Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	19.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	8	4	31	14	5	15	10	329	5	48	314	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	4	31	14	5	15	10	329	5	48	314	18
Peak Hour Factor	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	9	4	1	4	3	94	1	14	90	5
Total Analysis Volume [veh/h]	9	5	36	16	6	17	11	378	6	55	361	21
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.04	0.05	0.02	0.02	0.01	0.00	0.00	0.05	0.00	0.00
d_M, Delay for Movement [s/veh]	17.66	19.18	10.05	18.16	19.33	10.33	8.06	0.00	0.00	8.18	0.00	0.00
Movement LOS	C	C	B	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.30	0.30	0.30	0.32	0.32	0.32	0.03	0.00	0.00	0.15	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.60	7.60	7.60	8.01	8.01	8.01	0.70	0.00	0.00	3.64	0.00	0.00
d_A, Approach Delay [s/veh]	12.33			14.92			0.22			1.03		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.89											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.084

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	33	107	141	203	263	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	107	141	203	263	48
Peak Hour Factor	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	31	41	59	77	14
Total Analysis Volume [veh/h]	39	125	165	238	308	56
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.15	0.14	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.49	10.06	8.46	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.27	0.52	0.47	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.86	13.11	11.85	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.88		3.46		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.42					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.437

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	109	39	180	56	25	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	109	39	180	56	25	208
Peak Hour Factor	0.8380	0.8380	0.8380	0.8380	0.8380	0.8380
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	12	54	17	7	62
Total Analysis Volume [veh/h]	130	47	215	67	30	248
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	549	672	646	611	668	668
Degree of Utilization, x	0.24	0.07	0.44	0.05	0.19	0.19

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.91	0.23	2.22	0.15	0.68	0.68
95th-Percentile Queue Length [ft]	22.86	5.63	55.45	3.87	16.94	16.94
Approach Delay [s/veh]	10.53		12.83	9.27		
Approach LOS	B		B	A		
Intersection Delay [s/veh]	10.94					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	14	6	8	211	225	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	6	8	211	225	15
Peak Hour Factor	0.8740	0.8740	0.8740	0.8740	0.8740	0.8740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	2	2	60	64	4
Total Analysis Volume [veh/h]	16	7	9	241	257	17
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.35	9.06	7.79	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.02	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.78	0.59	0.52	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.96		0.28		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.55					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.056

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	33	30	204	23	25	205
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	30	204	23	25	205
Peak Hour Factor	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	9	58	7	7	58
Total Analysis Volume [veh/h]	38	34	232	26	28	233
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.04	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	10.75	9.47	0.00	0.00	7.79	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.31	0.31	0.00	0.00	0.07	0.00
95th-Percentile Queue Length [ft/ln]	7.69	7.69	0.00	0.00	1.63	0.00
d_A, Approach Delay [s/veh]	10.15		0.00		0.84	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.61					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.379

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	2	27	73	47	12	5	16	219	1	51	222	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	27	73	47	12	5	16	219	1	51	222	36
Peak Hour Factor	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	7	20	13	3	1	4	59	0	14	60	10
Total Analysis Volume [veh/h]	2	29	79	51	13	5	17	238	1	55	241	39
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	529	571	642	524	565	636	578	628	715	583	634	657
Degree of Utilization, x	0.00	0.05	0.12	0.10	0.02	0.01	0.03	0.38	0.00	0.09	0.22	0.21

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.01	0.16	0.42	0.32	0.07	0.02	0.09	1.77	0.00	0.31	0.84	0.80
95th-Percentile Queue Length [ft]	0.28	4.00	10.46	8.03	1.76	0.59	2.27	44.14	0.11	7.77	20.94	20.05
Approach Delay [s/veh]	9.16			9.96			11.68			9.76		
Approach LOS	A			A			B			A		
Intersection Delay [s/veh]	10.33											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	43.4
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	279	135	0	2	126	27	40	0	296	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	279	135	0	2	126	27	40	0	296	1	0	1
Peak Hour Factor	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	78	38	0	1	35	8	11	0	83	0	0	0
Total Analysis Volume [veh/h]	311	151	0	2	141	30	45	0	330	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.37	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.25	0.00	0.00	7.50	0.00	0.00	19.83	19.31	11.35	43.37	22.82	9.25
Movement LOS	A	A	A	A	A	A	C	C	B	E	C	A
95th-Percentile Queue Length [veh/ln]	0.84	0.00	0.00	0.00	0.00	0.00	0.55	0.55	1.71	0.04	0.04	0.04
95th-Percentile Queue Length [ft/ln]	20.94	0.00	0.00	0.09	0.09	0.09	13.67	13.67	42.77	0.89	0.89	0.89
d_A, Approach Delay [s/veh]	5.55			0.09			12.37			26.31		
Approach LOS	A			A			B			D		
d_I, Intersection Delay [s/veh]	7.19											
Intersection LOS	E											

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	45.7
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.087

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	71	313	49	215	208	28	20	138	47	31	161	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	17	34	0	0	0	17	0	16	16	33
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	313	66	249	208	28	20	155	47	47	177	299
Peak Hour Factor	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	88	19	70	59	8	6	44	13	13	50	84
Total Analysis Volume [veh/h]	80	354	75	281	235	32	23	175	53	53	200	338
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	370	429	375	398	360	382	367	386	416
Degree of Utilization, x	0.22	1.09	0.75	0.67	0.06	0.60	0.14	0.52	0.81

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.81	15.02	5.95	4.74	0.20	3.72	0.50	2.88	7.41
95th-Percentile Queue Length [ft]	20.24	375.44	148.69	118.53	5.10	93.09	12.51	71.94	185.36
Approach Delay [s/veh]	87.59		32.24		24.08		31.28		
Approach LOS	F		D		C		D		
Intersection Delay [s/veh]	45.70								
Intersection LOS	E								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	41.1
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	74	1	79	2	4	19	10	310	62	53	341	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	17	17	0	0	0	68	0	16	65	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	1	96	19	4	19	10	378	62	69	406	21
Peak Hour Factor	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330	0.8330
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	0	29	6	1	6	3	113	19	21	122	6
Total Analysis Volume [veh/h]	89	1	115	23	5	23	12	454	74	83	487	25
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.46	0.01	0.16	0.13	0.03	0.03	0.01	0.00	0.00	0.08	0.00	0.00
d_M, Delay for Movement [s/veh]	38.67	41.11	10.75	28.63	29.87	12.98	8.42	0.00	0.00	8.73	0.00	0.00
Movement LOS	E	E	B	D	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.22	2.22	0.55	0.69	0.69	0.69	0.03	0.00	0.00	0.26	0.00	0.00
95th-Percentile Queue Length [ft/ln]	55.48	55.48	13.69	17.32	17.32	17.32	0.86	0.00	0.00	6.43	0.00	0.00
d_A, Approach Delay [s/veh]	23.02			21.69			0.19			1.22		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	4.78											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	38.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.265

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	64	3	24	6	0	23	20	314	56	17	308	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	17	0	0	0	102	0	0	97	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	3	24	23	0	23	20	416	56	17	405	25
Peak Hour Factor	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680	0.8680
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	1	7	7	0	7	6	120	16	5	117	7
Total Analysis Volume [veh/h]	74	3	28	26	0	26	23	479	65	20	467	29
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	31	0	9	19	0	10	20	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	29	29	29	2	15	15	2	14	14
g / C, Green / Cycle	0.32	0.32	0.32	0.03	0.16	0.16	0.02	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.04	0.02	0.03	0.01	0.13	0.04	0.01	0.13	0.13
s, saturation flow rate [veh/h]	1813	1615	1707	1810	3618	1615	1810	1900	1861
c, Capacity [veh/h]	576	513	542	46	592	264	42	306	300
d1, Uniform Delay [s]	21.91	21.35	21.64	43.35	36.35	32.86	43.50	36.53	36.56
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.48	0.20	0.35	7.91	2.70	0.48	8.09	5.30	5.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.05	0.10	0.49	0.81	0.25	0.48	0.82	0.82
d, Delay for Lane Group [s/veh]	22.39	21.55	21.99	51.26	39.05	33.34	51.59	41.83	42.08
Lane Group LOS	C	C	C	D	D	C	D	D	D
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.23	0.44	0.83	0.59	5.02	1.21	0.52	5.47	5.40
50th-Percentile Queue Length [ft/ln]	30.87	10.98	20.63	14.69	125.49	30.31	12.93	136.79	135.11
95th-Percentile Queue Length [veh/ln]	2.22	0.79	1.49	1.06	8.69	2.18	0.93	9.31	9.22
95th-Percentile Queue Length [ft/ln]	55.57	19.76	37.14	26.44	217.35	54.55	23.27	232.69	230.42

Movement, Approach, & Intersection Results

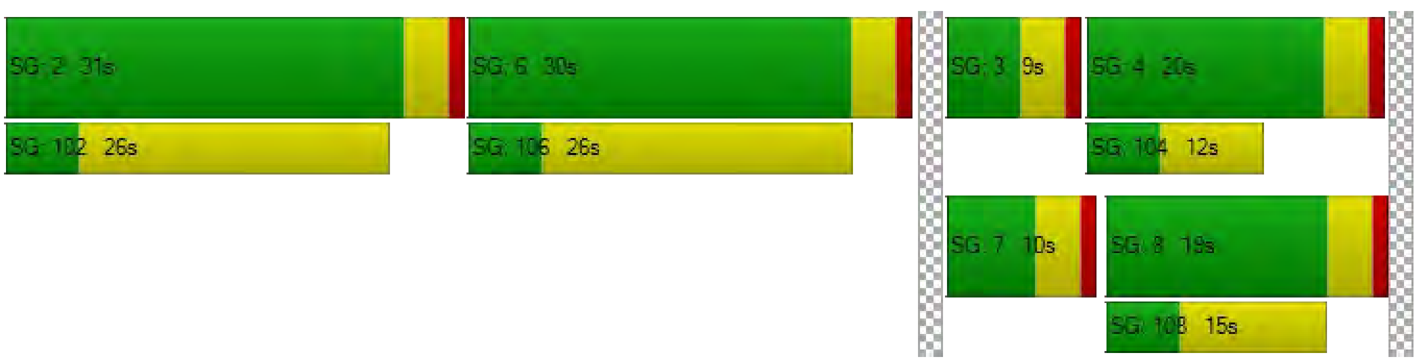
d_M, Delay for Movement [s/veh]	22.39	22.39	21.55	21.99	21.99	21.99	51.26	39.05	33.34	51.59	41.95	42.08
Movement LOS	C	C	C	C	C	C	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	22.17			21.99			38.89			42.33		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.20											
Intersection LOS	D											
Intersection V/C	0.265											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.993	1.760	2.731	2.710
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	599	333	355
d_b, Bicycle Delay [s]	22.80	22.09	31.29	30.47
I_b,int, Bicycle LOS Score for Intersection	1.733	1.645	2.027	1.985
Bicycle LOS	A	A	B	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Pk Drwy #2-Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	32.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	8	4	31	14	5	15	10	329	5	48	314	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	34	0	0	0	119	0	0	113	33
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	4	31	48	5	15	10	448	5	48	427	51
Peak Hour Factor	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	9	14	1	4	3	129	1	14	123	15
Total Analysis Volume [veh/h]	9	5	36	55	6	17	11	514	6	55	490	59
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.03	0.05	0.27	0.03	0.02	0.01	0.01	0.00	0.05	0.00	0.00
d_M, Delay for Movement [s/veh]	23.21	26.67	11.00	30.09	32.03	17.19	8.53	0.00	0.00	8.59	0.00	0.00
Movement LOS	C	D	B	D	D	C	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.40	0.40	0.40	1.37	1.37	1.37	0.03	0.00	0.00	0.16	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.08	10.08	10.08	34.36	34.36	34.36	0.81	0.00	0.00	4.11	0.00	0.00
d_A, Approach Delay [s/veh]	14.76			27.43			0.18			0.78		
Approach LOS	B			D			A			A		
d_I, Intersection Delay [s/veh]	2.73											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.209

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	33	107	141	203	263	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	34	0	0	153	146	33
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	107	141	356	409	81
Peak Hour Factor	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	31	41	104	120	24
Total Analysis Volume [veh/h]	79	125	165	417	479	95
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.17	0.16	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	17.06	11.09	9.26	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.78	0.63	0.58	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	19.47	15.74	14.58	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.40		2.63		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.13					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	41.6
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.024

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	109	39	180	56	25	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	179	0	187	0	119	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	39	367	56	144	208
Peak Hour Factor	0.8380	0.8380	0.8380	0.8380	0.8380	0.8380
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	12	109	17	43	62
Total Analysis Volume [veh/h]	344	47	438	67	172	248
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	445	521	505	476	509	509
Degree of Utilization, x	0.77	0.09	1.02	0.36	0.24	0.24

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.69	0.30	14.52	1.63	0.95	0.95
95th-Percentile Queue Length [ft]	167.22	7.40	363.11	40.69	23.65	23.65
Approach Delay [s/veh]	30.63		73.98	13.03		
Approach LOS	D		F	B		
Intersection Delay [s/veh]	41.65					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	14	6	8	211	225	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	34	33	80	85	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	40	41	291	310	15
Peak Hour Factor	0.8740	0.8740	0.8740	0.8740	0.8740	0.8740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	11	12	83	89	4
Total Analysis Volume [veh/h]	16	46	47	333	355	17
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.06	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.45	9.59	8.13	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.18	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.15	4.39	3.06	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.07		1.01		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.24					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.092

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	33	30	204	23	25	205
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	0	64	16	0	68
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	30	268	39	25	273
Peak Hour Factor	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	9	76	11	7	78
Total Analysis Volume [veh/h]	57	34	305	44	28	311
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.04	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	11.63	10.06	0.00	0.00	8.02	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.46	0.46	0.00	0.00	0.07	0.00
95th-Percentile Queue Length [ft/ln]	11.39	11.39	0.00	0.00	1.76	0.00
d_A, Approach Delay [s/veh]	11.05		0.00		0.66	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.58					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.445

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	2	27	73	47	12	5	16	219	1	51	222	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	0	0	0	0	17	16	32	16	0	34	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	27	73	47	12	22	32	251	17	51	256	36
Peak Hour Factor	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	7	20	13	3	6	9	68	5	14	69	10
Total Analysis Volume [veh/h]	21	29	79	51	13	24	35	273	18	55	278	39
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	517	555	622	515	553	618	566	614	696	565	613	632
Degree of Utilization, x	0.04	0.05	0.13	0.10	0.02	0.04	0.06	0.44	0.03	0.10	0.26	0.25

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.13	0.16	0.43	0.33	0.07	0.12	0.20	2.28	0.08	0.32	1.03	0.99
95th-Percentile Queue Length [ft]	3.17	4.12	10.86	8.21	1.80	3.03	4.92	57.02	1.99	8.04	25.70	24.73
Approach Delay [s/veh]	9.48			9.84			12.49			10.35		
Approach LOS	A			A			B			B		
Intersection Delay [s/veh]	10.94											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	49.7
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	279	135	0	2	126	27	40	0	296	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	0	0	0	0	17	16	0	16	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	296	135	0	2	126	44	56	0	312	1	0	1
Peak Hour Factor	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	83	38	0	1	35	12	16	0	87	0	0	0
Total Analysis Volume [veh/h]	330	151	0	2	141	49	63	0	348	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.39	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.38	0.00	0.00	7.50	0.00	0.00	22.52	21.86	11.69	49.67	24.73	9.33
Movement LOS	A	A	A	A	A	A	C	C	B	E	C	A
95th-Percentile Queue Length [veh/ln]	0.92	0.00	0.00	0.00	0.00	0.00	0.89	0.89	1.89	0.04	0.04	0.04
95th-Percentile Queue Length [ft/ln]	23.06	0.00	0.00	0.09	0.09	0.09	22.28	22.28	47.34	1.02	1.02	1.02
d_A, Approach Delay [s/veh]	5.75			0.08			13.35			29.50		
Approach LOS	A			A			B			D		
d_I, Intersection Delay [s/veh]	7.67											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 11: Project Driveway #1/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.121

Intersection Setup

Name	Project Driveway #1		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	10.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Driveway #1		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	113	0	187	0	119
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-31	31	0	20
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	113	0	218	0	139
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	28	0	55	0	35
Total Analysis Volume [veh/h]	0	113	0	218	0	139
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.12	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	9.40	0.00	0.00	0.00	0.00
Movement LOS		A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.41	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	10.33	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.40		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.26					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 12: Pillsbury Rd/Project Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.153

Intersection Setup

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		10.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	26	0	119	0	134
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	-5	5	0	0	0	22
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	31	0	119	0	156
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	8	0	30	0	39
Total Analysis Volume [veh/h]	40	31	0	119	0	156
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.15
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	9.18
Movement LOS	A	A		A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.54
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	13.52
d_A, Approach Delay [s/veh]	0.00		0.00		9.18	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.14					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 13: Pillsbury Rd/Brenda Lee Dr-Project Driveway #3

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.066

Intersection Setup

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	60.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			10.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	26	9	119	0	0	0	0	0	33	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	-1	1	20	-20	0	0	0	0	6	0	8
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	25	10	139	0	0	0	0	0	39	0	53
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	6	3	35	0	0	0	0	0	10	0	13
Total Analysis Volume [veh/h]	0	25	10	139	0	0	0	0	0	39	0	53
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.05
d_M, Delay for Movement [s/veh]	7.20	0.00	0.00	7.48	0.00	0.00	11.67	11.51	8.30	11.68	12.07	9.03
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.29	0.29	0.29	0.00	0.00	0.00	0.39	0.39	0.39
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	7.18	7.18	7.18	0.00	0.00	0.00	9.83	9.83	9.83
d_A, Approach Delay [s/veh]	0.00			7.48			10.49			10.15		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	7.42											
Intersection LOS	B											

CUMULATIVE TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	57.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.198

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	┐├			┐├			┐├			┐║┌		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	71	313	49	215	208	28	20	138	47	31	161	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	399	62	274	265	36	26	176	60	40	205	339
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	100	16	69	66	9	7	44	15	10	51	85
Total Analysis Volume [veh/h]	91	399	62	274	265	36	26	176	60	40	205	339
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	362	461	371	393	353	375	360	378	408
Degree of Utilization, x	0.25	1.20	0.74	0.77	0.07	0.63	0.11	0.54	0.83

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.98	18.75	5.76	6.33	0.24	4.12	0.37	3.10	7.79
95th-Percentile Queue Length [ft]	24.46	468.81	144.01	158.35	5.94	103.00	9.28	77.52	194.69
Approach Delay [s/veh]	120.00		35.86		25.93		33.73		
Approach LOS	F		E		D		D		
Intersection Delay [s/veh]	57.45								
Intersection LOS	F								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	31.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	74	1	79	2	4	19	10	310	62	53	341	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	1	101	3	5	24	13	395	79	68	435	6
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	0	25	1	1	6	3	99	20	17	109	2
Total Analysis Volume [veh/h]	94	1	101	3	5	24	13	395	79	68	435	6
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.39	0.00	0.13	0.01	0.02	0.03	0.01	0.00	0.00	0.06	0.00	0.00
d_M, Delay for Movement [s/veh]	29.69	31.29	10.38	21.56	23.07	10.12	8.22	0.00	0.00	8.49	0.00	0.00
Movement LOS	D	D	B	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.80	1.80	0.45	0.22	0.22	0.22	0.03	0.00	0.00	0.20	0.00	0.00
95th-Percentile Queue Length [ft/ln]	45.05	45.05	11.25	5.45	5.45	5.45	0.87	0.00	0.00	4.94	0.00	0.00
d_A, Approach Delay [s/veh]	19.74			13.21			0.22			1.13		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	4.07											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	38.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.234

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	64	3	24	6	0	23	20	314	56	17	308	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	4	31	8	0	29	26	400	71	22	393	11
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	1	8	2	0	7	7	100	18	6	98	3
Total Analysis Volume [veh/h]	82	4	31	8	0	29	26	400	71	22	393	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	31	0	10	19	0	10	19	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	30	30	2	13	13	2	12	12
g / C, Green / Cycle	0.33	0.33	0.33	0.03	0.14	0.14	0.02	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.05	0.02	0.02	0.01	0.11	0.04	0.01	0.11	0.11
s, saturation flow rate [veh/h]	1814	1615	1653	1810	3618	1615	1810	1900	1882
c, Capacity [veh/h]	596	530	543	51	510	228	45	262	259
d1, Uniform Delay [s]	21.35	20.74	20.81	43.23	37.41	34.81	43.40	37.51	37.53
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	0.21	0.24	7.85	2.70	0.77	7.96	4.84	4.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.06	0.07	0.51	0.78	0.31	0.49	0.77	0.78
d, Delay for Lane Group [s/veh]	21.86	20.95	21.05	51.08	40.11	35.58	51.36	42.35	42.47
Lane Group LOS	C	C	C	D	D	D	D	D	D
Critical Lane Group	Yes	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.36	0.48	0.57	0.66	4.23	1.38	0.56	4.44	4.42
50th-Percentile Queue Length [ft/ln]	34.01	11.95	14.29	16.46	105.68	34.54	14.10	111.03	110.50
95th-Percentile Queue Length [veh/ln]	2.45	0.86	1.03	1.19	7.60	2.49	1.02	7.90	7.87
95th-Percentile Queue Length [ft/ln]	61.22	21.50	25.72	29.63	189.97	62.18	25.38	197.43	196.70

Movement, Approach, & Intersection Results

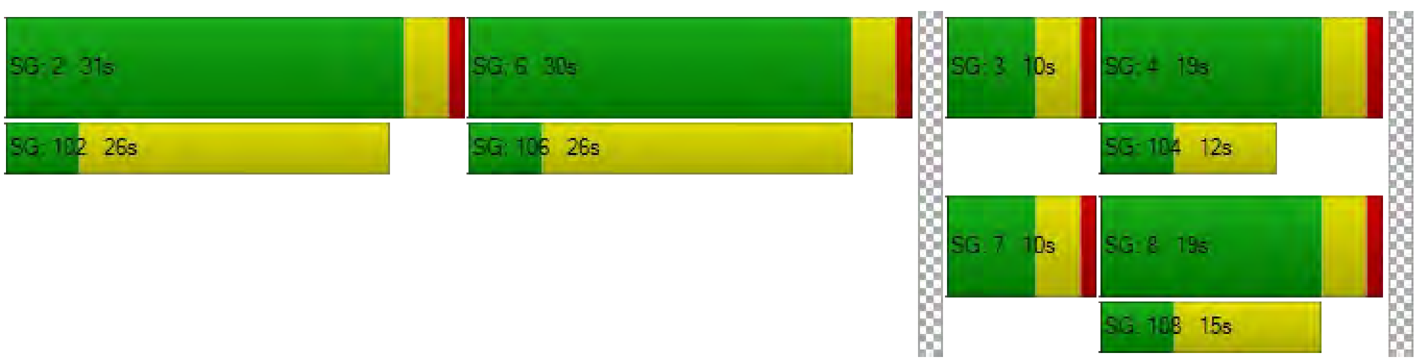
d_M, Delay for Movement [s/veh]	21.86	21.86	20.95	21.05	21.05	21.05	51.08	40.11	35.58	51.36	42.41	42.47
Movement LOS	C	C	C	C	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	21.62			21.05			40.04			42.88		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.51											
Intersection LOS	D											
Intersection V/C	0.234											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.999	1.748	2.698	2.665
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	599	333	333
d_b, Bicycle Delay [s]	22.80	22.09	31.29	31.29
I_b,int, Bicycle LOS Score for Intersection	1.753	1.621	1.970	1.911
Bicycle LOS	A	A	A	A

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Pk Drwy #2-Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	21.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	8	4	31	14	5	15	10	329	5	48	314	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	5	40	18	6	19	13	419	6	61	400	23
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	1	10	5	2	5	3	105	2	15	100	6
Total Analysis Volume [veh/h]	10	5	40	18	6	19	13	419	6	61	400	23
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.02	0.05	0.07	0.03	0.02	0.01	0.00	0.00	0.05	0.00	0.00
d_M, Delay for Movement [s/veh]	19.70	21.44	10.39	20.46	21.73	10.86	8.17	0.00	0.00	8.32	0.00	0.00
Movement LOS	C	C	B	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.37	0.37	0.37	0.40	0.40	0.40	0.03	0.00	0.00	0.17	0.00	0.00
95th-Percentile Queue Length [ft/ln]	9.21	9.21	9.21	10.11	10.11	10.11	0.86	0.00	0.00	4.21	0.00	0.00
d_A, Approach Delay [s/veh]	13.09			16.40			0.24			1.05		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	2.00											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.097

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	33	107	141	203	263	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	136	180	259	335	61
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	34	45	65	84	15
Total Analysis Volume [veh/h]	42	136	180	259	335	61
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.17	0.15	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.22	10.29	8.62	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.32	0.60	0.54	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	8.02	14.89	13.53	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.22		3.54		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.50					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	109	39	180	56	25	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	139	50	229	71	32	265
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	13	57	18	8	66
Total Analysis Volume [veh/h]	139	50	229	71	32	265
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	539	657	634	602	657	657
Degree of Utilization, x	0.26	0.08	0.47	0.05	0.20	0.20

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.02	0.25	2.54	0.17	0.75	0.75
95th-Percentile Queue Length [ft]	25.53	6.16	63.45	4.20	18.72	18.72
Approach Delay [s/veh]	10.87		13.66	9.50		
Approach LOS	B		B	A		
Intersection Delay [s/veh]	11.42					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.027

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	14	6	8	211	225	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	8	10	269	287	19
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	2	3	67	72	5
Total Analysis Volume [veh/h]	18	8	10	269	287	19
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.59	9.17	7.87	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.03	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.10	0.69	0.60	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.16		0.28		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.56					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.064

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	33	30	204	23	25	205
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	38	260	29	32	261
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	10	65	7	8	65
Total Analysis Volume [veh/h]	42	38	260	29	32	261
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.04	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	11.09	9.66	0.00	0.00	7.87	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.36	0.36	0.00	0.00	0.08	0.00
95th-Percentile Queue Length [ft/ln]	8.98	8.98	0.00	0.00	1.92	0.00
d_A, Approach Delay [s/veh]	10.41		0.00		0.86	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.64					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.463

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	2	27	73	47	12	5	16	219	1	51	222	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	34	93	60	15	6	20	279	1	65	283	46
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	23	15	4	2	5	70	0	16	71	12
Total Analysis Volume [veh/h]	3	34	93	60	15	6	20	279	1	65	283	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	504	542	605	499	536	598	557	603	682	560	606	628
Degree of Utilization, x	0.01	0.06	0.15	0.12	0.03	0.01	0.04	0.46	0.00	0.12	0.27	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	0.20	0.54	0.41	0.09	0.03	0.11	2.44	0.00	0.39	1.09	1.05
95th-Percentile Queue Length [ft]	0.45	5.01	13.51	10.18	2.16	0.76	2.79	60.95	0.11	9.79	27.35	26.18
Approach Delay [s/veh]	9.75			10.51			13.41			10.53		
Approach LOS	A			B			B			B		
Intersection Delay [s/veh]	11.37											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	62.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	279	135	0	2	126	27	40	0	296	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	356	172	0	3	161	34	51	0	377	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	43	0	1	40	9	13	0	94	0	0	0
Total Analysis Volume [veh/h]	356	172	0	3	161	34	51	0	377	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.26	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.43	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	8.48	0.00	0.00	7.54	0.00	0.00	24.32	23.35	12.26	62.79	27.74	9.64
Movement LOS	A	A	A	A	A	A	C	C	B	F	D	A
95th-Percentile Queue Length [veh/ln]	1.02	0.00	0.00	0.01	0.01	0.01	0.80	0.80	2.21	0.05	0.05	0.05
95th-Percentile Queue Length [ft/ln]	25.62	0.00	0.00	0.13	0.13	0.13	19.90	19.90	55.35	1.30	1.30	1.30
d_A, Approach Delay [s/veh]	5.72			0.11			13.70			36.21		
Approach LOS	A			A			B			E		
d_I, Intersection Delay [s/veh]	7.77											
Intersection LOS	F											

CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: S Main St/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	82.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.365

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	71	313	49	215	208	28	20	138	47	31	161	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	20	40	0	0	0	20	0	19	19	38
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	399	82	314	265	36	26	196	60	59	224	377
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	100	21	79	66	9	7	49	15	15	56	94
Total Analysis Volume [veh/h]	91	399	82	314	265	36	26	196	60	59	224	377
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	333	481	351	371	330	348	346	362	389
Degree of Utilization, x	0.27	1.36	0.90	0.81	0.08	0.73	0.17	0.62	0.97

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.09	23.69	8.79	7.12	0.26	5.58	0.61	3.96	11.20
95th-Percentile Queue Length [ft]	27.31	592.16	219.85	178.11	6.38	139.56	15.19	98.97	280.09
Approach Delay [s/veh]	178.60		50.66		34.70		50.33		
Approach LOS	F		F		D		F		
Intersection Delay [s/veh]	82.82								
Intersection LOS	F								

Intersection Level Of Service Report
Intersection 2: Buena Vista Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	49.0
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	150.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Buena Vista Drive			Buena Vista Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	74	1	79	2	4	19	10	310	62	53	341	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	20	20	0	0	0	80	0	19	76	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	1	121	23	5	24	13	475	79	87	511	25
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	0	30	6	1	6	3	119	20	22	128	6
Total Analysis Volume [veh/h]	94	1	121	23	5	24	13	475	79	87	511	25
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.53	0.01	0.17	0.14	0.03	0.03	0.01	0.00	0.00	0.08	0.01	0.00
d_M, Delay for Movement [s/veh]	46.40	49.03	10.94	31.30	32.53	13.69	8.50	0.00	0.00	8.83	0.00	0.00
Movement LOS	E	E	B	D	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.73	2.73	0.59	0.77	0.77	0.77	0.04	0.00	0.00	0.28	0.00	0.00
95th-Percentile Queue Length [ft/ln]	68.21	68.21	14.87	19.25	19.25	19.25	0.95	0.00	0.00	6.93	0.00	0.00
d_A, Approach Delay [s/veh]	26.55			23.29			0.19			1.23		
Approach LOS	D			C			A			A		
d_I, Intersection Delay [s/veh]	5.37											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Woodland Comm Park Drwy #1-Queensland Ave/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	37.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.290

Intersection Setup

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	150.00	100.00	260.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Wo Co			Queensland Ave			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	64	3	24	6	0	23	20	314	56	17	308	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	20	0	0	0	120	0	0	114	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	4	31	28	0	29	26	520	71	22	507	30
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	1	8	7	0	7	7	130	18	6	127	8
Total Analysis Volume [veh/h]	82	4	31	28	0	29	26	520	71	22	507	30
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	30	0	0	31	0	9	19	0	10	20	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	10	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	28	28	2	16	16	2	15	15
g / C, Green / Cycle	0.31	0.31	0.31	0.03	0.18	0.18	0.02	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.02	0.03	0.01	0.14	0.04	0.01	0.14	0.14
s, saturation flow rate [veh/h]	1814	1615	1705	1810	3618	1615	1810	1900	1863
c, Capacity [veh/h]	564	502	530	51	635	284	45	328	321
d1, Uniform Delay [s]	22.47	21.82	22.14	43.23	35.79	32.05	43.40	36.00	36.02
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.57	0.24	0.41	7.85	2.67	0.46	7.96	5.26	5.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.06	0.11	0.51	0.82	0.25	0.49	0.83	0.83
d, Delay for Lane Group [s/veh]	23.04	22.06	22.55	51.08	38.46	32.51	51.36	41.26	41.47
Lane Group LOS	C	C	C	D	D	C	D	D	D
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.41	0.49	0.92	0.66	5.42	1.30	0.56	5.89	5.82
50th-Percentile Queue Length [ft/ln]	35.13	12.33	22.98	16.46	135.55	32.61	14.10	147.35	145.47
95th-Percentile Queue Length [veh/ln]	2.53	0.89	1.65	1.19	9.24	2.35	1.02	9.88	9.77
95th-Percentile Queue Length [ft/ln]	63.23	22.20	41.37	29.63	231.02	58.70	25.38	246.89	244.36

Movement, Approach, & Intersection Results

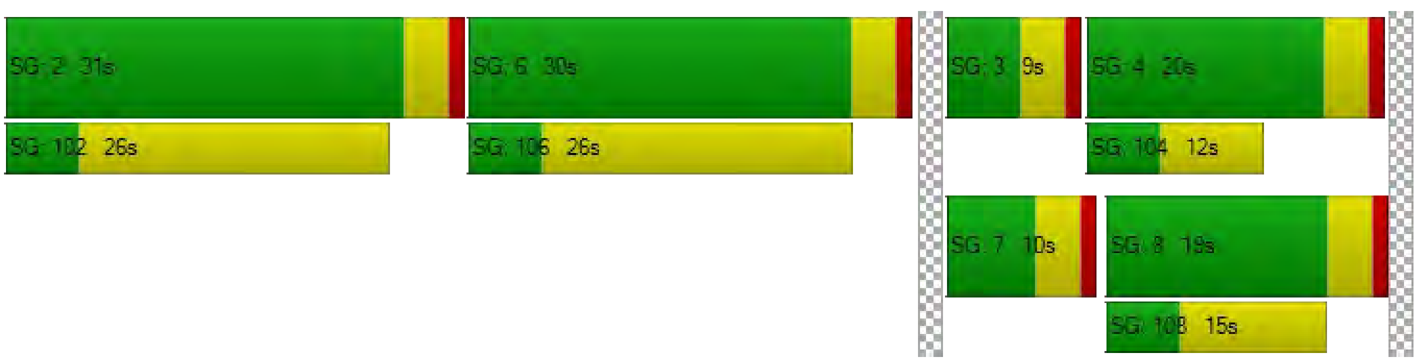
d_M, Delay for Movement [s/veh]	23.04	23.04	22.06	22.55	22.55	22.55	51.08	38.46	32.51	51.36	41.36	41.47
Movement LOS	C	C	C	C	C	C	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	22.78			22.55			38.31			41.76		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	37.73											
Intersection LOS	D											
Intersection V/C	0.290											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
I_p,int, Pedestrian LOS Score for Intersectio	1.999	1.764	2.755	2.732
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	577	599	333	355
d_b, Bicycle Delay [s]	22.80	22.09	31.29	30.47
I_b,int, Bicycle LOS Score for Intersection	1.753	1.654	2.069	2.021
Bicycle LOS	A	A	B	B

Sequence

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Woodland Comm Pk Drwy #2-Wellington Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	39.4
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.038

Intersection Setup

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	550.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Wo Co			Wellington Avenue			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	8	4	31	14	5	15	10	329	5	48	314	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	40	0	0	0	140	0	0	133	38
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	5	40	58	6	19	13	559	6	61	533	61
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	1	10	15	2	5	3	140	2	15	133	15
Total Analysis Volume [veh/h]	10	5	40	58	6	19	13	559	6	61	533	61
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.03	0.06	0.34	0.04	0.03	0.01	0.01	0.00	0.06	0.01	0.00
d_M, Delay for Movement [s/veh]	26.54	30.57	11.58	37.25	39.40	21.42	8.68	0.00	0.00	8.77	0.00	0.00
Movement LOS	D	D	B	E	E	C	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.50	0.50	0.50	1.81	1.81	1.81	0.04	0.00	0.00	0.19	0.00	0.00
95th-Percentile Queue Length [ft/ln]	12.49	12.49	12.49	45.27	45.27	45.27	1.00	0.00	0.00	4.78	0.00	0.00
d_A, Approach Delay [s/veh]	16.03			33.78			0.20			0.82		
Approach LOS	C			D			A			A		
d_I, Intersection Delay [s/veh]	3.16											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 5: Van Ryne Ave/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	18.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.233

Intersection Setup

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Van Ryne Avenue		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	33	107	141	203	263	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	40	0	0	180	171	38
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	136	180	439	506	99
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	34	45	110	127	25
Total Analysis Volume [veh/h]	82	136	180	439	506	99
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.19	0.18	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	18.30	11.38	9.48	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.89	0.72	0.67	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	22.18	17.92	16.71	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.98		2.76		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.30					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Pillsbury Rd/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	46.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.064

Intersection Setup

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	0
Entry Pocket Length [ft]	75.00	100.00	100.00	100.00	125.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	109	39	180	56	25	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	209	0	220	0	140	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	348	50	449	71	172	265
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	13	112	18	43	66
Total Analysis Volume [veh/h]	348	50	449	71	172	265
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	443	519	520	474	507	507
Degree of Utilization, x	0.79	0.10	1.06	0.36	0.26	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.94	0.32	16.04	1.64	1.04	1.04
95th-Percentile Queue Length [ft]	173.54	7.96	401.06	40.94	25.93	25.93
Approach Delay [s/veh]	31.67		85.74	13.18		
Approach LOS	D		F	B		
Intersection Delay [s/veh]	46.46					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 7: Adora Dr/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0
Entry Pocket Length [ft]	90.00	100.00	120.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		Yes	

Volumes

Name	Adora Drive		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	14	6	8	211	225	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	40	41	95	100	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	48	51	364	387	19
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	12	13	91	97	5
Total Analysis Volume [veh/h]	18	48	51	364	387	19
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.06	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.80	9.72	8.24	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.19	0.14	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.54	4.71	3.43	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.29		1.01		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.24					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: Memorial Ln/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.105

Intersection Setup

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	140.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	175.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Memorial Lane		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	33	30	204	23	25	205
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	0	76	19	0	80
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	38	336	48	32	341
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	10	84	12	8	85
Total Analysis Volume [veh/h]	62	38	336	48	32	341
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.05	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	12.08	10.34	0.00	0.00	8.12	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.53	0.53	0.00	0.00	0.08	0.00
95th-Percentile Queue Length [ft/ln]	13.28	13.28	0.00	0.00	2.08	0.00
d_A, Approach Delay [s/veh]	11.42		0.00		0.70	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.64					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Atherton Dr/E Woodward Ave

Control Type:	All-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.536

Intersection Setup

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	225.00	100.00	225.00	150.00	100.00	100.00	100.00	100.00	450.00	180.00	100.00	180.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	East Atherton Drive			East Atherton Drive			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	2	27	73	47	12	5	16	219	1	51	222	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	0	0	0	0	20	19	38	19	0	40	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	34	93	60	15	26	39	317	20	65	323	46
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	9	23	15	4	7	10	79	5	16	81	12
Total Analysis Volume [veh/h]	23	34	93	60	15	26	39	317	20	65	323	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	495	531	589	493	529	586	548	592	666	543	587	604
Degree of Utilization, x	0.05	0.06	0.16	0.12	0.03	0.04	0.07	0.54	0.03	0.12	0.31	0.31

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.15	0.20	0.56	0.41	0.09	0.14	0.23	3.17	0.09	0.40	1.34	1.29
95th-Percentile Queue Length [ft]	3.65	5.12	13.93	10.31	2.19	3.47	5.73	79.29	2.32	10.11	33.44	32.15
Approach Delay [s/veh]	10.01			10.33			14.60			11.25		
Approach LOS	B			B			B			B		
Intersection Delay [s/veh]	12.17											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Moffat Blvd/E Woodward Ave-Veranda Gardens Drwy

Control Type:	Two-way stop	Delay (sec / veh):	73.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

Intersection Setup

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	Moffat Boulevard			Moffat Boulevard			East Woodward Avenue			Veranda Gardens Driveway		
Base Volume Input [veh/h]	279	135	0	2	126	27	40	0	296	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	0	0	0	0	20	19	0	19	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	376	172	0	3	161	54	70	0	396	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	94	43	0	1	40	14	18	0	99	0	0	0
Total Analysis Volume [veh/h]	376	172	0	3	161	54	70	0	396	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	No
Number of Storage Spaces in Median	0	0	2	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.28	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.46	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	8.63	0.00	0.00	7.54	0.00	0.00	28.95	27.76	12.72	73.62	30.47	9.84
Movement LOS	A	A	A	A	A	A	D	D	B	F	D	A
95th-Percentile Queue Length [veh/ln]	1.13	0.00	0.00	0.01	0.01	0.01	1.32	1.32	2.46	0.06	0.06	0.06
95th-Percentile Queue Length [ft/ln]	28.20	0.00	0.00	0.13	0.13	0.13	32.88	32.88	61.51	1.52	1.52	1.52
d_A, Approach Delay [s/veh]	5.92			0.10			15.16			41.73		
Approach LOS	A			A			C			E		
d_I, Intersection Delay [s/veh]	8.44											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 11: Project Driveway #1/E Woodward Ave

Control Type:	Two-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.150

Intersection Setup

Name	Project Driveway #1		East Woodward Avenue		East Woodward Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	10.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Driveway #1		East Woodward Avenue		East Woodward Avenue	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	136	0	220	0	140
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-34	34	0	24
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	136	0	254	0	164
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	34	0	64	0	41
Total Analysis Volume [veh/h]	0	136	0	254	0	164
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.15	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	9.67	0.00	0.00	0.00	0.00
Movement LOS		A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.53	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	13.18	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.67		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.37					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 12: Pillsbury Rd/Project Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.180

Intersection Setup

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		10.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Pillsbury Road		Pillsbury Road		Project Driveway #2	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	52	30	0	140	0	157
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	-5	5	0	0	0	24
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	35	0	140	0	181
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	9	0	35	0	45
Total Analysis Volume [veh/h]	47	35	0	140	0	181
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.18
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	9.37
Movement LOS	A	A		A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.65
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	16.36
d_A, Approach Delay [s/veh]	0.00		0.00		9.37	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.21					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 13: Pillsbury Rd/Brenda Lee Dr-Project Driveway #3

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.081

Intersection Setup

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	┐├			╋			╋			╋		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	60.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			10.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Pillsbury Road			Pillsbury Road			Brenda Lee Drive			Project Driveway #3		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	30	10	140	0	0	0	0	0	38	0	52
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	-1	1	21	-21	0	0	0	0	6	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	29	11	161	0	0	0	0	0	44	0	52
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	3	40	0	0	0	0	0	11	0	13
Total Analysis Volume [veh/h]	0	29	11	161	0	0	0	0	0	44	0	52
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.05
d_M, Delay for Movement [s/veh]	7.20	0.00	0.00	7.53	0.00	0.00	12.28	12.05	8.30	12.39	12.74	9.19
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.34	0.34	0.34	0.00	0.00	0.00	0.45	0.45	0.45
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	8.48	8.48	8.48	0.00	0.00	0.00	11.25	11.25	11.25
d_A, Approach Delay [s/veh]	0.00			7.53			10.88			10.66		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	7.53											
Intersection LOS	B											

PLUS PROJECT TRAFFIC CONDITIONS
WITH MITIGATION

Intersection Level Of Service Report

Intersection 1: S Main St/E Woodward Ave

Control Type:	Signalized	Delay (sec / veh):	15.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.647

Intersection Setup

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	150.00	100.00	100.00	40.00	100.00	100.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			Yes		

Volumes

Name	South Main Street			South Main Street			East Woodward Avenue			East Woodward Avenue		
Base Volume Input [veh/h]	71	313	49	215	208	28	20	138	47	31	161	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750	1.2750
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	17	34	0	0	0	17	0	16	16	33
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	399	79	308	265	36	26	193	60	56	221	372
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	100	20	77	66	9	7	48	15	14	55	93
Total Analysis Volume [veh/h]	91	399	79	308	265	36	26	193	60	56	221	372
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	26	0	0	26	0	0	34	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	35	35	35	35	17	17	17	17	17
g / C, Green / Cycle	0.59	0.59	0.59	0.59	0.28	0.28	0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.08	0.26	0.33	0.16	0.03	0.14	0.05	0.12	0.23
s, saturation flow rate [veh/h]	1095	1846	931	1861	837	1824	1144	1900	1615
c, Capacity [veh/h]	635	1088	495	1097	252	506	277	527	448
d1, Uniform Delay [s]	9.21	6.84	15.98	6.04	21.98	18.22	23.52	17.76	20.39
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	1.29	5.78	0.62	0.18	0.77	0.36	0.53	4.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.44	0.62	0.27	0.10	0.50	0.20	0.42	0.83
d, Delay for Lane Group [s/veh]	9.68	8.12	21.76	6.66	22.16	18.99	23.87	18.29	24.42
Lane Group LOS	A	A	C	A	C	B	C	B	C
Critical Lane Group	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.65	2.79	3.94	1.53	0.29	2.61	0.67	2.20	4.61
50th-Percentile Queue Length [ft/ln]	16.29	69.84	98.50	38.18	7.35	65.14	16.64	55.11	115.29
95th-Percentile Queue Length [veh/ln]	1.17	5.03	7.09	2.75	0.53	4.69	1.20	3.97	8.13
95th-Percentile Queue Length [ft/ln]	29.32	125.72	177.30	68.72	13.23	117.25	29.96	99.20	203.33

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.68	8.12	8.12	21.76	6.66	6.66	22.16	18.99	18.99	23.87	18.29	24.42
Movement LOS	A	A	A	C	A	A	C	B	B	C	B	C
d_A, Approach Delay [s/veh]	8.37			14.30			19.28			22.29		
Approach LOS	A			B			B			C		
d_I, Intersection Delay [s/veh]	15.82											
Intersection LOS	B											
Intersection V/C	0.647											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	21.71
I_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	3.078
Crosswalk LOS	F	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	733	999	999
d_b, Bicycle Delay [s]	12.06	12.06	7.52	7.52
I_b,int, Bicycle LOS Score for Intersection	2.498	2.564	2.020	2.630
Bicycle LOS	B	B	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX C

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: **Saturday AM**

Scenario: **CP**

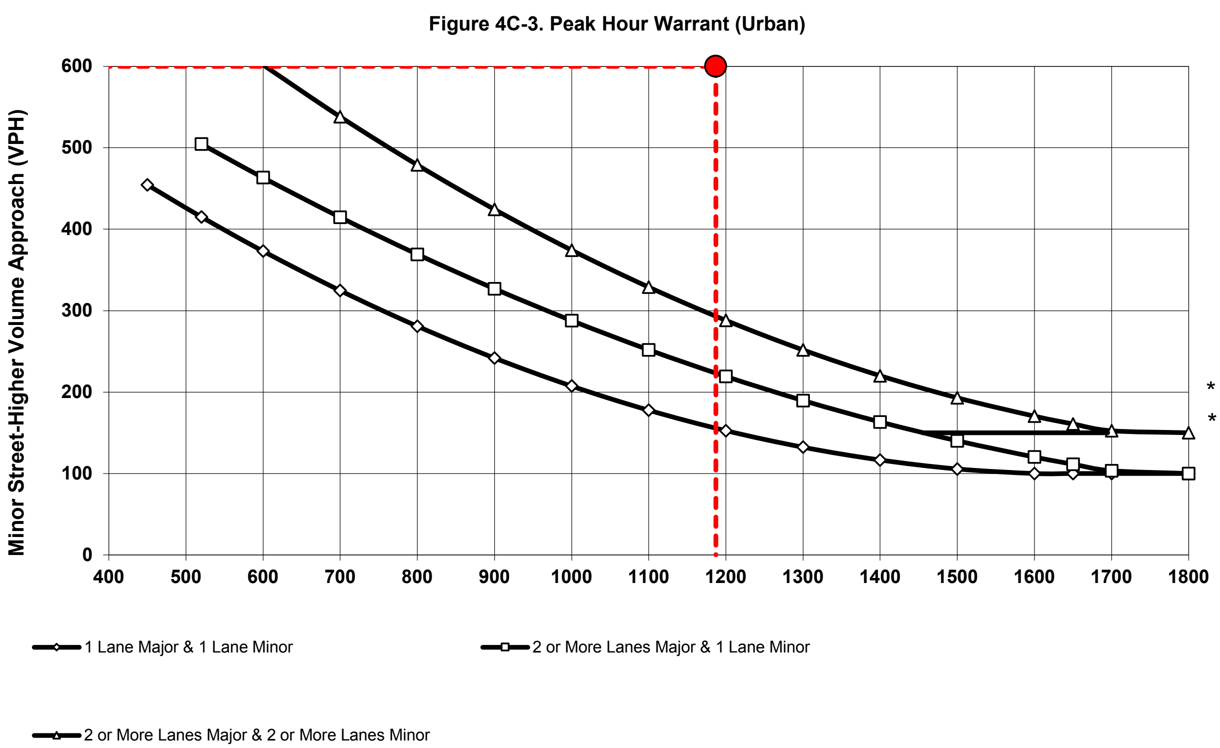
Major Street: **South Main Street**

Minor Street: **East Woodward Avenue**

Total of Both Approaches (VPH): **1187**
Number of Approach Lanes: **2**

Higher Volume Approach (VPH): **660**
Number of Approach Lanes: **2**

SIGNAL WARRANT SATISFIED



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revision 3 (March 9, 2018)

CP Conditions
Saturday AM Peak Hour Volume Warrant
South Main Street / East Woodward Avenue